From: Stephanie Brady
To: Martin, John
Subject: Re: 1002 EA Meeting - CONTAINS SOLICITOR ADVICE - DO NOT RELEASE
Date: Friday, November 3, 2017 8:59:27 AM

---

b5-DP/AC [redacted]

Sent from my iPhone

On Nov 3, 2017, at 6:37 AM, Martin, John <john_w_martin@fws.gov> wrote:

> b5-DP/AC [redacted]
>
> On Fri, Nov 3, 2017 at 6:30 AM, Stephanie Brady <stephanie_brady@fws.gov> wrote:
>
> Tracy is working on b5-DP/AC [redacted] but she may need your review/advice etc when you return - thx
>
> Sent from my iPhone
>
> On Nov 3, 2017, at 5:55 AM, Martin, John <john_w_martin@fws.gov> wrote:
>
> Do I have a role in this?
>
> ---------- Forwarded message ----------
> From: **Gieryic, Michael** <mike.gieryic@sol.doi.gov>
> Date: Tue, Oct 31, 2017 at 1:11 PM
> Subject: 1002 EA Meeting - CONTAINS SOLICITOR ADVICE - DO NOT RELEASE
> To: Mitch Ellis <mitch_ellis@fws.gov>, ryan_mollnow@fws.gov, stephanie_brady@fws.gov, Socheata Lor <socheata_lor@fws.gov>, Tracy Fischbach <tracy_fischbach@fws.gov>, john_w_martin@fws.gov, Steve Berendzen <steve_berendzen@fws.gov>, Doug Damberg <doug_damberg@fws.gov>, Joanna Fox <joanna_fox@fws.gov>
> Cc: Joseph Darnell <joe.darnell@sol.doi.gov>
>
> All,
>
> b5-DP/AC [redacted]

b5-DP/AC

b5-DP/AC

[redacted]

[redacted]

[redacted]

[redacted]

Mike Gieryic
Attorney-Adviser
Office of the Regional Solicitor
U.S. Department of the Interior
4230 University Drive, Suite 300
Anchorage, AK 99508
Phone: (907) 271-1420; Fax: (907) 271-4143
mike.gieryic@sol.doi.gov

From:	Conn, Sarah
To:	Neesha Stellrecht
Subject:	Fwd: Subsistence: Meeting Advisory: North Slope Subsistence Regional Advisory Council to meet in Utqiagvik
Date:	Friday, November 3, 2017 11:33:22 AM
Attachments:	ATT00001.txt MA NSRAC RAC Fall Meeting.pdf NSRAC_Fall2017_Meeting_Flyer.pdf ATT00002.txt nsrac_fall2017_meeting_book_smallest.pdf

---

Just an FYI in case it is of use to you or the Barrow Crew.

Cheers,

Sarah

---------- Forwarded message ----------
From: **Damberg, Carol** <carol_damberg@fws.gov>
Date: Thu, Nov 2, 2017 at 4:33 PM
Subject: Fwd: Subsistence: Meeting Advisory: North Slope Subsistence Regional Advisory Council to meet in Utqiagvik
To: Aaron Martin <aaron_e_martin@fws.gov>, Aaron Webber <aaron_webber@fws.gov>, Anna-Marie Benson <anna-marie_benson@fws.gov>, Bill Carter <bill_carter@fws.gov>, Bill Pyle <bill_pyle@fws.gov>, Bill Spearman <bill_spearman@fws.gov>, Blair Flannery <Blair_Flannery@fws.gov>, Brad Scotton <brad_scotton@fws.gov>, Cara Lewis <cara_lewis@fws.gov>, Carol Damberg <Carol_Damberg@fws.gov>, Catherine Bradley <catherine_bradley@fws.gov>, Daniel Rinella <daniel_rinella@fws.gov>, Fredrick Bue <fredrick_bue@fws.gov>, Gerald Maschmann <Gerald_Maschmann@fws.gov>, Hansel Klausner <hansel_klausner@fws.gov>, Hollis Twitchell <hollis_twitchell@fws.gov>, James Boersma <james_boersma@fws.gov>, Jan Conitz <jan_conitz@fws.gov>, Jason Everett <jason_everett@fws.gov>, Jeff Melegari <Jeff_Melegari@fws.gov>, Jeffrey Olsen <jeffrey_olsen@fws.gov>, Jeffry Anderson <jeffry_anderson@fws.gov>, Jenifer Kohout <jenifer_kohout@fws.gov>, Jeremy Carlson <Jeremy_Carlson@fws.gov>, Jeremy Havener <jeremy_havener@fws.gov>, Jimmy Fox <Jimmy_Fox@fws.gov>, John_Wenburg <John_Wenburg@fws.gov>, Jonathon Gerken <jonathon_gerken@fws.gov>, Joshua Ashline <joshua_ashline@fws.gov>, Katrina Liebich <katrina_liebich@fws.gov>, Ken Harper <ken_harper@fws.gov>, Kenneth Gates <kenneth_gates@fws.gov>, Kevin Payne <kevin_payne@fws.gov>, Kevin Van Hatten <kevin_vanhatten@fws.gov>, Kyle Graham <kyle_graham@fws.gov>, Lewis Coggins <lewis_coggins@fws.gov>, Mark Bertram <mark_bertram@fws.gov>, Michael Buntjer <michael_buntjer@fws.gov>, Michael Daigneault <michael_Daigneault@fws.gov>, Nathan Berg <nathan_berg@fws.gov>, Neil Stichert <neil_stichert@fws.gov>, Ora Schlei <ora_russ@fws.gov>, Penelope Crane <penelope_crane@fws.gov>, Randal Loges <randal_loges@fws.gov>, Randy J Brown <Randy_J_Brown@fws.gov>, Ray Hander <Ray_Hander@fws.gov>, Sarah Conn <Sarah_Conn@fws.gov>, Stephen Arthur <stephen_arthur@fws.gov>, Stewart Cogswell <stewart_cogswell@fws.gov>, Tina Moran <tina_moran@fws.gov>, Todd Eskelin <todd_eskelin@fws.gov>, Vince Mathews <vince_mathews@fws.gov>, William Smith <william_smith@fws.gov>, FW7 Refuge Deputy Managers <fw7_refuge_managers-deputies@fws.gov>
Cc: Socheata Lor <socheata_lor@fws.gov>, Doug Damberg <doug_damberg@fws.gov>, Ronnie Sanchez <ronnie_sanchez@fws.gov>, David Wigglesworth <david_wigglesworth@fws.gov>

All - This is the **Last RAC meeting**! Attached is the meetin material for the North Slope RAC. - meeting is Nov 11-17 in Utquiavik

Carol Damberg

Regional Subsistence Coordinator

U.S. Fish & Wildlife Service, Alaska Region 7

1011 East Tudor Road

Anchorage, AK 99503

Tel: (907) 786-3400

Work Cell: (907) 723-2461

Cell- Personal: (907)-891-9004

Carol_damberg@fws.gov-

---------- Forwarded message ----------
From: **Federal Subsistence News** <fws-fsb-subsistence@lists.fws.gov>
Date: Tue, Oct 31, 2017 at 1:07 PM
Subject: Subsistence: Meeting Advisory: North Slope Subsistence Regional Advisory Council to meet in Utqiagvik
To: FW7 Subsistence <fw7_subsistence@fws.gov>
Cc: Karen Clark <karen_clark@fws.gov>, Sara Boario <sara_boario@fws.gov>

****
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For Immediate Release:
October 31, 2017

North Slope Subsistence Regional Advisory Council to meet in Utqiagvik

The North Slope Subsistence Regional Advisory Council will meet November 15-17, 2017 at the Inupiat Heritage Center in Utqiagvik. The meeting will begin at 9:00 a.m. daily.

The Council will discuss proposals to change Federal subsistence hunting and trapping regulations and other issues related to subsistence in the North Slope Region.

The public is welcome to attend and participate in this meeting. To teleconference into this meeting, dial toll-free (866) 864-5314 (passcode: 3091862).

All meeting materials may be found here: https://www.doi.gov/subsistence/regions. You may also request to have these documents mailed, faxed, or emailed to you by contacting the Office of Subsistence Management. The Federal Subsistence Board is committed to providing access to these meetings for all participants. Please direct requests for sign language interpreting services, closed captioning, or other accommodation needs to the Office of Subsistence Management at (800) 478-1456 / (907) 786-3888 or by e-mail at subsistence@fws.gov at least seven business days prior to the meeting.

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*### *

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Caron McKee
Outreach Coordinator, Office of Subsistence Management
U.S. Fish and Wildlife Service
1011 E. Tudor Road
Anchorage, Alaska 99503-6199
(907) 786-3880
caron_mckee@fws.gov

Website: https://www.doi.gov/subsistence/
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U.S. Fish and Wildlife Service
Bureau of Land Management
National Park Service
Bureau of Indian Affairs

Federal Subsistence Board
Meeting Advisory

Forest Service

For Immediate Release:
October 31, 2017

Contact: Caron McKee
(907) 786-3880 or (800) 478-1456
caron_mckee@fws.gov

North Slope Subsistence Regional Advisory Council to meet in Utqiagvik

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North Slope Subsistence Regional Advisory Council Meeting

Inupiat Heritage Center
Utqiagvik

November 15 - 17, 2017
9:00 am ~ 5:30 pm daily

TELECONFERENCE: call the toll free number:
1-866-864-5314
participant passcode: 3091862

Contact Eva Patton, Coordinator
Phone: (907)786-3358
Email: eva_patton@fws.gov

U.S. Fish and Wildlife Service, Office of Subsistence Management
Federal Subsistence Management Program

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NORTH SLOPE SUBSISTENCE REGIONAL ADVISORY COUNCIL

Meeting Materials

November 15-17, 2017
Utqiagvik

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On the cover...

The Teshekpuk Caribou Herd is an important subsistence resource to the residents of Ataqasuk, Barrow, Nuiqsut, and Wainwright.

Photo by Bob Wick, BLM

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NORTH SLOPE SUBSISTENCE REGIONAL ADVISORY COUNCIL

Inupiat Heritage Center
Utqiagvik

November 15-17, 9:00 am ~ 5:30 pm

TELECONFERENCE: call the toll free number: 1-866-864-5314, then when prompted enter the passcode: 3091862.

PUBLIC COMMENTS: Public comments are welcome for each agenda item and for regional concerns not included on the agenda. The Council appreciates hearing your concerns and knowledge. Please fill out a comment form to be recognized by the Council chair. Time limits may be set to provide opportunity for all to testify and keep the meeting on schedule.

PLEASE NOTE: These are estimated times and the agenda is subject to change. Contact staff for the current schedule. Evening sessions are at the call of the chair.

AGENDA

*Asterisk identifies action item.

1. **Invocation**
2. **Call to Order** (*Chair*)
3. **Roll Call and Establish Quorum** (*Secretary*).....4
4. **Welcome and Introductions** (*Chair*)
5. **Review and Adopt Agenda*** (*Chair*) 1
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7. **Reports**
   - Council Member Reports
   - Chair's Report
8. **Call for Regional Advisory Council Applications and Nominations for 2018**
9. **Public and Tribal Comment on Non-Agenda Items** (available each morning)
10. **Old Business** (*Chair*)
    - Special Action Updates
      - WSA17-02 23
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11. New Business (*Chair*)

a. Wildlife Proposals* (OSM Wildlife/Anthropology)

Agency reports with updates relevant to the wildlife proposals will be provided prior to proposal review

Regional Proposals

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WP18-56: Sheep Unit 25A, AVSMA - Open Arctic Village Sheep Management Area to harvest by non-Federally qualified users 405

Statewide Proposals

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Discussion on other regions proposals with no C&T Determinations

b. 2018 Fisheries Resource Monitoring Program (*OSM Fisheries/Anthropology*) 518

c. Identify Issues for FY2017 Annual Report* (*Council Coordinator*) 547

12. Agency Reports

(Time limit of 15 minutes unless approved in advance)

Tribal Governments

Native Organizations

National Park Service

Gates of the Arctic National Park and Preserve

US Fish and Wildlife Service

Arctic National Wildlife Refuge

Barrow Field Office

Bureau of Land Management

National Petroleum Reserve–Alaska

Alaska Department of Fish and Game

Caribou updates

Chandler Lake FRMP Research Project Update

Arctic Landscape Conservation Cooperative 555

Office of Subsistence Management

13. Future Meeting Dates*

Confirm Winter 2018 meeting date and location 559

Select Fall 2018 meeting date and location 560

14. Closing Comments

15. Adjourn (*Chair*)

To teleconference into the meeting, call the toll free number: 1-866-864-5314, then when prompted enter the passcode: 3091862.

Reasonable Accommodations

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REGION 10
North Slope Subsistence Regional Advisory Council

Seat	Year Appointed *Term Expires*	Member Name and Community	
1	1998 ***2017***	**Gordon R. Brower** Barrow	**Chair**
2	2011 ***2019***	**Robert V. Shears** Barrow	
3	2016 ***2019***	**Wanda T. Kippi** Atqasuk	**Secretary**
4	2015 ***2019***	**Steve A. Oomituk** Point Hope	
5	***2017***	***VACANT***	
6	***2017***	***VACANT***	
7	***2017***	***VACANT***	
8	2016 ***2018***	**Ester S. Hugo** Anaktuvuk Pass	
9	2006 ***2018***	**Lee Kayotuk** Kaktovik	**Vice Chair**
10	2002 ***2018***	**Rosemary Ahtuangaruak** Barrow	

NORTH SLOPE SUBSISTENCE REGIONAL ADVISORY COUNCIL

Inupiat Heritage Center
Utqiagvik, Alaska

March 15-16, 2017

MEETING MINUTES

Council Members Present:

Gordon Brower
Lee Kayotuk
Wanda Kippi
Ester Hugo
Steve Oomituk (via teleconference)
Rosemary Ahtuangaruak – (via teleconference)

Meeting Attendees:
Eva Patton, Council Coordinator, Office of Subsistence Management
Stewart Cogswell, Acting Deputy Regional Director, Office of Subsistence Management
Tom Evans, Wildlife Biologist, Office of Subsistence Management
Joshua Ream, Anthropologist, Office of Subsistence Management
Ernest Nageak, Native Liaison, Barrow Field Office, USFWS
Marcy Okada, Subsistence Coordinator, Gates of the Arctic National Park.
Hollis Twitchell, Assistant Manager, Arctic National Wildlife Refuge
Vince Mathews, Subsistence Coordinator for Arctic, Kanuti and Yukon Flats
Ryan Klimstra, Wildlife Biologist, Alaska Department of Fish and Game, Fairbanks
Darren Bruning, Area Management Biologist, Alaska Department of Fish and Game, Fairbanks
Brendon Scanlon, Fisheries Research Biologist, Alaska Department of Fish and Game, Fairbanks
Pat Petrivelli, Anthropologist, Interagency Staff Committee, Bureau of Indian Affairs
Brian Person, Biologist, North Slope Borough Division of Wildlife Management
Roy M. Nageak, BLM NPR-A, Barrow Office
Doreen Lampe, Director, Inupiat Community of the Arctic Slope (ICAS)
Clarissa Elbertai, Inupiat Community of the Arctic Slope (ICAS)
Aubie Greg, Inupiat Community of the Arctic Slope (ICAS)

Via teleconference:
Chester Galloway, Wildlife and Parks Director, Native Village of Point Hope
Lupita Henry, Native Village of Point Lay
Fred Tukroot, Point Lay
Carolina Behe, Inuit Circumpolar Council

Kumi Rattenbury, Wildlife Biologist, Gates of the Arctic National Park
Hillary Robinson, Chief of Resources, Western Arctic Parklands
Lincoln Parrett, Area Research Manager, Alaska Department of Fish and Game, Fairbanks
Beth Lenart, Wildlife Biologist, Alaska Department of Fish and Game, Fairbanks
Jill Klein, Special Assistant to the Commissioner, Alaska Department of Fish and Game
Pippa Kenner, Anthropologist, Office of Subsistence Management
Lisa Maas, Wildlife Biologist, Office of Subsistence Management
Robbin LaVine, Anthropologist, Office of Subsistence Management
Clarence Summers, National Park Service, Interagency Staff Committee
Dan Sharp, Bureau of Land Management, Interagency Staff Committee

Welcome and introductions:
Invocation provided by Roy Nageak, Sr.

Roll Call: New Council members Wanda Kippi of Atqasuk and Ester Hugo of Anaktuvuk Pass were welcomed to their first meeting. Council members Rosemary Ahtuangaruak and Steve Oomituk were unable to travel to attend the meeting in person but participated via teleconference. Robert Shears unable to attend due to conflict with new job schedule. Sam Kunaknana moved outside of the region and is no longer eligible to serve on the North Slope Subsistence Regional Advisory Council. Quorum was established for the majority of the meeting for all action items. With the Council membership currently at seven members, the presence of only five members was required to establish a quorum.

The Council nominated Gordon Brower to serve as Acting Chair for this meeting until the election of officers was completed. With a quorum present, the motion carried.

Review and Adopt Agenda: The Council reviewed the agenda and added Tribal Consultation and Alaska Native Relations policy updates and voted to rearrange some agenda items to accommodate timing for guest speakers for agency reports. Wildlife Special Action XXX- to the agenda for review and recommendation to the Board and increased the time limit for the ADF&G caribou report to have a full review and discussion on the status of the caribou herds. A muskox update was also added to the agenda. The Council also voted to address all action items on the agenda first while they had quorum.

Review and Approve Previous Meeting Minutes: The Council reviewed and approved the October 31 and November 1, 2016 meeting minutes. A correction was made to the spelling for public participant Lewis Brower.

Election of Officers: The Council elected the following officer positions by unanimous consent:
Gordon Brower – Chair
Lee Kayotuk – Vice Chair
Secretary – Wanda Kippi

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Appointment to the Gates of the Arctic Subsistence Resource Commission: Marcy Okada, Subsistence Coordinator provided the Council with background on the Park Service Subsistence Resource Commission (SRC). There are a total of nine seats: three appointed by the Governor of the State of Alaska, three appointed by the Secretary of the Interior, and three RAC appointments (one from each of the three RAC regions surrounding the park). The is a vacancy for a sitting North Slope RAC member from a resident zone community to Gates of the Arctic National Park with knowledge of subsistence uses in the park to serve on the SRC. The Council made a motion to nominate Esther Hugo of Anaktuvuk Pass to serve as the North Slope Subsistence Regional Advisory Council representative to the Gates of the Arctic National Park SRC. Motion passed unanimously.

Council member reports:

Gordon Brower – Utqiagvik: Gordon expressed concern about Council membership needing representation from all communities across the North Slope region and balance so as not to have "overrepresentation" from Barrow. He noted that Harry Brower, Jr. recent resignation from the Council when he was elected Mayor of the North Slope Borough left another vacant seat on the Council. Gordon noted that people are very busy and wear many hats and new Council member recruitment has been difficult in villages where the Council has not had an opportunity to meet. He stressed the very important work of the Council for subsistence and communities in the region and he said he takes his role and that of the Council very seriously and makes a commitment to make the meetings a priority even with his busy work schedule.

Gordon reported that fishing was very difficult because even though the fish were running good the temperatures were too warm to freeze the fish and eggs right away to properly preserve them. He noted that most people he heard from in Barrow had indicated that the fall temperatures were too warm to freeze broad whitefish outside as they usually do when they harvest the fall spawning run and they had problems with their fish spoiling. This was the first time he was not able to get fish himself and had to look to the neighboring community of Nuiqsut to order some sacks of fish and fly it back for his own consumption.

Gordon relayed other fisheries concerns reported to him from other local fishermen about declining whitefish catches in Tusikruak Lake, which is a big lake about 18 miles southeast of Barrow. He noted this lake is heavily used for subsistence and has the best tasting whitefish but productivity has been much reduced in recent years and he is interested in a study to learn why. Gordon noted that the caribou were pretty good and that many people got caribou even though they had to go looking for them. The caribou in the fall right before the rut were in good condition.

Gordon reported that he hears from people for over the past four years that connex boxes placed for a science project by USGS in the migration of the caribou migration are still causing the problems and the caribou are not migrating through their usual path. He noted that he had an opportunity to view the area by helicopter and could see the connex box and numerous tents set up in an area of migration pathways visible from the air. Gordon described the area as the main

caribou trail that would come up between Aluktuk and Chipp and Ikpikpuk and go out towards Ishuluminik but now they are not following that path anymore, they have moved to the west.

Gordon relayed that in his work he talks with many villages and they are worried about subsistence. The North Slope Borough has been working on comprehensive planning and has been documenting each villages hunting and subsistence areas termed "are of influence" that warrant more protections in the case of development and help inform projects of important subsistence use area and develop policies to protect subsistence. Gordon expressed that the Federal land managers and OSM should follow similar initiatives to document and protect important subsistence areas and manage to allow continued subsistence opportunities in these areas. Gordon referenced Squirrel River in Unit 23 as an example of an area where they have been hearing subsistence concerns for years and would benefit from some comprehensive planning. He stressed that it is important for communities to pass on traditional subsistence knowledge not passing on an argument and stress that comes with ongoing user conflict issues. Gordon noted that he takes these subsistence concerns very seriously and are issues of food security for these communities.

Gordon discussed his work with the North Slope Borough Planning Department and facilitating mitigation planning when permitting projects in the region that may impact subsistence. He encouraged people to contact the NSB Planning Department to discuss options for mitigation planning.

Rosemary Ahtuangaruak – Nuiqsut: Rosemary shared about the loss of her mom and how grateful she was for friends and family from every village in the region that shared traditional foods with them and her mom was able to get all the Inupiaq food varieties she requested that helped to feel better. Rosemary stressed that this sharing network is a very important part of their culture and the traditional foods is especially important when families are in need. She noted having discussions about particular foods and then cousins would come knocking to share that. Rosemary stressed that all these varieties of subsistence foods and the traditions of sharing are very important to sustain for future generations.

Rosemary shared her involvement in the FRMP process through the Working Group formed by the Council to address priority information needs and community engagement in research. She stressed that it is important for communities to be engage effectively in the research and monitoring process around their subsistence areas. She noted that the Tribes in the region will be here for generations to come and research projects come through each with their own ways but that it is important for communities to own these projects. Rosemary expressed concern that they have to defend against their traditional knowledge being cut down to bite sized pieces and in some cases taken out of context and reports written without their knowledge or used to allow development projects go forward.

Rosemary stressed that it is important for communities to be involved in the process to make informed decisions on whether projects should occur of not or if they should take place at a different time of year to avoid interfering with subsistence activities. She noted she works very hard to stay informed and advocated for the community so that subsistence activities are not impacted. Rosemary stressed communicating effectively and making sure that even projects that

are desired for the information do not end up competing with subsistence activities in the area because there is already a lot of traffic.

Wanda Kippi – Atqasuk: Wanda reported that hunting this year was a little slow due to many bear in the usual hunting areas around Atqasuk that scared the caribou and reindeer away. This caused people to have to travel much farther to hunt this year. Wanda reported that the Anakluk and Pikutuak whitefish they usually catch were a little low in numbers this summer. She noted that there were a lot of dog salmon (Chum Salmon) this year and wondered what the change was that caused so many dog salmon to come all the way up the river to the lakes where they fish for whitefish. She relayed that when they put their nets out to catch Anakluk and Piktutuak that they ended up catching more dog salmon. She noted the dog salmon tastes different than the whitefish they traditionally catch to eat and prefer. Wanda reported that it was a late freeze-up this year and that freeze-up is happening later and later each year. Gordon concurred with her that the later timing of freeze up has caused more and more of a hardship for fishing in the fall in mid-September to mid-October.

Wanda noted that she had enquired with the community but did not have any specific reports or proposals from the Tribe or City Council of Atqasuk at this time.

Lee Kayotuk – Kaktovik: Lee shared that it was a "rough" winter in the sense that it was very windy weather with storms with up to 80 mile an hour winds. This made it very difficult for people to be able to travel, camp, or hunt for nearly two months this winter. Lee noted that there were some caribou or reindeer 26 miles to the east of Kaktovik but people had to hunt mostly around the village because of the windy weather conditions. He hoped people would be able to get out to hunt and get some meat for the community soon. Right now they don't have much snow and the polar bears have not showed up yet.

Steve Oomituk – Point Hope: Steve shared that it had been a good year for subsistence. There were a lot of caribou this year – a lot better than last year. The caribou remained close to the community, just beyond the snow fence, and they can still be heard all over the area nearby. Steve relayed that he felt the closure to non-resident hunters in Unit 23 had helped the caribou to migrate towards Point Hope and they came close to the community for the first time in quite a while. It was a good year for caribou harvest and many of the young hunters caught their first caribou. Steve relayed that they saw a lot of calves this year and was hopeful the caribou population would come back up.
Steve noted that the ice conditions were good this year – very thick. It was a cold winter with an east wind and a lot of snow. Point Hope hunters saw a lot of wolves this year but not as many wolverines.

Esther Hugo – Anaktuvuk Pass: Esther relayed that she was very happy to be at the Council meeting. She shared that there was not a much activity going on in her community right now. Her son-in law got a caribou recently but they had to travel very far north to look for them since the caribou are not close by but the winter temperatures were cold minus 30 degrees. They have had issue with caribou – they did come in the fall time finally this year but the caribou came through so fast and many were not able to catch what they needed to make it through the winter. Esther relayed they only got one caribou and she tried to make it last but couldn't and ended up

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having to buy some reindeer meet shipped in from outside and it was so expensive. People are hurting in Anaktuvuk Pass especially the elders and families without hunters. People eat caribou and there is really no substitute and like chicken or steaks or hotdogs bought at the store are so expensive it is not affordable especially since there are many who are unemployed. These things do not last like being able to hunt caribou.
Ester noted that there was not much trapping this year but there were a lot of wolves close to the community and even on the airstrip and that they were very skinny and looking hungry.

Public and Tribal Comment on Non-agenda items:

Roy Nageak - Barrow expressed concern about trapping close to the community in areas where children might be playing or people out walking their dogs. He relayed an incident near Barrow where a dog got caught in a Conibear trap. He urged people to be cautious and keep trapping activities outside of the vicinity of the community.

Roy shared that through traditional knowledge they were taught how to look at animals and know which way they go, how to utilize them and how not to hunt them to extinction in part by moving to other areas. He relayed that they used to move camp when the fish became low in one place and when to not hunt the caribou during the migration. They also learned the best time of year for hunting like when the caribou go down to the shoreline to get away from the mosquitos is the best time to hunt for making fresh dry meat. They hang the raw meat for 2, 3 or 4 weeks to make drymeat to eat over the wintertime. And then in the fall time when the caribou start to go inland they would go hunting in August to harvest caribou when the fur is good for making clothing. They don't use the hides for clothes as much anymore but they do use the sinew and the fall time is when the caribou are at their fattest to use for (Inupiaq word). He usually sees the caribou run away from the mosquitos and go to Prudhoe Bay, Oliktok, Milne Point, and the big herd now head towards the upper Teshekpuk area. Now however the herd is getting disturbed and harassed around the haul road just at the time they need to go back and get fat for the winter. Roy stressed that when the caribou get harassed they will go someplace else.

Roy relayed that when talking about rules and regulations it was important to remember the elder's teachings from the Inupiaq perspective to not argue about animals. The elders taught that when you start to try to control an animal, say that it is yours, or argue about it that they will go away. He encouraged people to keep that in mind and find a better way to manage and to avoid conflict. Roy also relayed that sometimes Federal or State managers think if there is no feedback from the community that it means it is all right but rather it is the elders not wanting to fight over the animals if they are to be regulated.

Roy relayed that traditional knowledge and Inupiaq values have controlled their way of life for thousands of years. This includes traditional knowledge of the animals and conservation to not deplete the animals. People also learned the caribou migration and knowledge of where the herds have been in previous years and are able to forecast where they will go. He felt the closure in Unit 23 helped the caribou to migrate freely.

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Roy expressed concern about the rising sea level in the region inundating freshwater lakes that are closer to shore close to Wemuska and Kausriluk Lakes. He wonders what the impact is to fish in the region. This lake is used by the anaaklik (whitefish – big or broad) where they stay for a while when they start to spawn. Other inland lakes lost approximately half their water volume this summer such as Sumarok or Kuralik Lake which is one of the biggest lakes next to Barrow and where they used to go for fresh water ice. This was a good year for Kalugrauk (chum salmon). Roy relayed that he has seen more salmon than before but worries about what the interaction with whitefish. Overall he is worried about changing weather patterns and influx of sea water into the lakes will have on their subsistence fish.

Roy stressed the need for State and Federal agencies to work together on management since fish and caribou know no boundaries. He felt the financial challenges at the State level right now would make it difficult to manage across the State and creates a need for the Federal entities to engaged more especially in areas where there is conflict over resources. To manage a species like caribou requires the State and Federal management to work hand in hand and work with local people and their traditional knowledge. Roy stressed management for the overall wellbeing of the caribou herd but he felt if permits were warranted for subsistence hunters all planes involved with hunting in the region should also be tracked with GPS.

Lupita Henry – Point Lay. Lupita spoke on her own behalf as a hunter. She had heard concerns from the community of Point Lay about the registration permit that was coming to the region. People did not think it was fair to the village and community to have to get a permit for hunting caribou. She personally felt she should not have to go out and get a piece of paper to get her own food that is free to catch when she wants. Lupita relayed the story that when September 11th happened and planes were not able to fly the local store was not able to be restocked and the village had no food except for their traditional foods that they hunted. She stressed the importance of having access to their Native foods and to be able to hunt for themselves. Lupita expressed concern for increasing oil and gas development in the region and felt that if caribou was declining big game hunting should be the first to be closed because the subsistence hunters rely on caribou for their food.

Fred Tukroot – Point Lay. Fred introduced himself as an elder born and raised in Point Lay. He relayed that he has watched the fish and wildlife since he was born and while they did not send you to school in those days he grew up learning about the traditional laws of hunting. Fred stressed that people should be proud of their traditional education and that they are doing a good job of what they do as Native people.

Tribal Comments:

Inupiat Community of the Arctic Slope (ICAS) – Doreen Lampe, Executive Director ICAS, a Federally recognized regional tribal government encompassing all eight villages on the Arctic Slope. Doreen addressed the permitting of natural resources and expressed that she hoped that route was not taken since it would pose a burden and hassle for subsistence hunters. Permitting requirements was one of the last things that subsistence hunters and fishers would want to take on. Doreen stressed that there should be consultation directly with the people that would be impacted by the regulations. She relayed that people were really tired of going to meetings and

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have felt like it is one-way flow of information with the proposed regulation being stated and the people who are most affected not taken into consideration until there is a citation for a hunter going over the bag limit.

Doreen reported that ICAS held a strategic plan meeting with all of its villages for the past three years at the ICAS annual meeting. The main concerns raised by villages were the air traffic scaring caribou away from their summer camps. She concurred with comments made by Roy Nageak Sr. that the recommendation of installing GPS tracking systems for managers to track and mange air guiding outfitters would be a good step to help address these concerns. Doreen relayed she had heard many hunters expressing great frustration to the point of radical statements wanting to shoot planes down because the caribou had been deflected away from their summer camps and they were not able to harvest any. She relayed that she brought these concerns to the BLM Subsistence Advisory Committee, noting that there were many organizations that they work with to address subsistence issue on their behalf. ICAS is working on developing a hunter-gatherer commission to help maintain access to traditional hunting and fishing grounds. She relayed that it is difficult for individual hunters or village to address the issues of air traffic interference with their traditional hunting activities but that all together they could help tackle these issues that are affecting all villages across the North Slope region.

Council members concurred that air traffic deflecting caribou was an ongoing concern for their communities. Several Council members relayed observations of aircraft flying low over caribou and some challenges with industry and researchers in the region not heading community feedback on areas and times to avoid disturbing subsistence hunters or deflecting the caribou herds.

Doreen relayed that there are so many local, regional, State and Federal organizations and that they do not communicate effectively with one another. She noted having to attend so man y different meetings and all entities reporting separately of their work. She hope the ICAS Hunter-Gatherer organization could help bridge all of these organizations and information to advocated for the subsistence hunter but getting funding to for a startup has been difficult. Doreen stressed the importance and autonomy of the Tribes in the region and that the tribes themselves have been left out of critical negotiations that were conducted by organizations such as the Nanuq commission. She stressed that above all else the people, Tribes, and traditional way of life and access to healthy habitat matter most. Doreen relayed that there are many organizations trying to manage for a subsistence way of life and conservation but that if oil is found in any North Slope region then it would get re-zoned for development in a heartbeat. She stressed that conservation districts should remain conservation areas and protect subsistence.

Wildlife Closure Review: Tom Evans, Wildlife Biologist for the Office of Subsistence Management provided the Council with an update on the Federal Subsistence Board Closure Policy. Section 804 and 815 of ANILCA allow the Federal Subsistence Board to restrict or close the taking of fish and wildlife by subsistence or non-subsistence users on Federal public lands when necessary for the conservation of healthy fish and wildlife populations or to continue subsistence uses. Closure reviews are conducted every three years to evaluate the status of the wildlife population and any new information that may allow the closure to be rescinded.

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Councils are asked to consider the information and share their knowledge and make a recommendation to the Board.

The current closure under review for the North Slope region addresses musk ox on federal lands in 26C. Hunting is closed to the hunting of muskox in this area except by rural residents from the Village of Kaktovik. Permits issued to Kaktovik will not exceed three percent of the muskox counted in Unit 26C during the pre-calving census. The population has remained very low since 2003 and the State has not had an open season for muskox since 1992. Hollis Twitchell of Arctic Wildlife Refuge shared observations from recent aerial surveys that there was a small group of muskox observed on the Kongakut River in the summer of 2015 but that this group usually resides in Canada. Hollis further relayed that the muskox population on the Refuge had shifted east and west to Canada and along the Dalton Highway but very few had remained within the Refuge.

Currently muskox numbers have been so low that it is in single digits and OSM's prelimary recommendation is to maintain the closure. Council member Lee Kayotuk of Kaktovik expressed support for the closure in the hopes that the population would rebound so that a hunt could be opened again in the future. The Council unanimously supported a motion to maintain the status quo and keep the closure for muskox in Unit 26C.

Call for Call for Federal Wildlife Proposals Development of Wildlife Proposals:

Thomas Evans, OSM Wildlife Biologist, provided the Council with an overview of the Federal Subsistence Wildlife Regulatory Process which occurs every two years alternating with Federal Subsistence Fisheries Proposals. The actual call for proposals was delayed this year due to a hold placed on federal register notices by the New Presidential Administration but Councils are requested to develop proposals on the record at the meeting that can then be submitted later. All proposals submitted through the public process will also come before the Council at the fall 2017 meeting. The Council discussed proposals they would like to submit for consideration by the Federal Subsistence Board at the spring 2018 meeting.

Hollis Twitchell, Arctic National Wildlife Refuge, provided the Council with background and updates on wildlife populations within the Refuge. ADF&G wildlife biologists Beth Lenart and Ryan Klimstra provided the Council with a comprehensive overview and update on the Porcupine, Central Arctic, Teshekpuk, and Western Arctic Caribou Herds for the Council's consideration prior to drafting wildlife proposals. ADF&G staff provided updates on recent Board of Game regulation changes that reduced harvest limits on the Central Artic Herd in order to address the unexpected decline of that herd. OSM staff provided background for reference on proposals planned to be submitted by the Northwest Arctic RAC and the Western Arctic Caribou Herd Working Group.

The Council discussed the closure to non-federally qualified subsistence users to the hunting of caribou on Federal lands in Unit 23 and felt that had been helpful to subsistence communities in that region based on all the feedback they had heard. However, the Council expressed concern that the Unit 23 closure might shift more pressure to Unit 26 and there were already ongoing concerns about the effects of hunting pressure on caribou along the Dalton Highway. Council

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members discussed their traditional knowledge that they were taught to not take the lead caribou – if the first caribou at the head of the heard are allowed to pass, the rest will follow. The Council stressed that fly-in hunters can get ahead of the heard and the highway access allows access to the herd as they migrate through and causes them to deflect their path.

The Council discussed at length the status of the caribou herds and concern for further conservation action needed to support the rebuilding of these herds while rural communities were having a difficult time meeting their subsistence needs. The Council noted it had already taken action in the last regulatory cycle to reduce subsistence caribou harvest on the Western Arctic and Teshekpuk Herd for local conservation efforts to help the herd rebound but that further conservation measures were needed yet while still providing for subsistence priority on Federal lands in the region.

*The Council made a motion to close Federal public lands in Unit 26 to caribou hunting by non-Federally qualified users – with the caveat until such time the harvestable surplus meets and is adequate to open it again and to address user conflicts to provide for a reasonable traditional subsistence experience. The motion passed unanimously.

After discussion with agency staff about the good health and abundant population size of the Porcupine Caribou Herd which largely occurs within Unit 26C the Council amended the motion to only close Federal public lands in Unit 26A and 26B to caribou hunting by non-Federally qualified users to address the caribou herds decline in those units and maintain opportunity for all users to hunt caribou in Unit 26C.

*The Council also made a motion to submit a Temporary Special Action Request to close Federal public lands in Unit 26A and 26B to caribou hunting by non-Federally qualified users beginning July 1, 2017. The motion passed unanimously. The Council felt the Special Action to enact the closure in the year prior to the next regulatory cycle takes affect was necessary to help enact further conservation measures right way and support the rural communities dependent on caribou to meet their subsistence needs. The Council provided the following justification in support of both proposals:

Populations of the Western Arctic (WACH), Teshekpuk (TCH), and the Central Arctic (CACH) herds are in decline. These three populations have experienced declines of approximately 50% over the last decade. Low calf survival and recruitment and high cow mortality are contributing factors to the population decline. In addition, current State regulations allow for hunting bulls through the rut on a portion of State lands in Unit 26B, which are already experiencing a population declines in the CACH. Current harvest rates, if allowed to continue, would likely increase the ongoing population declines or lengthen the recovery period.

The North Slope Subsistence Regional Advisory Council (Council) submitted a proposal to the Federal Subsistence Board for the 2016 wildlife regulatory cycle to reduce subsistence harvest on the WACH and TCH herd which reduced seasons and bag limits for subsistence hunters on Federal lands throughout the range of these two herds. The Council worked with communities and other groups across the North Slope region to gain support for enacting these caribou conservation measures which are in effect on Federal lands in Unit 26 today. Due to continued

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decline of the WACH and TCH herd and the recent dramatic decline of the CACH herd the Council now sees the need further reduce harvest from these herds and reduce user conflict to ensure that the herd is sustained and a subsistence priority is in place on Federal lands. This request will provide for better harvest opportunities for local people (Federally qualified subsistence users), and will reduce user conflicts. Caribou are not only important traditional, cultural and nutritional resource but traditional foods but also are important for the food security and health of the local subsistence users. Communities in the North Slope region are highly dependent on caribou and Anaktuvuk Pass in particular relies on caribou as the primary subsistence resource to meet their nutritional needs. Long-term hunting activity by non-local users has jeopardized the continuation of local subsistence use of caribou through both direct and indirect effects. Changes in the caribou migration patterns, disruption of the lead animals, increased competition at preferred hunting sites, aircraft noise, and having to travel further to harvest caribou are some of the examples of user conflicts cited by local subsistence users. Further changes to harvest regulations are required to provide basic subsistence needs to local users and help reverse or slow the declines in the WACH, TCH, and CACH populations.

This proposal follows up on the actions already taken by local subsistence hunters to reduce subsistence harvest to prevent further decline of these caribou herds and requests the next step to close Federal public lands in Unit 26A and 26B to caribou hunting by non-Federally qualified users in order to further support the caribou recovery and provide for a subsistence priority. The Council requests this regulation remain in effect until such time that the caribou population rebounds enough to support the continuation of subsistence uses and other user groups without overlapping user conflict on federal lands in Unit 26A and 26B.

Council Discussion on Anaktuvuk Pass Controlled Use Area: The Council discussed at length the concerns facing Anaktuvuk Pass and how to best help support the community ensuring that caribou are not deflected away from their usual migratory path that brings them through the pass close to the village where local subsistence can access them. The Council stressed that the preponderance of evidence that Anaktuvuk Pass is highly dependent on caribou as their primary food source and is essential to their food security. The Council reviewed their previous efforts to assist the community of Anaktuvuk Pass with drafting a proposal to the Alaska State Board of Game to increase the boundary and protections within the Anaktuvuk Pass Controlled Use Area. ADF&G biologists Darren Bruning and Ryan Klimstra provided information for the Council on the Board of Game Agenda Change Request process as an option to submit proposals for possible consideration outside of the regular three year cycle since the Arctic region proposal cycle had just recently passed.

The Council discussed plans to work further with the community of Anaktuvuk Pass to assist them with a proposal to address the controlled use area. The Council also expressed appreciation for further information offered by ADF&G to better understand the State Tier II management process. *The Council made a motion to formalize their plans to begin gathering more information and work with the community of Anaktuvuk Pass to craft a proposal to the State Board of Game that would best assist them in addressing their caribou concerns. Motion passed unanimously.

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Formation of North Slope RAC Wildlife Working Group: The Council discussed their interest in forming a Council wildlife working group that could meet by teleconference outside of the regularly scheduled bi-annual RAC meetings to discuss wildlife proposals across the region and receive supporting information and updates that may help the Council prepare in advance of the fall and winter meetings. In particular the Council was interested to have dialog with other RAC regions in the range of the Western Arctic Caribou Herd so that they could better understand each other region and discuss conservation measures across the range of the herd. *The Council made a motion to form a wildlife working group. Motion passed unanimously. Gordon Brower, Steve Oomituk, and Lee Kayotuk all expressed interest to participate.

Wildlife Special Action 17-02: Wildlife Special Action 17-02 submitted by the Northwest Arctic Regional Advisory Council requests a moose hunting closure on Federal public lands in unit 23 to non-Federally-qualified subsistence users for the 2017/2018regulatory year. Due to a decline in the moose population within unit 23 the proponent requests this closure to ensure the continued viability of the region's moose population and also to ensure the continued subsistence use of this important wildlife resource to Federally-qualified subsistence users. Joshua Ream, Anthropologist for the Office of Subsistence Management, provided an overview and presentation on the analysis which covered the regulatory history, moose biology, and subsistence hunting activity in the area.
Council member Steve Oomituk of Point Hope stated that because Point Hope is in Unit 23 and affected by management in this area he felt this proposal should be supported to provide for subsistence opportunity if the moose population was declining. The Council made a motion to support WSA 17-02. With a quorum present, the motion carried.

Revision to Memorandum of Understanding with the State of Alaska: Stewart Cogswell, Office of Subsistence Management, provided an overview of the current draft Memorandum of Understanding (MOU) between the Federal Subsistence Board and the State of Alaska. It establishes guidelines to coordinate management of subsistence uses of fish and wildlife resources on Federal public lands in Alaska. This document builds upon the July 18, 2012 draft MOU which incorporated recommended changes from the Regional Advisory Councils, Subsistence Resource Commissions, and Advisory Committees. The intent of this MOU is to provide a foundation to build on with the State to coordinate the management of fish and wildlife resources for subsistence uses on Federal public lands in Alaska.

The Councils provided in put on the Draft MOU during the fall 2016 meeting cycle and those comments as well as comments from the Alaska Department of Fish and Game and State Advisory Committees are currently being incorporated. The revision will be presented to the Board for approval once the new comments are integrated and new revision reflecting the Council feedback and language agreements form the State and Federal participants.
Council Chair, Gordon Brower, noted that the Council had carefully reviewed the Draft MOU and had suggested edits to the document that were important to subsistence. He stressed the importance of the Council seeing a copy of the revised document prior to its finalization to ensure their concerns were addressed.

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Agency Reports:

US Fish and Wildlife Service Barrow Field Office. Ernest Nageak, Native Affairs Specialist, relayed that he never pictured himself working for the Federal Government let alone US Fish and Wildlife Service. He relayed that the elders were our own biologists and scientists and taught the way of life out on the ice and tundra. He stressed that they are always concerned to only catch what they eat, always look out for the animals. Early days of closures on the hunting of ducks and banning fall whaling and other effects of regulations at the time had pushed people away from the government and made people hesitant to share their ways of life. Ernest shared that he became interested in working with the US Fish and Wildlife Service as a way to help share the Inupiaq knowledge, unwritten rules and way of life and help build better understanding between both the Service and the community. He sees the Service building relationships with communities in the North Slope region and throughout Alaska. Ernest commends the Service for listening and working together to come up with the best solution to address management issues and this has helped to improve relationships in the region. He stressed the importance of outreach in rural communities and noted that all USFWS staff are required to take Native Relations training to get a cultural orientation when working in Alaska Native communities.

Ernest provided the Council with background on his work at the Barrow field office which involves a lot of engagement with the local schools and summer programs for youth. They hold 2 open house information session that invites the entire community to meet with USFWS staff to ask questions from law enforcement, marine mammals, migratory birds and host a science fair for the kids. In April they partner with the North Slope Borough and other groups to host a spring gathering to welcome the birds and wildlife and teach about ecology and the circle of life. They have hired summer student interns to work on ecology projects with Eider Journey. Students learn how to conduct nest surveys and monitor the Steller's eider and Spectacled Eider nest success throughout June and July. They partnered with Department of Agriculture on yearly fox control in efforts to reduce predation on Eider but put that aside due to community concerns about the effects of killing foxes.

Gates of the Arctic National Park and Preserve. Marcy Okada, Subsistence Coordinator, provided handouts to the Council and referenced updates in their meeting book. She reported on a research study conducted by the Park Service and ADF&G looking at data from GPS collared caribou from the Western Arctic Caribou and Teshekpuk Herd that were delayed an average of 30 days by the Red Dog Mine Road. Caribou from both herds were collared and encounter the road during their autumn migration. Delayed caribou eventually sped up after crossing the road but results from the study indicate that a road can alter movement behavior.
A radio collar study was also conducted on bears in the Ambler mining district. Data was collected to assess bear movement, denning characteristics, diet and health of the animals prior to development in the area.

Marcy Okada and park sheep biologist Kumi Rattenbury provided updates on the Dall sheep within the park. Dall sheep were surveyed July of 2016 in the Anaktuvuk and Itkillik areas of the northeastern parts of Gates of the Arctic. Survey results indicate that total number of sheep and adult sheep remain low but relatively stable in the Itkillik area but were remarkably lower around

the Anaktuvuk Pass area compared to 2015 survey results. A big decline was observed in these areas on 2013 and 2014. The park is considering some ecological studies on sheep and their habitat in the northeastern part of the park and will be working with the local community on this. Marcy and Hilary Robinson from Western Arctic Parklands responded to questions from the Council about the sheep closure in Unit 23 and clarified that the area of 26A east of the Etivluk River remains open to sheep hunting under State and Federal Regulation. The Federal Subsistence Board adopted new regulations for delegation of authority to the Park Superintendent of Western Arctic National Park Lands to have the flexibility to open a hunt if the sheep population rebounded in the Delong Mountains but recent survey results indicate the population has not rebounded enough to support that yet.

Marcy reported on the Parks activities related to the Ambler Mining District Industrial Access project that is proposed through a right of way in the park. The National Park Service will be scheduling village consultation meetings for the environmental and economic analysis. A copy of the Federal Register notice to extend the completion of EEA until December 2019.

Alaska Department of Fish and Game. Ryan Klimstra**,** Wildlife Biologist, provided the Council with an overview of the current status of the Western Arctic and Teshekpuk caribou herds and answered questions for the Council. The most up to date census information from the summer 2016 surveys were provided to the Council at the fall 2016 meeting so Ryan provided a recap for the new Council members. The Western Arctic herd is right around 200,000 caribou which is right on the line of conservative and preservative management in the plan that was developed by the Western Arctic Herd Working Group. Ryan stressed that unlike Unit 23 or 26B along the Dalton Highway that the caribou harvest in Unit 26A by non-locals was only approximately half of one percent of the total harvest taken form Unit 26A.

Current information from the last photo census indicate that the decline has slowed and the herd is not declining at quite the high percentage rates compared to previous years. In response to Council member questions Ryan noted that while there are migratory corridors where caribou like to go they don't always follow the same path. This year radio collar information did not show any big shifts other than a lot of caribou did make it over to Anaktuvuk Pass this year. Ryan relayed that there was not a complete photo census for the Teshekpuk Herd in 2016 due to weather conditions. The weather was cool over the summer and the caribou did not bunch up along the coast edge for long enough this year. However, the previous photo census indicated the Teshekpuk herd had stabilized somewhat. The historic high for the herd was around 70,000 and now it had leveled out somewhere around 40,000.

Council member Wanda Kippi of Atqasuk enquired about how they can tell from aerial surveys if the herd is all caribou or if there is reindeer mixed in since she sees a lot of reindeer when she is hunting around Atqasuk. Ryan noted that the surveys are done when the caribou aggregate in large groups along the coast to seek insect relief so it would be hard to distinguish a reindeer but that they do take a lot of blood samples for genetics such as at Onion Portage and the genes would show up there.

Ryan provided the Council with Board of Game updates for new regulations that were just passed for the region that affect Unit 26A. Important highlights include new state regulations

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requiring a registration permit for hunting caribou on State lands in Unit 21, 23, and 26 which goes into effect July 1st, 2017. It is a new system for everyone so ADF&G is working on a large multi-year outreach and education effort and working to establish local vendors in communities to make the permits more easily accessible.

Darren Bruning, Regional Supervisor for the ADF&G Division of Wildlife Conservation, Region 3 introduced himself as relatively new to the region and wanted to meet to Council in person to help maintain the connection between the Department and the region. Darren provided the Council with an overview of the work they do including conducting surveys for the Western Arctic, Teshekpuk, and Central Artic herds. Importantly they are in the process of upgrading the technology for conducting caribou photo census which will greatly improve the count caribou from the air. A big focus of their work now is trying to understand the recent decline in the Central Artic herd and working to enact conservation measures particularly along the Dalton Highway while continuing to provide subsistence opportunity for the local communities that live in the region. The Porcupine Caribou herd numbers have been stable and an updated photo census is being planned. An overview of planned moose surveys in the region and updates on bear, wolverine, Dall sheep, and muskox was also provided.
Council members had many questions regarding data for each of the caribou herds and discussed management strategies with both ADF&G and Federal staff at the meeting.

ADF&G Fisheries Resource Monitoring Program Projects. Brendan Scanlon, ADF&G Fisheries Research Biologist had prepared a power point and video on four fisheries projects and research proposals in the North Slope Region. However due to meeting time constraints provided he provided information as a handout and focused on one project that they started this past summer conducting aerial surveys on five North slope river drainages to estimate how many fish are overwintering there. The project addresses an information priority need regarding Dolly Varden Char in the Hula Hula River but expanded to all five drainages since residents of Kaktovik who fish in marine waters catch fish from each of these rivers. It is estimated that North Slope fishers – Kaktovik and Nuiqsut in particularly harvest between 10 – 20,000 pounds of Dolly Varden Char each year which are mostly mixed stock coming from several rivers in Alaska and a few in Canada. Unlike salmon Char spawn and overwinter in springs and upwelling areas and make multiple trips out to sea where they feed. The objectives were to conduct a single aerial index count right before freeze up on all five of these rivers Ivishak, Kongakut, Hulahula, Canning and Anaktuvuk Rivers. An index area was identified where we could reliably survey the same area year after year. Brendan provided photos of the aerial surveys to show what the fish look like for counting on good weather days and noted that they use index counts conducted with mark recapture to calibrate what they are seeing. They found about 1,700 spawners in the Canning, 3,100 in the Hulahula, 2,500 in the Ivishak.

Brendan shared images from aerial video that he took of the Sagavanirktok River that had an iron seep that was pumping out turbid water and they got a very poor count below that on the Ivishak River. They followed the outflow with the helicopter and did not see any sign of fish below. They managed to get water samples and brought it to a lab at UAF for water chemistry analysis. The effluent form the plume contained high amount of iron – almost 10 times the amount normally found in water in the region. A hydrologist looked at the video image and suggested it

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may be an old spring of water that opened up creating this plume. They hope to keep track of this area and see what develops.

Arctic National Wildlife Refuge. Hollis Twitchell, Assistant Manager for Arctic National Wildlife presented the Council with an update on the status of the moose population in Unit 26C and a map of moose sited from aerial surveys conducted in the area. Of 42 moose counted, 37 of those moose were in the Kongakut River Drainage. There was an increase in total number from the survey last year but similar distribution with the congregation in the Kongakut drainage.

In response to a request form Council member Lee Kayotuk at the North Slope RAC meeting last fall to have an opportunity to harvest one or two moose for the community of Kaktovik if the numbers increased enough to even allow a very limited hunt, the refuge explored the options. The Refuge consulted with the Refuge biologist, State biologists and with the Tribal council and even though the number was below the management target of 50 moose to allow a hunt, it was felt that the high concentration of moose on the river drainage could safely sustain a very limited hunt of two moose if it was bull moose only. The Refuge consulted with the Kaktovik Tribal Council for their recommendations for a hunt and the decision was to go ahead and proceed and so through the delegated authority that was passed to the Refuge manager for doing special actions regarding moose in unit 26B and C. The Refuge manager prepared a special action request, advanced it to the OSM and that hunt opportunity will be open this February 15 until April 15th 2017. Two moose permits have been issue through a drawing permit administered by the Native Village of Kaktovik.

Hollis referred the Council to the meeting book document that provided Refuge updates on other subsistence resources and community activities.

Draft US Fish and Wildlife Service Alaska Native Relations Policy. Hollis Twitchell, Assistant Manager for Arctic National Wildlife presented the Council with an update on the status of the US Fish and Wildlife Service Alaska Native Relations Policy.

Hollis provided two documents; one titled Native American Policy and the other a policy specific to US Fish and Wildlife Service in relating with Native America and Alaska Native people. The first was conducted in a cooperative effort over the last two years by a large team of people that he was a part of including 16 Tribal representatives from across the Country as well as 13 USFWS representatives. Hollis addressed the Alaska Native Relations policy in more detail since numerous Federal acts have special provisions for Alaska Natives such as ANILCA, Marine Mammal Protection Act, Migratory Bird Treaty Act and also the Endangered Species Act. This policy helps to outline the USFWS responsibilities under these laws and also how USFWS is directed by law to work with Tribes and Regional Alaska Native entities and organizations such as Migratory Bird Co-management Council, Alaska Eskimo Whaling Commission and many more. There are numerous parts of the Alaska policy that mirror the National Policy and other guidance developed by feedback from Tribal and ANCSA Corporation representatives in Alaska that are unique to Alaska.

Hollis noted that there are 9,120,000 acres of Native Corporate land and over 1,900 Native Allotments within the Boundaries of Alaska National Wildlife Refuges. He relayed the USFWS

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has a very important duty and responsibility for communication and outreach to Villages and Tribes and Native Corporations. Crystal Leonetti, USFWS Native Affairs for Alaska has been reaching out to Tribes for feedback and this is also being presented at all Regional Advisory Council meetings. The public comment period will start when the policy is able to be posted to the Federal Register; however Hollis encouraged feedback at any time prior to the official public comment period and provided contact information to send comments to Crystal Leonetti.

Doreen Lampe of ICAS thanked Hollis for the presentation and invited Hollis and Crystal to call in for their next upcoming ICAS Council meeting. Doreen expressed that she thought the updated policy would provide much need improvement but expressed concern about citations under the Endangered Species Act when take is accidental and reported where local people are acting in good faith effort. She referenced an incident where one of the protected eider species was shot incidentally because it was flying amidst a mixed flock and the hunter self-reported this incident and received a citation. Doreen felt a flow chart of the steps for the process would be helpful to see how the USFWS follows through on their communications with hunters regarding endangered species. She also was interested to see the process of listing and delisting and if the population was no longer threatened and the numbers were up then it should be available as a subsistence resource again. Hollis referenced the recent emperor goose example and a listed species recovering and being open to subsistence harvest again.

Roy Nageak addressed the concern of accountability and follow through on the policy. Hollis relayed that the Tribal caucus had wanted to build in accountability to the process and had planned for review every three to five years to see how it is working.

Bureau of Land Management NPR-A. Roy Nageak, BLM NPR-A, Barrow Office, provided the Council with several reports on BLM NPR-A activities and presented a brief review. He highlight that oil is being found around Nuiqsut. ConocoPhillips is busy making a road to GMT-1 and at the same time planning for next year's GMT-2. Caelus had found a major strike right in front of Ikpikpuk on the west side of Lonely. Roy also reported that on the State lands 20 miles south of Nuiqsut, Repsol also had a major find. There is a planning process underway for NPR-A, BLM managed land for some lease sales and planning for more development.
Roy directed the Council to a report on the NPR-A Working Group which was delegated by former Department of the Interior Secretary to address subsistence issues with the development that is happening in NPR-A. He noted that there were plans for some mitigation funds that will be made available to address subsistence impacts.

Office of Subsistence Management. Stewart Cogswell, Acting Deputy Assistant Regional Director, OSM provided the Council handout and brief overview of the Nonrural Determination Policy. Following input from Regional Advisory Councils, public tribes and ANSCA corporations the Federal Subsistence Board formally adopted its Nonrural Determination Policy at the January, 2017 regulatory meeting in Anchorage. The policy now provides guidance for submission of proposals to change communities to rural or nonrural status, a decision making process and a timeline. The next call for proposals to change rural status of an area or community will be announced with the call for Federal fisheries proposals in January of 2018.
Stewart presented the Council with a status update on the Fisheries Resource Monitoring Program. The call for research proposals was open for 90 days and closed in February. Nine

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project proposals were received from the Northern Region out of 54 total proposals across the State. Proposals are being evaluated through a competitive review and rating process. The Councils will hear more about proposals suggested for funding in the region at the fall 2017 meeting.

Review and Approve FY2016 Annual Report: The Council reviewed and discussed their draft FY2016 Annual Report to the Federal Subsistence Board. Council member Steve Oomituk was not able to be present for a vote and quorum was no longer present. However, Steve did relayed his support for the information reflected in the Annual Report and felt the concerns he had expressed about increased shipping traffic in the Chukchi Sea were adequately reflected. Council members present supported the report as written and requested the addition of their concerns for meeting in other villages in the region outside of Barrow.

Future Meeting Dates:
The Council reconfirmed August, 24 and 25, 2017 in Wainwright for the next fall meeting. The Council stressed the importance of meeting in Wainwright to during the upcoming wildlife cycle to address caribou proposals critical to the community and facilitate meaningful engagement in the Federal Subsistence Management process.

The Council selected February 13 and 14, 2018 for the next winter meeting.

The Council shared closing comments prior to adjourning.

I certify to the best of my knowledge the forgoing minutes are accurate and complete.

_____
Eva Patton, Designated Federal Officer
USFWS Office of Subsistence Management

_____
Gordon Brower, Chair
North Slope Subsistence Regional Advisory Council

These minutes will be formally considered by the North Slope Subsistence Regional Advisory Council at its Fall 2017 public meeting. Any corrections or notations will be incorporated at that meeting.

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U S Fish and Wildlife Service
Bureau of Land Management
National Park Service
Bureau of Indian Affairs

Federal Subsistence Board
News Release

Forest Service

For Immediate Release:
April 24, 2017

Contact: Chris McKee
(907) 786-3572 or (800) 478-1456
paul_mckee@fws.gov

Federal Subsistence Board rejects request to close Federal public lands in Unit 23 to moose hunting by non-Federally qualified users

The Federal Subsistence Board (Board) rejected Temporary Special Action Request WSA17-02, which requested that Federal public lands in Unit 23 be closed to moose hunting by non-Federally qualified users during the July 1, 2017–June 30, 2018 regulatory year.

Although the overall moose population is currently declining throughout Unit 23, harvest by Federally qualified subsistence users has remained stable over the last ten years, indicating that local users are still able to successfully harvest moose despite declines in the overall population. In addition, non-Federally qualified users make up a minority of moose harvest in the unit when reported harvest is combined with community household surveys. Therefore, closing Federal public lands in Unit 23 to non-Federally qualified users will likely not have the desired impact to the overall moose population in the unit and may be an unnecessary restriction on non-Federally qualified users.

In addition, non-Federally qualified users would still be permitted to harvest moose on State lands and below the mean high water line on many waterways within Federal lands. Many of these lands are located adjacent to Native Corporation lands, which could cause more non-Federally qualified users to harvest moose near these areas. If all non-Federally qualified users harvest moose on State lands, this could lead to overcrowding and increased user conflicts, and would not lessen overall moose harvest in Unit 23. Therefore, this closure may not have the intended effect of reducing user conflict issues within the area.

The Board will assess the effects of recent State actions that eliminated the non-resident season and the antlerless resident season prior to considering a unit-wide closure to moose harvest by non-Federally qualified users on Federal public lands.

Additional information on the Federal Subsistence Management Program may be found on the web at www.doi.gov/subsistence or by visiting www.facebook.com/subsistencealaska.

Missing out on the latest Federal subsistence issues? If you'd like to receive emails and notifications on the Federal Subsistence Management Program you may subscribe for regular updates by emailing fws-fsb-subsistence-request@lists.fws.gov.

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1011 East Tudor Road MS-121 • Anchorage, Alaska 99503-6199 • subsistence@fws.gov • (800) 478-1456 / (907) 786-3888
This document has been cleared for public release #10904242017.

U S Fish and Wildlife Service
Bureau of Land Management
National Park Service
Bureau of Indian Affairs

Federal Subsistence Board
News Release

Forest Service

For Immediate Release:
June 22, 2017

Contact: Caron McKee
(907) 786-3880 or (800) 478-1456
caron_mckee@fws.gov

Federal Subsistence Board approves partial closure of Federal public lands to caribou hunting in Unit 23

The Federal Subsistence Board (Board) has approved Temporary Special Action Request WSA17-03 with modification to close all Federal public lands within a 10 mile wide corridor (5 miles either side) along the Noatak River from the western boundary of Noatak National Preserve upstream to the confluence with the Cutler River; within the northern and southern boundaries of the Eli and Agashashok River drainages, respectively; and within the Squirrel River drainage to caribou hunting except by Federally qualified subsistence users for the July 1, 2017 – June 30, 2018 regulatory year. The Board supports a more targeted closure at this time and would prefer to leave the question of a closure of all Federal public lands in Unit 23 to be addressed through the 2018-2020 regulatory cycle. The Board believes that the request, as modified, is a reasonable compromise for all users.

Closure of some Federal public lands for the continuation of subsistence uses is warranted. Continued complaints about conflicts surrounding the Noatak, Eli, Agashashok and Squirrel River drainages and the apparent benefit of the 2016-2017 Federal closure to Noatak residents, as evidenced by letters and public testimony, support the closure of Federal public lands in these areas. Additionally, the short-term effects of aircraft on caribou behavior can negatively affect hunting success and harvest. However, closure of all Federal public lands in Unit 23 represents an unnecessary restriction on non-Federally qualified users.

Additional information on the Federal Subsistence Management Program may be found on the web at www.doi.gov/subsistence or by visiting www.facebook.com/subsistencealaska.

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U S Fish and Wildlife Service
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Federal Subsistence Board
News Release

Forest Service

For Immediate Release:
June 22, 2017

Contact: Caron McKee
(907) 786-3880 or (800) 478-1456
caron_mckee@fws.gov

Federal Subsistence Board rejects request to close Federal public lands in Unit 26A and Unit 26B to caribou hunting by non-Federally qualified users

The Federal Subsistence Board (Board) rejected Temporary Special Action Request WSA17-04, which requested that Federal public lands in Unit 26A and Unit 26B be closed to caribou hunting by non-Federally qualified users during the July 1, 2017 – June 30, 2018 regulatory year.

The Board concluded that recently enacted conservation actions by the Alaska Board of Game and Board for the Western Arctic, Teshekpuk, and Central Arctic Caribou Herds need to be given time to determine if they are effective in reducing the caribou harvest, and in slowing down or reversing the population declines in these caribou herds before additional closures are enacted. Closure of Federal public lands to non-Federally qualified users would not likely have as much of an effect as recent Alaska Board of Game actions that protect cows and reduce the overall caribou harvest. Much of the non-Federally qualified user harvest occurs on State lands, and a closure runs the risk of concentrating hunters onto State lands, which are adjacent to some villages, thereby increasing impacts to these communities.

The number of caribou harvested by non-Federally qualified users is not biologically significant for the Western Arctic and Teshekpuk Caribou Herds in Unit 26A and the potentially significant impact of non-Federally qualified user harvest from the Central Arctic Caribou Herd in Unit 26B has now been addressed by newly enacted State regulations for the 2017-2018 regulatory year. The Board recommends that these changes take effect in lieu of enacting additional regulations at this time.

Additional information on the Federal Subsistence Management Program may be found on the web at www.doi.gov/subsistence or by visiting www.facebook.com/subsistencealaska.

Missing out on the latest Federal subsistence issues? If you'd like to receive emails and notifications on the Federal Subsistence Management Program you may subscribe for regular updates by emailing fws-fsb-subsistence-request@lists.fws.gov.

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This document has been cleared for public release #11706222017.

Presentation Procedure for Proposals

1. **Introduction and presentation of analysis**
2. **Report on Board Consultations**:
    a. Tribes;
    b. ANCSA Corporations
3. **Agency Comments**:
    a. ADF&G;
    b. Federal;
    c. Tribal
4. **Advisory Group Comments**:
    a. Other Regional Council(s);
    b. Fish and Game Advisory Committees;
    c. Subsistence Resource Commissions
5. **Summary of written public comments**
6. **Public testimony**
7. **Regional Council recommendation** (motion to adopt)
8. **Discussion/Justification**
    - Is the recommendation consistent with established fish or wildlife management principles?
    - Is the recommendation supported by substantial evidence such as biological and traditional ecological knowledge?
    - Will the recommendation be beneficial or detrimental to subsistence needs and uses?
    - If a closure is involved, is closure necessary for conservation of healthy fish or wildlife populations, or is closure necessary to ensure continued subsistence uses?
    - Discuss what other relevant factors are mentioned in OSM analysis
9. **Restate final motion for the record, vote**

WP18–32 Executive Summary	
General Description	Proposal WP18-32 requests changes to the caribou season dates on Federal public lands in Units 21D, 22, 23, 24, 25A (West), 26A, and 26B. *Submitted by: Western Interior Alaska Subsistence Regional Advisory Council.*
Proposed Regulation	**Unit 21D—Caribou** *Unit 21D—north of the Yukon River and east of the Koyukuk River—caribou may be taken during a winter season to be announced* — *Winter season to be announced* *Unit 21D, remainder—5 caribou per day, as follows: Calves may not be taken.* *Bulls may be harvested* — *July 1-Oct. ~~14~~ **10*** *Feb. 1-June 30* *Cows may be harvested* — *~~Sep. 1-Mar. 31~~**Oct. 1 – Feb. 1*** **Unit 22—Caribou** *Unit 22B—that portion west of Golovnin Bay and west of a line along the west bank of the Fish and Niukluk Rivers to the mouth of the Libby River, and excluding all portions of the Niukluk River drainage upstream from and including the Libby River drainage—5 caribou per day. Calves may not be taken* — *~~Oct. 1-Apr. 30~~* *~~May 1-Sep. 30, a season may be announced~~* ***Bulls may be harvested*** — ***July 1 – Oct. 10*** ***Feb. 1 – June 30*** ***Cows may be harvested*** — ***Oct. 1 – Feb. 1*** *Units 22A—that portion north of the Golsovia River drainage, 22B remainder, that portion of Unit 22D in the Kuzitrin River drainage (excluding the Pilgrim River drainage), and the Agiapuk River drainages, including the tributaries, and Unit 22E—that portion east of and including the Tin Creek drainage—5* — *~~July 1-June 30~~*

WP18–32 Executive Summary		
	caribou per day. Calves may not be taken	
	Bulls may be harvested	***July 1 – Oct. 10*** ***Feb. 1 – June 30***
	Cows may be harvested	***Oct. 1 – Feb. 1***
	Unit 22A, remainder—5 caribou per day. Calves may not be taken	~~*July 1-June 30, season may be announced*~~
	Bulls may be harvested	***July 1 – Oct. 10*** ***Feb. 1 – June 30***
	Cows may be harvested	***Oct. 1 – Feb. 1***
	Unit 22D, that portion in the Pilgrim River drainage—5 caribou per day. Calves may not be taken	~~*Oct. 1-Apr. 30*~~ ~~*May 1-Sep. 30, season may be announced*~~
	Bulls may be harvested	***July 1 – Oct. 10*** ***Feb. 1 – June 30***
	Cows may be harvested	***Oct. 1 – Feb. 1***
	Units 22C, 22D remainder, 22E remainder—5 caribou per day. Calves may not be taken	~~*July 1-June 30, season may be announced*~~
	Bulls may be harvested	***July 1 – Oct. 10*** ***Feb. 1 – June 30***
	Cows may be harvested	***Oct. 1 – Feb. 1***
	Unit 23—Caribou	
	Unit 23—that portion which includes all drainages north and west of, and including, the Singoalik River drainage—5 caribou per day as follows: Calves may not be taken	
	Bulls may be harvested	*July 1-Oct.* ~~*14*~~ ***10*** *Feb. 1-June 30*
	Cows may be harvested. ~~*However, cows accompanied by calves may not be taken July-*~~	~~*July 15-Apr. 30*~~ ***Oct. 1 – Feb. 1***

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WP18–32 Executive Summary

	~~*15 Oct. 14*~~	
	Unit 23, remainder—5 caribou per day, as follows: Calves may not be taken.	
	Bulls may be harvested	*July 1-Oct. ~~14~~ **10*** *Feb. 1-June 30*
	Cows may be harvested. ~~However, cows accompanied by calves may not be taken July 31 Oct. 14~~	*July 31-Mar. 31* ***Oct. 1 – Feb. 1***
	Unit 24—Caribou	
	Unit 24A—that portion south of the south bank of the Kanuti River—1 caribou	*Aug. 10-Mar. 31*
	Unit 24B—that portion south of the south bank of the Kanuti River, upstream from and including that portion of the Kanuti-Kilolitna River drainage, bounded by the southeast bank of the Kodosin-Nolitna Creek, then downstream along the east bank of the Kanuti-Kilolitna River to its confluence with the Kanuti River—1 caribou	*Aug. 10-Mar. 31*
	Units 24A remainder, 24B remainder—5 caribou per day as follows: Calves may not be taken.	
	Bulls may be harvested	*July 1-Oct. ~~14~~**10*** *Feb. 1-June 30*
	Cows may be harvested	~~*July 15 Apr. 30*~~ ***Oct. 1 – Feb. 1***
	Units 24C, 24D—5 caribou per day as follows: Calves may not be taken.	
	Bulls may be harvested.	*July 1-Oct. ~~14~~**10*** *Feb. 1-June 30*

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WP18–32 Executive Summary		
	Cows may be harvested	~~*Sep. 1-Mar. 31*~~ ***Oct. 1 – Feb. 1***
	Unit 25A—Caribou	
	Unit 25A—in those portions west of the east bank of the East Fork of the Chandalar River extending from its confluence with the ***Teedriijik*** *(Chandalar) River upstream to Guilbeau Pass and north of the south bank of the mainstem of the* ***Teedriijik (Chandalar)*** *River at its confluence with the East Fork Chandalar River west (and north of the south bank) along the West Fork* ***Ch'idriinjik****(Chandalar) River—10 caribou. However, only bulls may be taken May 16-June 30*	~~*July 1-June 30*~~
	Bulls may be harvested	***July 1 – Oct. 10*** ***Feb. 1 – June 30***
	Cows may be harvested	***Oct. 1 – Feb. 1***
	Unit 25A remainder, 25B, and Unit 25D, remainder—10 caribou	*July 1-Apr. 30*
	Unit 26—Caribou	
	Unit 26A—that portion of the Colville River drainage upstream from the Anaktuvuk River, and drainages of the Chukchi Sea south and west of, and including the Utukok River drainage—5 caribou per day as follows: Calves may not be taken.	
	Bulls may be harvested	*July 1-Oct.* ~~*14*~~***10*** ~~***Dec. 6***~~ ***Feb. 1****-June 30*
	Cows may be harvested; ~~*however, cows accompanied by calves may not be taken July 16-Oct. 15*~~	~~*July 16-Mar. 15*~~ ***Oct. 1 – Feb. 1***

WP18–32 Executive Summary	
	Unit 26A remainder—5 caribou per day as follows: Calves may not be taken. *Bulls may be harvested* — *July 1-Oct.* ~~*15*~~ ***10*** ~~*Dec. 6*~~ ***Feb. 1-****June 30* *Up to 3 cows per day may be harvested;* ~~*however, cows accompanied by calves may not be taken July 16-Oct. 15*~~ — ~~*July 16-Mar. 15*~~ ***Oct. 1 – Feb. 1*** *Unit 26B, that portion south of 69°30' N. lat. and west of the Dalton Highway—5 caribou per day as follows:* *Bulls may be harvested* — *July 1-Oct.* ~~*14.*~~***10*** ~~*Dec. 10*~~ ***Feb. 1-****June 30* *Cows may be harvested* — ~~*July 1-Apr. 30*~~ ***Oct. 1 – Feb. 1*** *Unit 26B remainder—5 caribou per day as follows:* *Bulls may be harvested.* — ~~*July 1-June 30*~~ ***July 1 – Oct. 10 Feb. 1 – June 30*** *Cows may be harvested.* — ~~*July 1-May 15*~~ ***Oct. 1 – Feb. 1*** *You may not transport more than 5 caribou per regulatory year from Unit 26 except to the community of Anaktuvuk Pass*
OSM Preliminary Conclusion	**Oppose**
Southeast Alaska Subsistence Regional Advisory Council Recommendation	

WP18–32 Executive Summary	
Southcentral Alaska Subsistence Regional Advisory Council Recommendation	
Kodiak/Aleutians Subsistence Regional Advisory Council Recommendation	
Bristol Bay Subsistence Regional Advisory Council Recommendation	
Yukon-Kuskokwim Delta Subsistence Regional Advisory Council Recommendation	
Western Interior Alaska Subsistence Regional Advisory Council Recommendation	
Seward Peninsula Subsistence Regional Advisory Council Recommendation	
Northwest Arctic Subsistence Regional Advisory Council Recommendation	
Eastern Interior Alaska Subsistence Regional Advisory Council Recommendation	

WP18–32 Executive Summary	
North Slope Subsistence Regional Advisory Council Recommendation	
Interagency Staff Committee Comments	
ADF&G Comments	
Written Public Comments	**None**

DRAFT STAFF ANALYSIS
WP18-32

ISSUES

Proposal WP18-32, submitted by the Western Interior Alaska Subsistence Regional Advisory Council, requests changes to the caribou season dates on Federal public lands in Units 21D, 22, 23, 24, 25A (West), 26A, and 26B.

DISCUSSION

The proponent requests changes to Federal caribou regulations to protect cows from the Western Arctic Caribou Herd (WACH), Teshekpuk Caribou Herd (TCH), and the Central Arctic Caribou Herd (CACH) during the fall and spring migration. The proponent states that reducing the exposure of cows to hunting during migration will avoid migration deflections because cows lead migration. The proponent also requests changes to the bull seasons to prohibit bull harvest when they are not palatable during the rut. To align seasons between the State and Federal regulations, the proponent intends to submit an agenda change request to the Alaska Board of Game (BOG).

Existing Federal Regulation

Unit 21D—Caribou

Unit 21D—north of the Yukon River and east of the Koyukuk River—caribou may be taken during a winter season to be announced	*Winter season to be announced*
Unit 21D, remainder—5 caribou per day, as follows: Calves may not be taken.	
Bulls may be harvested	*July 1-Oct. 14* *Feb. 1-June 30*
Cows may be harvested	*Sep. 1-Mar. 31*

Unit 22—Caribou

Unit 22B—that portion west of Golovnin Bay and west of a line along the west bank of the Fish and Niukluk Rivers to the mouth of the Libby River, and excluding all portions of the Niukluk River drainage upstream from and including the Libby River drainage—5 caribou per day. Calves may not be taken	*Oct. 1-Apr. 30* *May 1-Sep. 30, a season may be announced*
Units 22A—that portion north of the Golsovia River drainage, 22B	*July 1-June 30*

remainder, that portion of Unit 22D in the Kuzitrin River drainage (excluding the Pilgrim River drainage), and the Agiapuk River drainages, including the tributaries, and Unit 22E—that portion east of and including the Tin Creek drainage—5 caribou per day. Calves may not be taken	
Unit 22A, remainder—5 caribou per day. Calves may not be taken.	*July 1-June 30, season may be announced*
Unit 22D, that portion in the Pilgrim River drainage—5 caribou per day. Calves may not be taken	*Oct. 1-Apr. 30* *May 1-Sep. 30, season may be announced*
Units 22C, 22D remainder, 22E remainder—5 caribou per day. Calves may not be taken	*July 1-June 30, season may be announced*

Unit 23—Caribou

Unit 23—that portion which includes all drainages north and west of, and including, the Singoalik River drainage—5 caribou per day as follows: Calves may not be taken	
Bulls may be harvested	*July 1-Oct. 14* *Feb. 1-June 30*
Cows may be harvested. However, cows accompanied by calves may not be taken July 15-Oct. 14	*July 15-Apr. 30*
Unit 23, remainder—5 caribou per day, as follows: Calves may not be taken.	
Bulls may be harvested	*July 1-Oct. 14* *Feb. 1-June 30*
Cows may be harvested. However, cows accompanied by calves may not be taken July 31-Oct. 14	*July 31-Mar. 31*

Unit 24—Caribou

Unit 24A—that portion south of the south bank of the Kanuti River—1 caribou	*Aug. 10-Mar. 31*
Unit 24B—that portion south of the south bank of the Kanuti River, upstream from and including that portion of the Kanuti-Kilolitna	*Aug. 10-Mar. 31*

River drainage, bounded by the southeast bank of the Kodosin-Nolitna Creek, then downstream along the east bank of the Kanuti-Kilolitna River to its confluence with the Kanuti River—1 caribou	
Units 24A remainder, 24B remainder—5 caribou per day as follows: Calves may not be taken	
Bulls may be harvested	*July 1-Oct. 14.* *Feb. 1-June 30*
Cows may be harvested	*July 15-Apr. 30*
Units 24C, 24D—5 caribou per day as follows: Calves may not be taken.	
Bulls may be harvested	*July 1-Oct. 14* *Feb. 1-June 30*
Cows may be harvested	*Sep. 1-Mar. 31*

Unit 25A—Caribou

Unit 25A—in those portions west of the east bank of the East Fork of the Chandalar River extending from its confluence with the Chandalar River upstream to Guilbeau Pass and north of the south bank of the mainstem of the Chandalar River at its confluence with the East Fork Chandalar River west (and north of the south bank) along the West Fork Chandalar River—10 caribou. However, only bulls may be taken May 16-June 30	*July 1-June 30*
Unit 25A remainder, 25B, and Unit 25D, remainder—10 caribou	*July 1-Apr. 30*

Unit 26—Caribou

Unit 26A—that portion of the Colville River drainage upstream from the Anaktuvuk River, and drainages of the Chukchi Sea south and west of, and including the Utukok River drainage—5 caribou per day as follows: Calves may not be taken	
Bulls may be harvested	*July 1-Oct. 14* *Dec. 6-June 30*

Cows may be harvested; however, cows accompanied by calves may not be taken July 16-Oct. 15	*July 16-Mar. 15*
Unit 26A remainder—5 caribou per day as follows: Calves may not be taken.	
Bulls may be harvested	*July 1-Oct. 15* *Dec. 6-June 30*
Up to 3 cows per day may be harvested; however, cows accompanied by calves may not be taken July 16-Oct. 15	*July 16-Mar. 15*
Unit 26B, that portion south of 69°30′ N. lat. and west of the Dalton Highway—5 caribou per day as follows:	
Bulls may be harvested	*July 1-Oct. 14* *Dec. 10-June 30*
Cows may be harvested	*July 1-Apr. 30*
Unit 26B remainder—5 caribou per day as follows: *Bulls may be harvested.*	*July 1-June 30*
Cows may be harvested	*July 1-May 15*
You may not transport more than 5 caribou per regulatory year from Unit 26 except to the community of Anaktuvuk Pass	

Proposed Federal Regulations

Unit 21D—Caribou

Unit 21D—north of the Yukon River and east of the Koyukuk River—caribou may be taken during a winter season to be announced	*Winter season to be announced*
Unit 21D, remainder—5 caribou per day, as follows: Calves may not be taken.	
Bulls may be harvested	*July 1-Oct. ~~14~~ **10*** *Feb. 1-June 30*
Cows may be harvested	*~~Sep. 1-Mar. 31~~* ***Oct. 1 – Feb. 1***

Unit 22—Caribou

Unit 22B—that portion west of Golovnin Bay and west of a line along the west bank of the Fish and Niukluk Rivers to the mouth of the Libby River, and excluding all portions of the Niukluk River drainage upstream from and including the Libby River drainage—5 caribou per day. Calves may not be taken	~~*Oct. 1–Apr. 30*~~ ~~*May 1–Sep. 30, a season may be announced*~~
Bulls may be harvested	***July 1 – Oct. 10*** ***Feb. 1 – June 30***
Cows may be harvested	***Oct. 1 – Feb. 1***
Units 22A—that portion north of the Golsovia River drainage, 22B remainder, that portion of Unit 22D in the Kuzitrin River drainage (excluding the Pilgrim River drainage), and the Agiapuk River drainages, including the tributaries, and Unit 22E—that portion east of and including the Tin Creek drainage—5 caribou per day. Calves may not be taken	~~*July 1–June 30*~~
Bulls may be harvested	***July 1 – Oct. 10*** ***Feb. 1 – June 30***
Cows may be harvested	***Oct. 1 – Feb. 1***
Unit 22A, remainder—5 caribou per day. Calves may not be taken	~~*July 1–June 30, season may be announced*~~
Bulls may be harvested	***July 1 – Oct. 10*** ***Feb. 1 – June 30***
Cows may be harvested	***Oct. 1 – Feb. 1***
Unit 22D, that portion in the Pilgrim River drainage—5 caribou per day. Calves may not be taken	~~*Oct. 1–Apr. 30*~~ ~~*May 1–Sep. 30, season may be announced*~~
Bulls may be harvested	***July 1 – Oct. 10*** ***Feb. 1 – June 30***
Cows may be harvested	***Oct. 1 – Feb. 1***
Units 22C, 22D remainder, 22E remainder—5 caribou per day. Calves may not be taken	~~*July 1–June 30, season may be announced*~~

Bulls may be harvested	***July 1 – Oct. 10*** ***Feb. 1 – June 30***
Cows may be harvested	***Oct. 1 – Feb. 1***

Unit 23—Caribou

Unit 23—that portion which includes all drainages north and west of, and including, the Singoalik River drainage—5 caribou per day as follows: Calves may not be taken	
Bulls may be harvested	*July 1-Oct. ~~14~~* ***10*** *Feb. 1-June 30*
Cows may be harvested. ~~However, cows accompanied by calves may not be taken July 15-Oct. 14~~	*~~July 15-Apr. 30~~* ***Oct. 1 – Feb. 1***
Unit 23, remainder—5 caribou per day, as follows: Calves may not be taken.	
Bulls may be harvested	*July 1-Oct. ~~14~~* ***10*** *Feb. 1-June 30*
Cows may be harvested. ~~However, cows accompanied by calves may not be taken July 31-Oct. 14~~	*July 31-Mar. 31* ***Oct. 1 – Feb. 1***

Unit 24—Caribou

Unit 24A—that portion south of the south bank of the Kanuti River—1 caribou	*Aug. 10-Mar. 31*
Unit 24B—that portion south of the south bank of the Kanuti River, upstream from and including that portion of the Kanuti-Kilolitna River drainage, bounded by the southeast bank of the Kodosin-Nolitna Creek, then downstream along the east bank of the Kanuti-Kilolitna River to its confluence with the Kanuti River—1 caribou	*Aug. 10-Mar. 31*
Units 24A remainder, 24B remainder—5 caribou per day as follows: Calves may not be taken.	

Bulls may be harvested	*July 1-Oct. ~~14.~~* ***10*** *Feb. 1-June 30*
Cows may be harvested	*~~July 15-Apr. 30~~* ***Oct. 1 – Feb. 1***
Units 24C, 24D—5 caribou per day as follows: Calves may not be taken.	
Bulls may be harvested.	*July 1-Oct. ~~14~~* ***10*** *Feb. 1-June 30*
Cows may be harvested	*~~Sep. 1-Mar. 31~~* ***Oct. 1 – Feb. 1***

Unit 25A—Caribou

Unit 25A—in those portions west of the east bank of the East Fork of the Chandalar River extending from its confluence with the ***Teedriijik (****Chandalar****)*** *River upstream to Guilbeau Pass and north of the south bank of the mainstem of the* ***Teedriijik (Chandalar)*** *River at its confluence with the East Fork Chandalar River west (and north of the south bank) along the West Fork* ***Ch'idriinjik(****Chandalar****)*** *River—10 caribou. However, only bulls may be taken May 16-June 30*	*~~July 1-June 30~~*
Bulls may be harvested	***July 1 – Oct. 10*** ***Feb. 1 – June 30***
Cows may be harvested	***Oct. 1 – Feb. 1***
Unit 25A remainder, 25B, and Unit 25D, remainder—10 caribou	*July 1-Apr. 30*

Unit 26—Caribou

Unit 26A—that portion of the Colville River drainage upstream from the Anaktuvuk River, and drainages of the Chukchi Sea south and west of, and including the Utukok River drainage—5 caribou per day as follows: Calves may not be taken.	
Bulls may be harvested	*July 1-Oct. ~~14.~~****10*** *~~Dec. 6~~* ***Feb. 1****-June 30*

Cows may be harvested; ~~however, cows accompanied by calves may not be taken July 16-Oct. 15~~	*~~July 16-Mar. 15~~* ***Oct. 1 – Feb. 1***
Unit 26A remainder—5 caribou per day as follows: Calves may not be taken.	
Bulls may be harvested	*July 1-Oct. ~~15~~* ***10*** *~~Dec. 6~~* ***Feb. 1****-June 30*
Up to 3 cows per day may be harvested; ~~however, cows accompanied by calves may not be taken July 16-Oct. 15~~	*~~July 16-Mar. 15~~* ***Oct. 1 – Feb. 1***
Unit 26B, that portion south of 69°30′ N. lat. and west of the Dalton Highway—5 caribou per day as follows:	
Bulls may be harvested	*July 1-Oct. ~~14.~~****10*** *~~Dec. 10~~* ***Feb. 1****-June 30*
Cows may be harvested	*~~July 1-Apr. 30~~* ***Oct. 1 – Feb. 1***
Unit 26B remainder—5 caribou per day as follows: *Bulls may be harvested.*	*~~July 1-June 30~~* ***July 1 – Oct. 10*** ***Feb. 1 – June 30***
Cows may be harvested.	*~~July 1-May 15~~* ***Oct. 1 – Feb. 1***
You may not transport more than 5 caribou per regulatory year from Unit 26 except to the community of Anaktuvuk Pass	

Existing State Regulations

Unit 21D—Caribou

21A	*Residents and Nonresidents: 1 bull*	*HT*	*Aug. 10 – June 30*
21B, north of the Yukon River and downstream from Ukawutni Creek	*Residents and Nonresidents*		*No open season*

21B remainder	*Residents and Nonresidents: 1 caribou*	*HT*	*Aug. 10 – Sept. 30*
21C, Dulbi River drainage and Melozitna River drainages downstream from Big Creek	*Residents and Nonresidents*		*No open season*
21C remainder	*Residents and Nonresidents: 1 caribou*	*HT*	*Aug. 10 – Sept. 30*
21D, north of the Yukon River and east of the Koyukuk River	*Residents: 2 caribou may be taken during the winter season*	*HT*	*may be announced*
21D remainder	*Residents: 5 caribou per day however, calves may not be taken*		
	Bulls	*HT*	*July 1 – Oct. 14* *Feb. 1 – June 30*
	Cows	*HT*	*Sept. 1 – Mar. 31*
	Nonresidents: 1 bull however calves may not be taken	*HT*	*Aug. 1 – Sept. 30*
21E	*Residents and Nonresidents: 1 caribou*	*HT*	*Aug. 10 – Sept. 30*

Unit 22—Caribou

22A, that portion north of the Golsovia River drainage	*Residents— 5 caribou per day, by registration permit only, up to 20 caribou total; as follows:*		

	Up to 5 bulls per day; however, calves may not be taken;	*RC800*	*no closed season*
			July 1-Mar. 31
	Up to 5 cows per day; however, calves may not be taken	*RC800*	
			Aug. 1-Sept. 30
	Nonresidents—1 bull; however, calves may not be taken	*HT*	
22A remainder	*Residents—5 caribou per day, by registration permit only, up to 20 caribou total; as follows:*		
	Up to 5 bulls per day: however calves may not be taken; bulls may not be taken Oct. 15-Jan. 31.	*RC800*	*may be announced*
	Nonresidents—1 bull; however, calves may not be taken	*HT*	*may be announced*
Unit 22B, that portion west of Golovnin Bay, and west of a line along the west bank of the Fish and Niukluk rivers to the mouth of the Libby river, and excluding all portions of the Niukluk River drainage upstream from and including the Libby River drainage	*Residents—5 caribou per day, by registration permit only, up to 20 caribou total; as follows:*		
	Up to 5 bulls per day; however, calves may not be taken;	*RC800*	*Oct. 1-Apr. 30*
	Up to 5 cows per day; however, calves may not be taken	*RC800*	*Oct. 1-Mar. 31*
	Up to 5 caribou per day; however, calves may not be taken; during the period May 1-Sept. 30, a season may be	*RC800*	*may be announced*

	announced by emergency order; however, cow caribou may not be taken April 1-Aug. 31		*may be announced*
	Nonresidents: 1 bull; however, calves may not be taken; during the period Aug. 1-Sept. 30, a season may be announced by emergency order	*HT*	
22B Remainder	*Residents—5 caribou per day, by registration permit only, up to 20 caribou total; as follows:*		
	Up to 5 bulls per day; however, calves may not be taken	*RC800*	*no closed season*
	Up to 5 cows per day; however, calves may not be taken	*RC800*	*July. 1-Mar. 31*
	Nonresidents—1 bull; however, calves may not be taken	*HT*	*Aug. 1-Sept. 30*
22C	*Residents—5 caribou per day, by registration permit only, up to 20 caribou total; as follows:*		
	Up to 5 bulls per day: however calves may not be taken; bulls may not be taken Oct. 15-Jan. 31.	*RC800*	*may be announced*
	Up to 5 cows per day: however calves may not be taken; cows may not	*RC800*	*may be announced*

	be taken Apr. 1-Aug. 31.		
	Nonresidents—1 bull; however, calves may not be taken	*HT*	*may be announced*
22D, that portion in the Pilgrim River drainage	*Residents—5 caribou per day, by registration permit only, up to 20 caribou total; as follows:*		
	Up to 5 bulls per day; however, calves may not be taken	*RC800*	*Oct. 1-Apr. 30*
	Up to 5 cows per day; however, calves may not be taken	*RC800*	*Oct. 1-Mar. 31*
	Up to 5 caribou per day; however, calves may not be taken; during the period May 1-Sept. 30, a season may be announced by emergency order; however, cow caribou may not be taken April 1-Aug. 31	*RC800*	*may be announced*
	Nonresidents: 1 bull; however, calves may not be taken; during the period Aug. 1-Sept. 30, a season may be announced by emergency order	*HT*	*may be announced*
22D, that portion in the Kuzitrin River drainage (excluding the Pilgrim River drainage) and the Agiapuk river	*Residents—5 caribou per day, by registration permit only, up to 20 caribou total; as follows:*		
	Up to 5 bulls per day;	*RC800*	*no closed season*

drainage, including tributaries	*however, calves may not be taken*		
	Up to 5 cows per day; however, calves may not be taken	*RC800*	*July 1-Mar. 31*
	Nonresidents—1 bull; however, calves may not be taken	*HT*	*Aug. 1-Sept. 30*
22E, that portion east of and including the Sanaguich River drainage	*Residents—5 caribou per day, by registration permit only, up to 20 caribou total; as follows:*		
	Up to 5 bulls per day; however, calves may not be taken	*RC800*	*no closed season*
	Up to 5 cows per day; however, calves may not be taken	*RC800*	*July 1-Mar. 31*
	Nonresidents—1 bull; however, calves may not be taken	*HT*	*Aug. 1-Sept. 30*
22E Remainder	*Residents—5 caribou per day, by registration permit only; up to 20 caribou total; as follows:*	*RC800*	*may be announced*
	Up to 5 bulls per day: however calves may not be taken; bulls may not be taken Oct. 15-Jan. 31.	*RC800*	*may be announced*
	Up to 5 cows per day: however calves may not be taken; cows may not be taken Apr. 1-Aug. 31.	*RC800*	*may be announced*

	Nonresidents—1 bull; however, calves may not be taken;	*HT*	*may be announced*

Unit 23—Caribou

23, north of and including the Singoalik River drainage	*Residents—5 caribou per day; however, calves may not be taken.* *Bulls*	*RC907*	*July 1-Oct. 14* *Feb. 1-June 30*
	Cows	*RC907*	*Jul. 15-Apr. 30*
	Nonresidents—1 bull; however, calves may not be taken	*HT*	*Aug. 1 – Sept. 30*
23 remainder	*Residents—5 caribou per day; however, calves may not be taken.* *Bulls*	*RC907*	*July 1-Oct. 14* *Feb. 1-June 30*
	Cows	*RC907*	*Sept. 1-Mar. 31*
	Nonresidents—1 bull; however, calves may not be taken	*HT*	*Aug. 1-Sept. 30*

Unit 24—Caribou

24A, south of the south bank of the Kanuti River	*Resident Hunters: 1 caribou*	*HT*	*Aug. 10 – Mar. 31*
	Nonresident Hunters: 1 caribou	*HT*	*Aug. 10 – Sept. 30*

24A, remainder	*Resident Hunters: 2 caribou*	*HT*	*July 1 – Apr. 30*
	Nonresident Hunters: 2 bulls	*HT*	*Aug 1 – Sept. 30*
24B, south of the south bank of the Kanuti River, upstream from and including that portion of the Kanuti-Kilolitna River drainage, bounded by the southeast bank of the Kodosin-Nolitna Creek, then downstream along the east bank of the Kanuti-Kilolitna River to its confluence with the Kanuti River	*Resident Hunters: 1 caribou*	*HT*	*Aug. 10 – Mar. 31*
	Nonresident Hunters: 1 caribou	*HT*	*Aug. 10 – Sept. 30*
24B remainder	*Resident Hunters: 5 caribou per day however, calves may not be taken.*		
	Bulls	*HT*	*July 1 – Oct.14* *Feb1 – June 30*
	Cows	*HT*	*July 15 – Apr. 30*
	Nonresident Hunters: 1 bull	*HT*	*Aug. 1 – Sept. 30*
24C, 24D	*Resident Hunters: 5 caribou per day however, calves may not be taken.*		

	Bulls	*HT*	*July 1- Oct. 14* *Feb 1 – June 30*
	Cows	*HT*	*Sept. 1- Mar. 31*
	Nonresident Hunters: 1 bull however calves may not be taken	*HT*	*Aug. 1 – Sept. 30*

Unit 25A—Caribou

25A, 25B, 25D remainder	*Resident Hunters: 10 caribou*	*HT*	*July 1-Apr. 30*
	Nonresident Hunters: 2 bulls	*HT*	*Aug. 1 – Sept. 30*

Unit 26—Caribou

Unit 26A the Colville River drainage upstream from the Anaktuvuk River, and drainages of the Chukchi Sea south and west of, and including the Utukok River drainage	*Resident Hunters: 5 caribou per day, however, calves may not be taken:*		
	Bulls	*RC907*	*July 1 – Oct. 14* *Feb. 1 – June 30*
	Cows	*RC907*	*July 15 – Apr. 30*
	Nonresident hunters: 1 bull; however, calves may not be taken	*HT*	*July 15– Sept.30*
Unit 26A remainder	*Resident Hunters: 5 bulls per day; however, calves may not be taken*	*RC907*	*July 1 – July 15* *Mar. 16-June 30*

	5 caribou per day three of which may be cows: calves may not be taken, and cows with calves may not be taken	*RC907*	*July 16 – Oct. 15*
	3 cows per day however, calves may not be taken	*RC907*	*Oct. 16 – Dec. 31*
	5 caribou per day three of which may be cows; calves may not be taken	*RC907*	*Jan. 1 – Mar. 15*
	Nonresident Hunters: 1 bull however, calves may not be taken	*HT*	*July 15 – Sept. 30*

Unit 26B—Caribou

Unit 26(B), Northwest portion north of the 69° 30' N. lat. and west of the east bank of the Kuparuk River to a point at 70° 10' N. lat., 149° 04' W. long., and west approximately 22 miles to 70°10' N. lat and 149°56' W. long, then following the east bank of the Kalubik River to the Arctic Ocean	*Resident Hunters: 5 caribou per day*		
	Bulls	*HT*	*No closed season*
	Cows	*HT*	*July 1- May 15*
	Nonresident Hunters: 1-bull	*HT*	*Aug. 1-Sept 15*
26B remainder	*Resident Hunters: 2 bulls*	*HT*	*Aug. 1-Apr. 30*
	Nonresident Hunters: 1 bull	*HT*	*Aug. 1-Sept. 15*

Extent of Federal Public Lands

Federal public lands comprise approximately 56% of Unit 21D and consist of 53% U.S. Fish and Wildlife Service (USFWS) managed lands and 47% Bureau of Land Management (BLM) managed lands (see **Unit 21 Map**).

Federal public lands comprise approximately 43% of Unit 22 and consist of 65% BLM managed lands, 29% National Park Service (NPS) managed lands, and 7% USFWS managed lands (see **Unit 22 Map**).

Federal public lands comprise approximately 71% of Unit 23 and consist of 56% NPS managed lands, 31% BLM managed lands, and 13% USFWS managed lands (see **Unit 23 Map**).

Federal public lands comprise approximately 64% of Unit 24 and consist of 34% USFWS managed lands, 34% NPS managed lands, and 33% BLM managed lands (see **Unit 24 Map**).

Federal public lands comprise approximately 76% of Unit 25A and consist of 97% USFWS managed lands and 3% BLM managed lands (see **Unit 25 Map**)

Federal public lands comprise approximately 73% of Unit 26A and consist of 66.9% BLM managed lands, 6.6% National Park Service (NPS) managed lands, and 0.1% USFWS managed lands. Federal public lands comprise approximately 29% of Unit 26B and consist of 22.8% USFWS managed lands, 3.6% BLM managed lands, and 2.7% NPS managed lands (see **Unit 26 Map**).

Customary and Traditional Use Determinations

Residents that have a customary and traditional use determination for caribou in Units 21, 22, 23, 24, 25A, 26A and 26B are presented in **Table 1**.

Table 1. Unit specific customary and traditional use determinations

UNIT	CUSTOMARY AND TRADITIONAL DETERMINATION
21D	Residents of Units 21B, 21C, 21D, and Huslia
22A	Residents of Units 21D west of the Koyukuk and Yukon Rivers, 22 (except residents of St. Lawrence Island), 23, 24, Kotlik, Emmonak, Hooper Bay, Scammon Bay, Chevak, Marshall, Mountain Village, Pilot Station, Pitka's Point, Russian Mission, St. Marys, Nunam Iqua, and Alakanuk
22 Remainder	Residents of Units 21D west of the Koyukuk and Yukon Rivers, 22 (excluding residents of St. Lawrence Island), 23, and 24
23	Residents of Unit 21D west of the Koyukuk and Yukon Rivers, Galena, 22, 23, 24 including residents of Wiseman but no other residents of the Dalton Highway Corridor Management Area and 26A
24	Residents of Unit 24, Galena, Kobuk, Koyukuk, Stevens Village, and Tanana
25A	Residents of Units 24A and 25
26A and 26C	Residents of Unit 26 (except the Prudhoe Bay–Deadhorse Industrial Complex), Anaktuvuk Pass, and Point Hope
26B	Residents of Unit 26, Anaktuvuk Pass, Point Hope, and Unit 24 within the Dalton Highway Corridor Management Corridor Area (DHCMA)

Regulatory History

See **Appendix A** for a summary of the regulatory history.

Current Events

Several proposals concerning Federal caribou harvest regulations in Unit 23 and Unit 26 were submitted for the 2018-2020 wildlife regulatory cycle.

At the Northwest Arctic Subsistence Regional Advisory Council meeting in March 2017, the Council voted to submit a proposal to decrease the caribou harvest limit in Unit 23 from 5 to 3 caribou/day (WP18-45).

The North Slope Subsistence Regional Advisory Council submitted a proposal requesting that Federal public lands in Units 26A and 26B be closed to caribou hunting by non-Federally qualified users (NFQU) (WP18-57).

Two proposals, the first submitted by the Western Arctic Caribou Herd Working Group (WACH Working Group) (WP18-46), and the second by Enoch Mitchell of Noatak (WP18-47), request that Federal public lands in Unit 23 be closed to caribou hunting except by Federally qualified subsistence users. Proposal WP18-47 specifically requests that the closure extend from 2018/19-2020/21 only.

Two proposals, the first submitted by the WACH Working Group (WP18-48) and the second by Louis Cusack (WP18-49), request that Federal reporting requirements for caribou in Units 22, 23, and 26A be aligned with the State's registration permit requirements.

Biological Background

The TCH, WACH, and CACH have ranges that overlap in Unit 26A (**Map 1**) and there can be considerable mixing of herds during the fall and winter (Hemming 1971). During the early 2000s, the number of caribou from the WACH, TCH, CACH, and Porcupine Caribou Herd (PCH) peaked at over 700,000 animals, which may be the highest number since the 1970s (OSM 2017b). Currently, the WACH, TCH, and CACH populations are all declining (Dau 2011, Lenart 2011, Parrett 2011). After declining slowly during the 1990s and early 2000s, the PCH has been increasing and by 2016 was at 197,000, which is the highest population yet recorded for this herd (OSM 2017b). In some years, harvest on Federal public lands within the Arctic National Wildlife Refuge (Arctic NWR) in Unit 26B is primarily from the PCH (Arthur 2017 pers. comm.).

Caribou abundance naturally fluctuates over decades (Gunn 2001, WACH Working Group 2011) and this may result in proportional constrictions and expansions of migratory pathways that shift caribou near or away from communities. Other factors may influence migratory patterns such as human disturbance, industrial development, habitat suitability, and climactic conditions. The influence of NFQU hunting activities, especially the use of aircraft and motorized vehicles as well as the harvest of lead caribou adjacent to what are considered important migratory corridors, has been an ongoing and contentious topic in the northwestern Arctic, since at least the 1980s (Georgette and Loon 1988, Jacobson 2008, Harrington and Fix 2009, Fix and Ackerman 2015, Halas 2015, NWARAC 2015, Braem et al. 2015). In the Northwest Arctic, the Unit 23 Working Group was established to assist with some of these concerns among various user groups. These user conflicts were, in part, the impetus for the closure of Federal public lands to NFQU in Unit 23 for the 2016/2017 regulatory year. Gunn (2001) reports the mean doubling rate for Alaskan caribou as 10 ± 2.3 years. Although the underlying mechanisms causing these fluctuations are uncertain, Gunn (2001) suggests climatic oscillations (i.e. Arctic and Pacific Decadal Oscillations) as the primary factor, exacerbated by predation and density-dependent reduction in forage availability resulting in poorer body condition. During the 1970s, there was little overlap between these four herds, but the degree of mixing seemed to have increased as the herds grew in the early 2000s (Lenart 2011, Dau 2011, Parrett 2011).

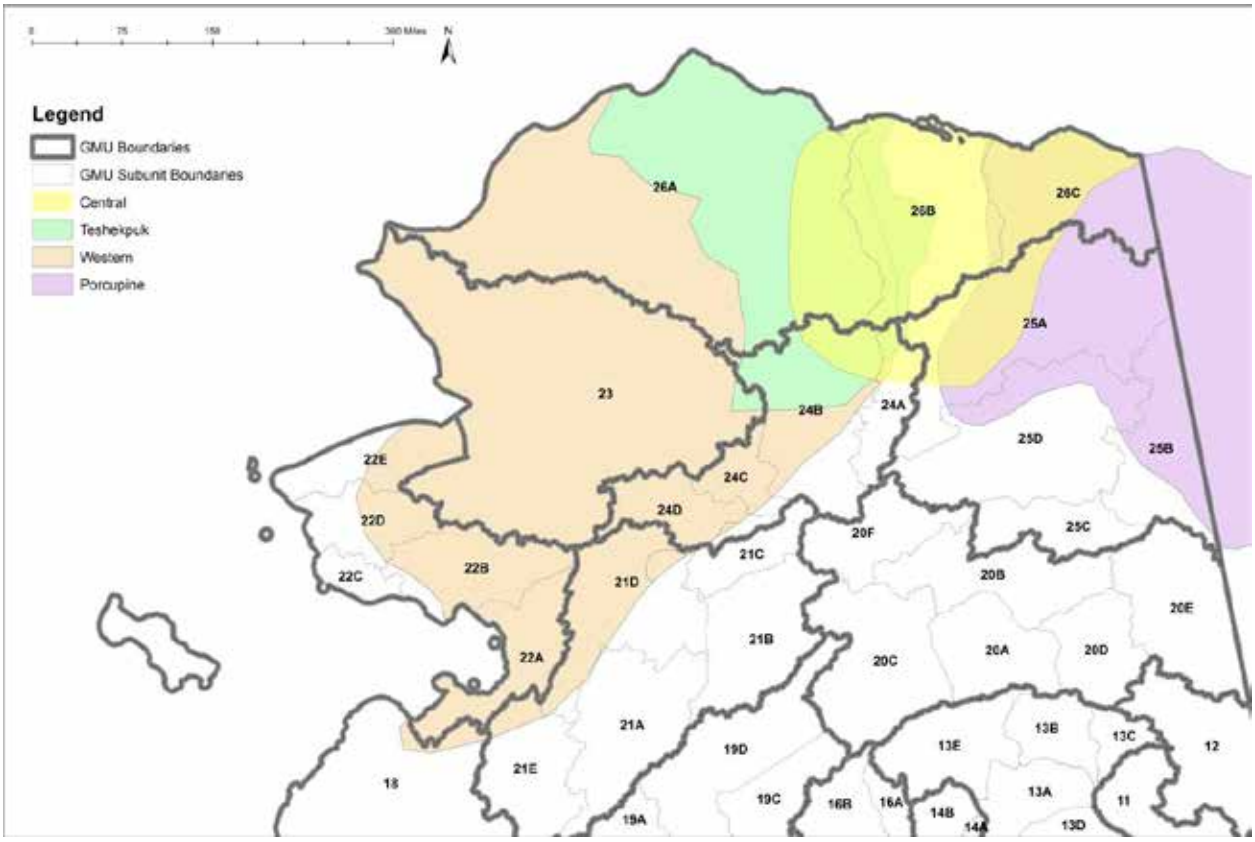
Caribou calving generally occurs during late May and early June. Weaning generally occurs in late October and early November before the breeding season (Taillon et al. 2011). Calves stay with their mothers through their first winter, which improves calves' access to food and body condition. Joly (2000) found that calves orphaned later in life have greater chances of surviving. Data from Russell et al. (1991)

suggests 50% and 75% of the calves orphaned in September and November, respectively, survived the winter (Joly 2000). Indeed, there is little evidence that calves orphaned after weaning experience strongly reduced overwintering survival rates than non-orphaned calves (Rughetti and Festa-Bianchet 2014, Joly 2000, Holand et al. 2012), although Holand et al. (2012) found orphaned calves to have greater losses of winter body mass than non-orphaned calves.

The WACH, TCH, and CACH migrate between seasonal summer and winter ranges and calving areas. Over many years, traditional migration routes have developed in response to spatial and temporal variability of environmental conditions encountered (Duquette 1988). Migration routes that were successful in previous years are likely learned by young caribou following older, more experienced animals (Pullainen 1974). Maintaining connectivity between the seasonal areas is important because restoring disturbed migration routes can be challenging (Wilcove and Wikelski 2008, Singh and Milner-Gulland 2011). Long-term climate changes may affect seasonal ranges and migratory patterns through changes in forage abundance, habitat quality, and weather (Joly et al. 2011). In addition, increased development along migration routes could increase energy costs, impede movements, or deflect caribou to less optimal areas. Understanding the importance of spatial and temporal variation of the seasonal habitat use and the migration routes are important considerations for management of caribou herds.

Central Arctic Caribou Herd

The CACH range includes the area from the eastern portion of the Arctic coastal plain of the North Slope to the Canadian border, the north side of the Brooks Range from the Itkillik River to the Canadian border, the south side of the Brooks Range from the North Fork of the Koyukuk River to the East Fork of the Teedriijik (Chandalar) River, and as far south as the Teedriijik (Chandalar) River valley (Lenart 2015). The traditional calving grounds of the CACH are between the Colville and Kuparuk rivers on the west side of the Sagavanirktok River and between the Sagavanirktok and Canning rivers on the east side. In response to oil and gas development and infrastructure in the 1990s caribou that calved in the western Unit 26B shifted their calving grounds to the southwest (Arthur and Del Vecchio 2009). The CACH summer range extends east from Fish Creek, just west of the Colville River, along the coast and inland about 30 miles to the Canadian border. Typically the CACH summer range extends from the Colville River to just east of the Katakturuk River and from the coast inland to the foothills of the Brooks Range. The winter range of the CACH occurs in the northern and southern foothills of the Brooks Range. In most years the CACH begin migrating toward the foothills of the Brooks Range in August and by September most of the caribou are in the foothills around Toolik Lake, Galbraith Lake, Accomplishment Creek, Ivishak River and the upper Sagavanirktok River. Depending on the year, the rut, which typically occurs in mid-October, can occur on the north or south side of the Brooks Range (Lenart 2015). The range of the CACH often overlaps with the PCH on the summer and winter ranges to the east and with the WACH and TCH herds on the summer and winter ranges to the west (**Map 1**) (Lenart 2015).



Map 1. Herd overlap and ranges of the Western Arctic, Teshekpuk, Central Arctic and Porcupine Caribou herds (Caribou Trails 2014).

The seasonal movements and migratory patterns of CACH have been studied using radio telemetry for the past 30 years (Cameron et al. 1979, Whiten and Cameron 1983, Cameron et al. 1986, Carruthers et al. 1987, Cameron et al. 1995, Cameron et al. 2005). Migratory patterns of the CACH are oriented principally north-south, from the summer range and calving areas on the tundra-dominated Arctic coastal plain to the winter range in the foothills and mountains of the Brooks Range (Cameron et al. 1979, Carruthers et al. 1987, Fancy et al. 1989, Cameron et al. 2002, Nicholson et al. 2016). Spring migration to the calving areas, which is led by pregnant females, occurs during April and May (Duquette and Klein 1987). After calving, males and non-pregnant females form large groups in mid-June (Cameron and Whitten 1979). Similar to the TCH, CACH often moves to windy areas along the Beaufort Sea coast or to areas with persistent patches of snow to avoid harassment by flies and mosquitoes during the middle of the summer (White et al. 1979). During August, when the insect activity lessens, the caribou begin a slow and irregular movement toward the foothills of the Brooks Range. The fall migration to the wintering areas starts in September and continues through November (Cameron et al. 1986, Lenart 2015).

From 2003-2007, movements of 54 caribou from the CACH were monitored (Nicholson et al. 2016). The annual summer and winter home ranges of the CACH, using a 90% fixed kernel utilization distribution, were similar between summer (mean = 27,929 km^2) and winter (mean = 26,585 km^2). Overlap between consecutive summer ranges was 62.4% and between consecutive winter ranges was 42.8% (Nicholson et al.

2016). The CACH typically cross the Dalton Highway from the northwest to the southeast during the fall migration, which is away from Anaktuvuk Pass (Nicholson et al. 2016). The CACH used multiple migration routes, or a network of corridors versus a single migration route. Although caribou migratory patterns varied each year, some areas were consistently used each year. The migration paths that consistently had high caribou concentrations during spring and fall migrations each year were along the Dalton Highway between Galbraith Lake and the Ribdon River (Nicholson et al. 2016, Jack Reakoff 2017 pers. comm.).

The State manages the CACH to provide for subsistence and other hunting opportunities on a sustained yield basis. State management objectives for the CACH are as follows (Lenart 2015):

- Maintain a population of at least 28,000-32,000 caribou
- Maintain accessibility of seasonal ranges for CACH caribou
- Maintain a harvest of at least 1,400 caribou if the population is ≥ 28,000 caribou
- Maintain a ratio of at least 40 bulls:100 cows
- Reduce conflicts between consumptive and nonconsumptive uses of caribou along the Dalton Highway

When the CACH was recognized as a distinct herd in 1975, the population was estimated to be 5,000 caribou (Cameron and Whitten 1979). The population increased to approximately 23,000 in 1992 (Valkenburg 1993), decreased to 18,000 in 1995, and then increased rapidly from 27,000 in 2000 to 70,034 in 2010 (Lenart 2015). Low cow mortality, high parturition rates, and high calf survival and recruitment contributed to the population increase of approximately 12% per year from 1998-2008 (Lenart 2015). In 2013, the population dropped to approximately 50,000 and by 2016 the population decreased to 22,360 caribou, which is below State management objectives (Lenart 2011, 2013, 2017a, b). The recent decline from 2010 to 2016 represented a decline of approximately 17% per year. The late spring of 2013, which killed many adult and yearling females, likely contributed to the population decline from 2010 to 2013. Two major factors influencing the population decline from 2013 to 2016 were the high mortality of adult females and emigration (Lenart 2017b). From 2013-2016 54% of the collared females (n = 54 in 2013) died and 19% switched from the CACH to other caribou herds (Lenart 2017b). Previous research indicates that predation has not played a major role in calf mortality and it is not thought to be a major factor in the decline (Lenart 2017b). Disease is also not implicated as a major factor for the decline of the CACH (Lenart 2017b). The State attributes the decline between 2013 and 2016 censuses to a large proportion of older females that died of old age, the late spring of 2013, and herd switching (Lenart 2017a).

Composition surveys are usually conducted during the fall near the peak of the rut to take advantage of the mixing of the bulls, cows, and calves. Composition counts were conducted in 2009-2012, 2014, and 2016 (Lenart 2015, 2017a). Composition surveys were not done in 2013 because the CACH was mixed with the PCH (**Table 2**) (Lenart 2015). The calf:cow ratio did not decline until after 2012 (**Table 2**). From 2009-2012 calf:cow ratios averaged 49 calves:100 cows (**Table 2**) (Lenart 2015). The calf:cow ratio was 48 calves: 100 cows when the population dropped to 22,360 caribou in 2016 (Lenart 2017a). Calf:cow ratios for calves ≤ 4 years old, were above 70 calves:100 cows during the period when the herd was growing between 2000 and 2010 (Lenart 2017a). From 2010-2016, when the herd was declining, the calf:cow ratio

for older calves dropped below the 70 calves:100 cows. Although the bull:cow ratio had declined to 39 bulls:100 cows in 2016, it was still close to the State recommended objective of 40 (Lenart 2015, 2017b) between 2000 and 2010 (Lenart 2017a).

Table 2. CACH sex and age composition information collected during fall composition surveys, 2009-2014 (Lenart 2015)[a].

Date	Bulls:100 cows	Calves:100 cows	Percent Calves (n)	Percent Cows (n)	Percent Bulls (n)	Sample Size	Groups
13-14 Oct. 2009	50	33	18 (1,193)	55 (3,641)	27 (1,814)	6,648	19
23 Oct. 2010	50	46	23 (889)	51 (1,930)	26 (968)	3,787	12
13 Oct. 2011	69	56	25 (1303)	44 (2,306)	31 (1,590)	5,199	22
14 Oct. 2012	56	61	23 (1,132)	55 (1,845)	22 (1,039)	4,016	15
13-14 Oct. 2014[b]	41	42	23 (462)	55 (1,097)	22 (445)	2,004	18
2016	39	48					

[a] 2016 data is incomplete (Lenart 2017b)

[b] Data may not be comparable with previous years due to small sample size.

Teshekpuk Caribou Herd

The TCH calving and summering areas overlap with the eastern portion of the National Petroleum Reserve–Alaska (NPR–A). Most of the TCH moves toward Teshekpuk Lake in May to calve in early June. The primary calving grounds of the TCH (approximately 1.8 million acres) occur to the east, southeast and northeast of Teshekpuk Lake (Person et al. 2007, Wilson et al. 2012). From late June through July cows and bulls move to the Beaufort Sea coast from Dease Inlet to the mouth of the Kogru River (Utqiagvik (Barrow) to the Colville River Delta), around the north and south side of the Teshekpuk Lake, and the sand dunes along the Ikpikpuk River to seek relief from insects (Carroll 2007, Parrett 2007). The narrow corridors of land to the east and northwest of the Teshekpuk Lake are important migratory corridors to insect relief areas as well (Yokel et al. 2009). River corridors are also used more during periods of insect harassment. Fall and winter movements are more variable, although most of the TCH winters on the coastal plain around Atqasuk, south of Teshekpuk Lake. However, the TCH has wintered as far south as the Seward Peninsula, as far east as the Arctic NWR, and in the foothills and mountains of the Brooks Range (Carroll 2007). In 2008/2009, the TCH used many of these widely disparate areas in a single year (Parrett 2011, 2015a). From 2007-2011, the TCH wintered in four relatively distinct areas: the coastal plain between Atqasuk and Wainwright; the coastal plain west of Nuiqsut; the central Brooks Range; and the shared winter ranges with the WACH in the Noatak, Kobuk, and Selawik drainages. During the winters of 2012-2013 and 2013-2014, the TCH wintered primarily near Atqasuk and Wainwright and east of Anaktuvuk Pass (Parrett 2015a).

The State manages the TCH to provide for subsistence and other hunting opportunities on a sustained yield basis, to ensure that adequate habitat exists, and provide for viewing and other uses of caribou (Parrett 2011). Specific State management objectives for the TCH are as follows (Parrett 2011):

Attempt to maintain a minimum population of 15,000 caribou, recognizing that caribou numbers naturally fluctuate.

- Maintain a harvest level of 900–2,800 caribou using strategies adapted to population levels and trends.
- Maintain a population composed of least 30 bulls per 100 cows.
- Monitor herd characteristics and population parameters (on an annual or regular basis).
- Develop a better understanding of the relationships and interactions among North Slope caribou herds.
- Encourage cooperative management of the herd and its habitat among State, Federal, and local entities and all users of the herd.
- Seek to minimize conflicts between resource development and the TCH.

Since 1984, the minimum population of the TCH has been estimated from aerial photocensuses and radio-telemetry data. Population estimates are determined by methods described by Rivest et al. (1998), which account for caribou in groups that do not have a collared animal and for missing collars. Based on these methods the TCH population increased from an estimated 18,292 caribou (minimum estimate 11,822) in 1982 to 68,932 caribou (minimum estimate 64,106) in 2008. The minimum estimates are derived from the visual estimate in 1982 and from the aerial photocensus minimum after 1982. From 2008 to 2014, the population declined by almost half to 39,000 caribou (**Figure 1**) (Parrett 2015a). Interpretation of population estimates is difficult due to movements and range overlap among caribou herds, which results in both temporary and permanent immigration and emigration (Person et al. 2007). For example, the minimum count in 2013 contained an unknown number of CACH caribou (Parrett 2015a). Following the 2013 census, Alaska Department of Fish and Game (ADF&G) made the decision to manage the TCH based on the minimum count because the bulk of the animals that were estimated rather than counted were with the WACH at the time of the photocensus (Parrett 2015b, pers. comm.). In 2015, the minimum count was 35,181 with a population estimate of 41,542 (SE = 3,486) (Parrett 2017a, pers. comm.).

In 2013 and 2016 the number of bulls:100 cows was39 bulls:100 cows and 28 bulls:100 cows in 2016, respectively (**Figure 2**) (Parrett 2011, 2013, 2015a, Parrett 2017a, pers. comm.). Comparison of bull:cow and calf:cow ratios from 1991-2000 and later years is not possible due to changes in methodology. From 2009-2013 the calf:cow ratio increased from 18 calves:100 cows to 48 calves: 100 cows in 2016 (Parrett 2013, 2015a, Parrett 2017a, pers. comm.). In addition, the number of short–yearlings:adults, which is a measure of recruitment, declined from an average of 20 short–yearlings:100 adults between 1999 and 2008 to an average of 14 short–yearlings:100 adults from 2009-2014 (**Figure 3**) (Parrett 2013) and increased in 2016 to 29 short-yearlings:100 adults (Parrett 2017a, pers. comm.).

The annual mortality of adult radio collared females from the TCH has remained close to the long term (1991-2012) average of 14.5% (range 8–25%) (Parrett 2011, 2015a, Caribou Trails 2014). As the TCH

has declined, calf weights declined, indicating that poor nutrition may be having a significant effect on this herd (Carroll 2015, pers. comm., Parrett 2015b, pers. comm.). In 2016 increased calf weights, high adult female survival (92%), high yearling recruitment (29 yearlings:100 adults), and high calf production (81%), and a high calf:cow ratio (48 calves:100 cows) suggest that the population may be stable or declining at a slower rate (Parrett 2017a, pers. comm.) In contrast, the body condition of individuals from the WACH, which also declined dramatically, has remained relatively good, indicating that caribou are still finding enough food within their range (Caribou Trails 2014, Dau 2014). A recent study found that calf production was low, calf survival on calving grounds was high, 40% of the concentrated wintering range was on NPS land, and that starvation was a significant mortality factor on non-NPS lands (Parrett 2017a, pers. comm.). The late spring in 2013 likely contributed to the decline in winter survival in 2014.

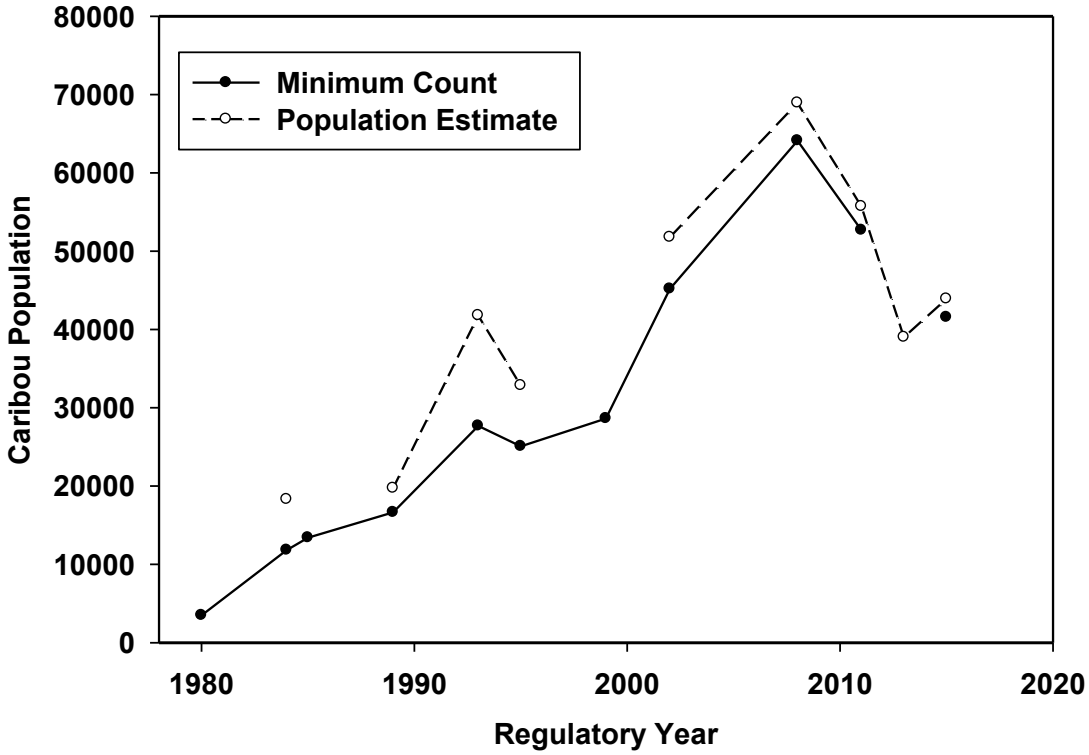


Figure 1. Minimum counts and population estimates of the Teshekpuk Caribou Herd from 1980-2014. Population estimates from 1984-2013 are based on aerial photographs of groups of caribou that contained radio–collared animals (Parrett 2011, 2013, Parrett 2015a).

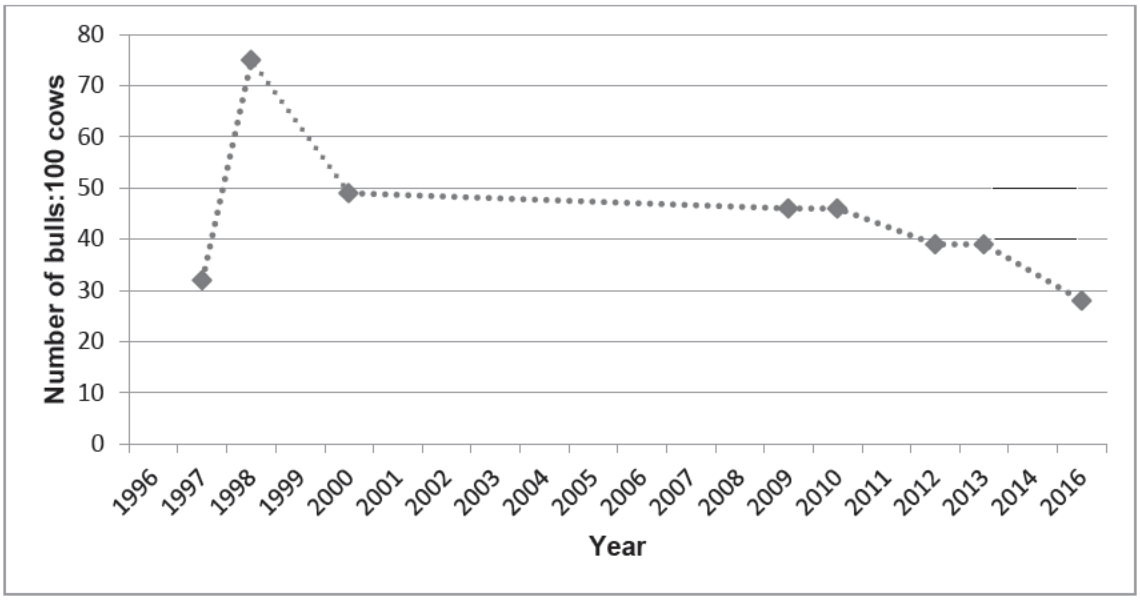


Figure 2. Bull:cow ratios of the Teshekpuk Caribou Herd (Parrett 2013).

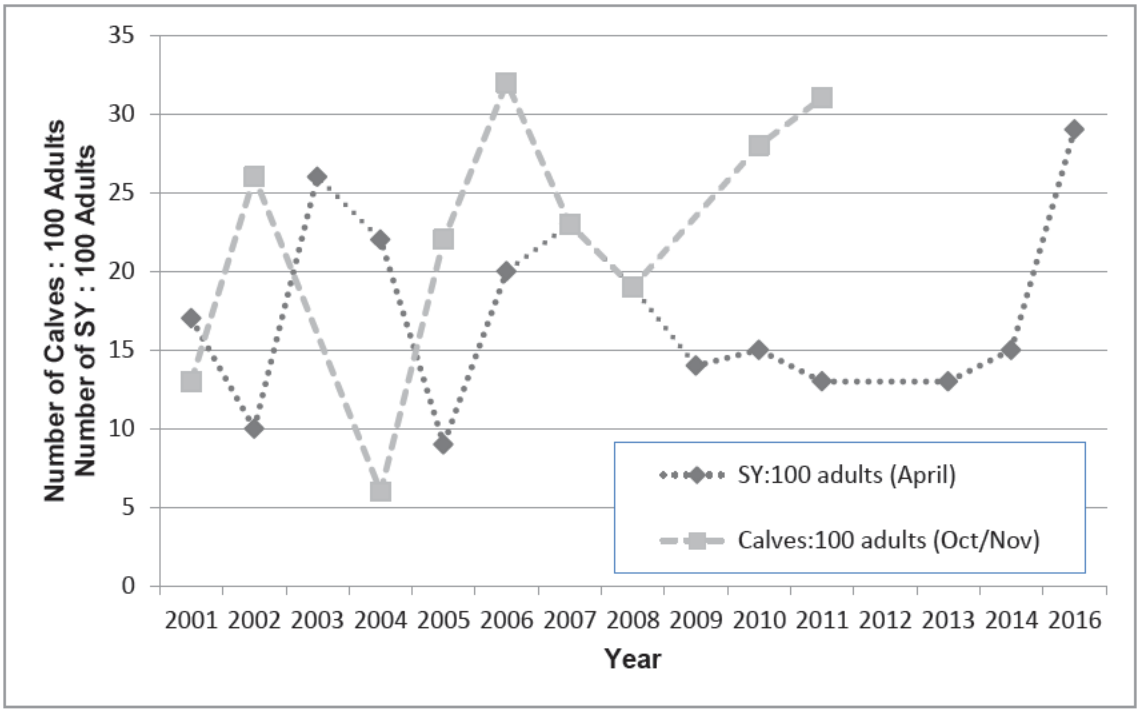


Figure 3. Calf:adult and short -yearling (SY):adult ratios for the Teshekpuk Caribou Herd (Parrett 2015a). Short-yearlings are 10-11 months old caribou.

Western Arctic Caribou Herd

The WACH, the largest herd in Alaska, has a home range of approximately 157,000 mi^2 in northwestern Alaska (**Map 2**). In the spring, most mature cows move north to calving grounds in the Utukok Hills, while bulls and immature cows lag behind and move toward summer range in the Wulik Peaks and Lisburne Hills area (Dau 2011, WACH Working Group 2011). Spring migration for the WACH usually begins around April 1 (Joly 2017). Dau (2013) determined the calving dates for the WACH to be June 9–13. This is based upon long-term movement and distribution data obtained from radio-collared caribou (these are the dates cows ceased movements and were assumed to be calving). After calving, cows and calves move west toward the Lisburne Hills where they mix with the remaining bulls and non-maternal cows. During the summer the herd moves rapidly to the Brooks Range.

In the fall the herd moves south toward their wintering grounds in the northern portion of the Nulato Hills. Rut occurs during fall migration (Dau 2011, WACH Working Group 2011). Dau (2013) determined the WACH rut dates to be October 22–26 based on back-calculations from calving dates using a 230-day gestation period. Since about 2000, the timing of fall migration has been less predictable, often occurring later than in previous decades (Dau 2015a). Approximately 99% of the WACH migrate through the Noatak National Preserve and the Gates of the Arctic National Park (Joly 2017). From 2010-2015, the average date that GPS collared caribou crossed the Noatak River ranged from Sep. 30 – Oct. 23 (**Figure 4**) (Joly and Cameron 2017). The proportion of caribou using certain migration paths varies each year (Joly and Cameron 2017). Changes in migration paths are likely influenced by multiple factors including food availability, snow depth, rugged terrain, and dense vegetation (Fullman et al. 2017, Nicholson et al. 2016). If caribou travelled the same migration routes every year, their food resources would likely be depleted (NWARAC 2016). In recent years (2012-2014), the path of fall migration has shifted east (Dau 2015a). The caribou migrated early in 2016 and the mean distance travelled was 1932 miles which is about average. More of the herd crossed the eastern portion of the Noatak River compared to 2015 when a greater proportion crossed the western Noatak River near the coast (Joly 2017). The start of the cow fall migration can vary by a month and by October 1 many of the cows will have passed through the northern portion of Unit 23 while the bulk of the WACH will still be migrating through the southern half of Unit 23. On average, collared cows cross the Selawik River during fall migration around Oct. 15 and are still migrating on Oct. 1 (Joly 2017), the proposed opening cow season for Unit 22. In Units 26A and 26B most of the cow caribou will have migrated through.

In part, due to the collapse of the WACH in the 1970s, the WACH Working Group was formed. In 2003 it developed a WACH Cooperative Management Plan, and revised it in 2011 (WACH Working Group 2011). The WACH Management Plan identifies seven plan elements: cooperation, population management, habitat, regulations, reindeer, scientific and traditional ecological knowledge, and education as well as associated goals, strategies, and management actions. As part of the population management element, the WACH Working Group developed a guide to herd management determined by population size, population trend, and harvest rate. Revisions to recommended harvest levels under liberal and conservative management (+/- 100 - 2,850 caribou) were made in December 2015 (WACH Working Group 2015, **Table 3**). Potential management actions and harvest recommendations for each management level can be found

in Appendix 2 of the Western Arctic Caribou herd Cooperative Management Plan (WACH Working Group 2011).

The State manages the WACH to protect the population and its habitat, provide for subsistence and other hunting opportunities on a sustained yield basis, and provide for viewing and other uses of caribou (Dau 2011). State management objectives for the WACH are listed in the 2011 Western Arctic Caribou Cooperative Management Plan (WACH Working Group 2011, Dau 2011) and include:

- Encourage cooperative management of the WACH among State, Federal, local entities, and all users of the herd.
- Manage for healthy populations using management strategies adapted to fluctuating population levels and trends.
- Assess and protect important habitats.
- Promote consistent and effective State and Federal regulations for the conservation of the WACH.
- Seek to minimize conflict between reindeer herders and the WACH.
- Integrate scientific information, traditional ecological knowledge of Alaska Native users, and knowledge of all users into management of the herd.
- Increase understanding and appreciation of the WACH through the use of scientific information, traditional ecological knowledge of the Alaska Native users, and knowledge of all other users.

The WACH population declined rapidly in the early 1970s bottoming out at about 75,000 animals in 1976. Aerial photocensuses have been used since 1986 to estimate population size. The WACH declined at an average annual rate of 7.1% from approximately 490,000 animals in 2003 to 235,000 in 2013 (Dau 2011, 2013, 2014, 2015a; Caribou Trails 2014) (**Figure 4**).

Between 1982 and 2011, the WACH was within the liberal management level prescribed by the WACH Working Group (**Table 3**). In 2013, the WACH population estimate fell below the threshold for liberal management of a decreasing population (265,000), slipping into the conservative management level. In July 2015, ADF&G attempted an aerial photocensus of the herd. However, the photos taken could not be used due to poor light conditions that obscured unknown portions of the herd (Dau 2015b). ADF&G conducted a successful photocensus of the WACH on July 1, 2016. This census resulted in a minimum count of 194,863 caribou with a point estimate of 200,928 (Standard Error = 4,295), suggesting the WACH is still within the conservative management level, although close to the threshold for preservative management (**Figure 5, Table 3**)(Parrett 2016a). Results of this census indicate an average annual decline of 5% per year since 2013, representing a much lower rate than the 15% annual decline between 2011 and 2013. The large cohorts of 2015 and 2016, which currently comprise a substantial proportion of the herd, contributed to the recent decreased rate of decline, but remain vulnerable to difficult winter conditions due to their young age (Parrett 2016a). The data from the 2017 photo census is currently being analyzed by ADF&G (Parrett 2017b, pers. comm.).

Between 1970 and 2016, the bull:cow ratio exceeded critical management levels in all years except 1975, 2001, and 2014 (**Table 4**). Reduced sampling intensity in 2001 likely biased the 2001 bull:cow ratio low (Dau 2013). Since 1992, the bull:cow ratio has trended downward (Dau 2015a). The average annual

number of bulls:100 cows was greater during the period of population growth (54:100 between 1976–2001) than during the recent period of decline (44:100 between 2004–2016). Additionally, Dau (2015a) states that while trends in bull:cow ratios are accurate, actual values should be interpreted with caution due to sexual segregation during sampling and the inability to sample the entire population, which likely account for more annual variability than actual changes in composition.

Although factors contributing to the decline are not known with certainty, increased adult cow mortality and decreased calf recruitment and survival played a role (Dau 2011). Since the mid-1980s, adult mortality has slowly increased while recruitment has slowly decreased (Dau 2013). Increased survival and recruitment is important to slow or reverse the current decline. In a population model developed specifically for the WACH, Prichard (2009) found adult survival to have the largest impact on population size. Calf production has likely had little influence on the population trajectory (Dau 2013, 2015a). Between 1990 and 2003, the June calf:cow ratio averaged 66 calves:100 cows/year. Between 2004 and 2016, the June calf:cow ratio averaged 71 calves:100 cows/year (**Table 4, Figure 6**). In June 2016, 85 calves:100 cows were observed, which approximates the highest parturition level ever recorded for the herd (86 calves:100 cows in 1992) (Dau 2016a).

Decreased calf survival through summer and fall and recruitment into the herd are likely contributing to the current population decline (Dau 2013, 2015a). Fall calf:cow ratios indicate calf survival over summer. Between 1976 and 2016, the fall calf:cow ratio ranged from 35 to 59 calves:100 cows/year, averaging 46 calves:100 cows/year (**Figure 6**). Fall calf:cow ratios declined from an average of 46 calves:100 cows/year between 1990-2003 to an average of 42 calves:100 cows/year between 2004-2016 (Dau 2015a, **Figure 6**). Since 2008, ADF&G has recorded calf weights at Onion Portage as an index of herd nutritional status. In September 2015, calf weights averaged 100 lbs., the highest average ever recorded (Parrett 2015c).

Similarly, the ratio of short-yearlings (SY, 10-11 months old caribou) to adults provides a measure of overwintering calf survival and recruitment. Between 1990 and 2003, SY:adult ratios averaged 20 SY:100 adults/year. Since the decline began in 2003, SY:adult ratios have averaged 16 SY:100 adults/year (2004-2016, **Figure 6**). However, 23 SY:100 adults were observed during spring 2016 surveys, the highest ratio recorded since 2007 (Dau 2016b). The overwinter calf survival for the 2015 cohort (Oct. 2015-June 2016) was 84% (Parrett 2016b). While 2016 measures suggest improvements in recruitment, the overall trend since the early 1980s has been downward (Dau 2015a).

Increased cow mortality is likely affecting the trajectory of the herd (Dau 2011, 2013). The annual mortality rate of radio-collared adult cows increased, from an average of 15% between 1987 and 2003, to 23% from 2004–2014 (Dau 2011, 2013, 2014, 2015a). Estimated mortality includes all causes of death including hunting (Dau 2011). Dau (2015a) states that cow mortality estimates are conservative due to exclusion of unhealthy (i.e. diseased) and yearling cows. Dau (2009, 2013) reported that rain–on–snow events, deep snow and winter thaws may have contributed to the relatively high estimated mortality rates of 23% during 2008-2009, 27% during 2009-2010 and 33% in 2011-2012. Prior to 2004, estimated adult cow mortality only exceeded 20% twice, but has exceeded 20% in 7 out of 9 regulatory years between 2004 and 2012. The annual mortality rate was 8% as of April 2016 (Dau 2016b). This may fluctuate

substantially throughout the year based on changing local conditions and harvest levels. Dau (2015a) suggests that mortality rates may also change in subsequent management reports as the fate of collared animals is determined, and that these inconsistencies are most pronounced for the previous 1–3 years.

Far more caribou died from natural causes than from hunting between 1992 and 2012. Cow mortality remained constant throughout the year. However, natural and harvest mortality for bulls spiked during the fall. Predation, particularly by wolves, accounted for the majority of the natural mortality (Dau 2013). However, as the WACH has declined and estimated harvest has remained relatively stable, the percentage of mortality due to hunting has increased relative to natural mortality. For example, during the period October 1, 2013 to September 30, 2014, estimated hunting mortality was approximately 42% and estimated natural mortality about 56% (Dau 2014). In previous years (1983–2013), the estimated hunting mortality exceeded 30% only once in 1997-1998 (Dau 2013). Additionally, Prichard (2009) and Dau (2015a) suggest that harvest levels and rates of cow harvest can greatly impact population trajectory. If bull:cow ratios continue to decline, harvest of cows may increase, exacerbating the current population decline.

Dau (2015a) cites fall and winter icing events as the primary factor initiating the population decline in 2003. Increased predation, hunting pressure, deteriorating range condition (including habitat loss and fragmentation), climate change, and disease may also be contributing factors (Gunn 2001, Joly et al. 2007, Dau 2013, 2014, 2015a). Changing climatic conditions can affect snow depth, icing, forage quality and growth, frequency, location, and intensity of wildfires, insect abundance, and predation which can affect migration and have long-term population level effects (Joly et al. 2011). Joly et al. (2007) documented a decline in lichen cover in portions of the wintering areas of the WACH. Dau (2011, 2014) reported that degradation in range condition is not thought to be a primary factor in the decline of the WACH because animals in the WACH, unlike the TCH, have generally maintained good body condition since the decline began. Body condition is assessed on a subjective scale from 1-5. The body condition of adult females in 2015 were characterized as "fat" (mean = 3.9/5) with no caribou being rated as skinny or very skinny (Parrett 2015c). However, the body condition of the WACH in spring may be a better indicator of the effects of winter range condition versus the fall when the body condition of the WACH is routinely assessed and when caribou are in prime condition, and weights may be more reflective of summer range conditions (Joly 2015, pers. comm.). Fall condition is also the best indicator of whether or not caribou are likely to become pregnant (Parrett 2017a, pers. comm.).

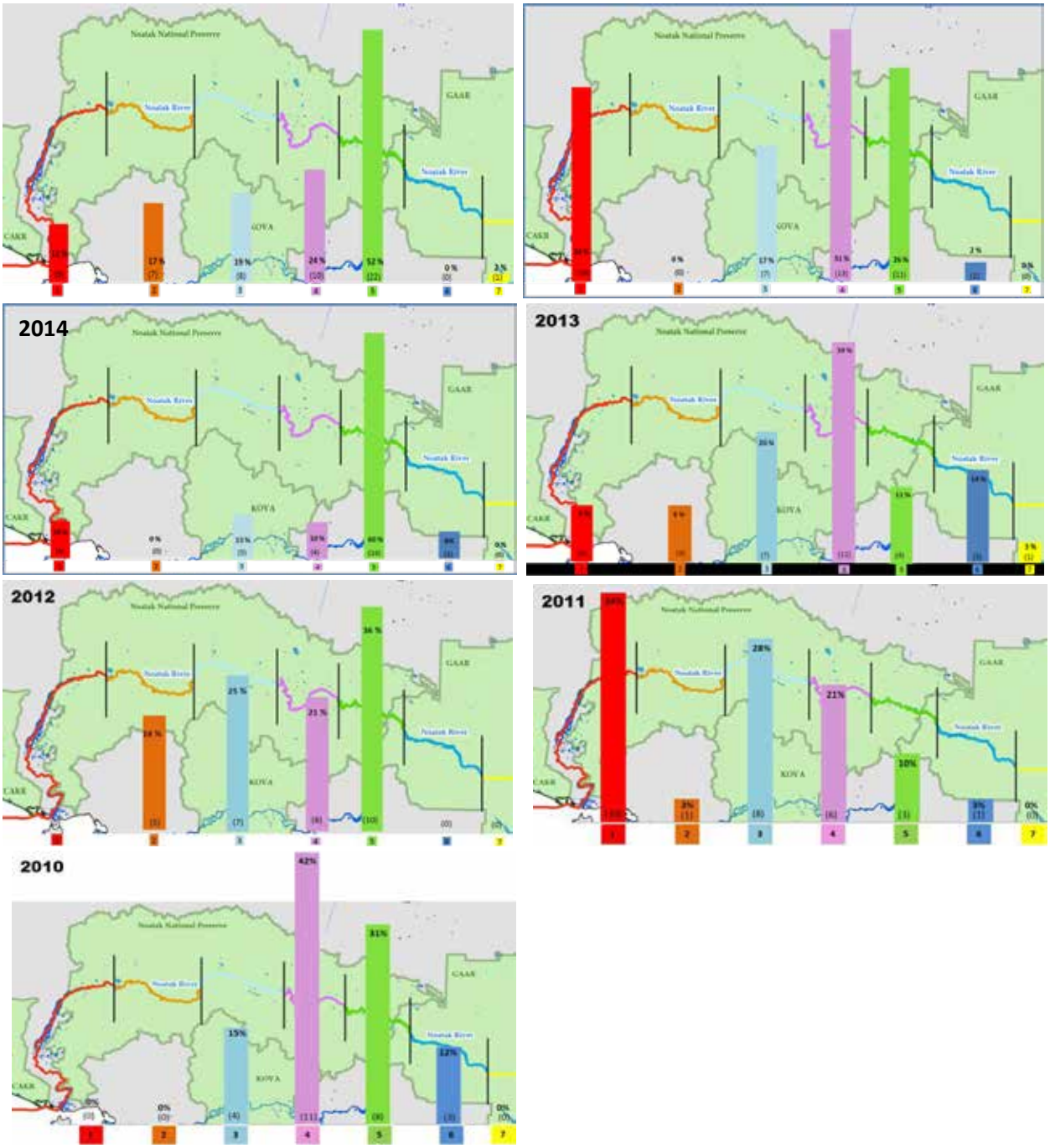
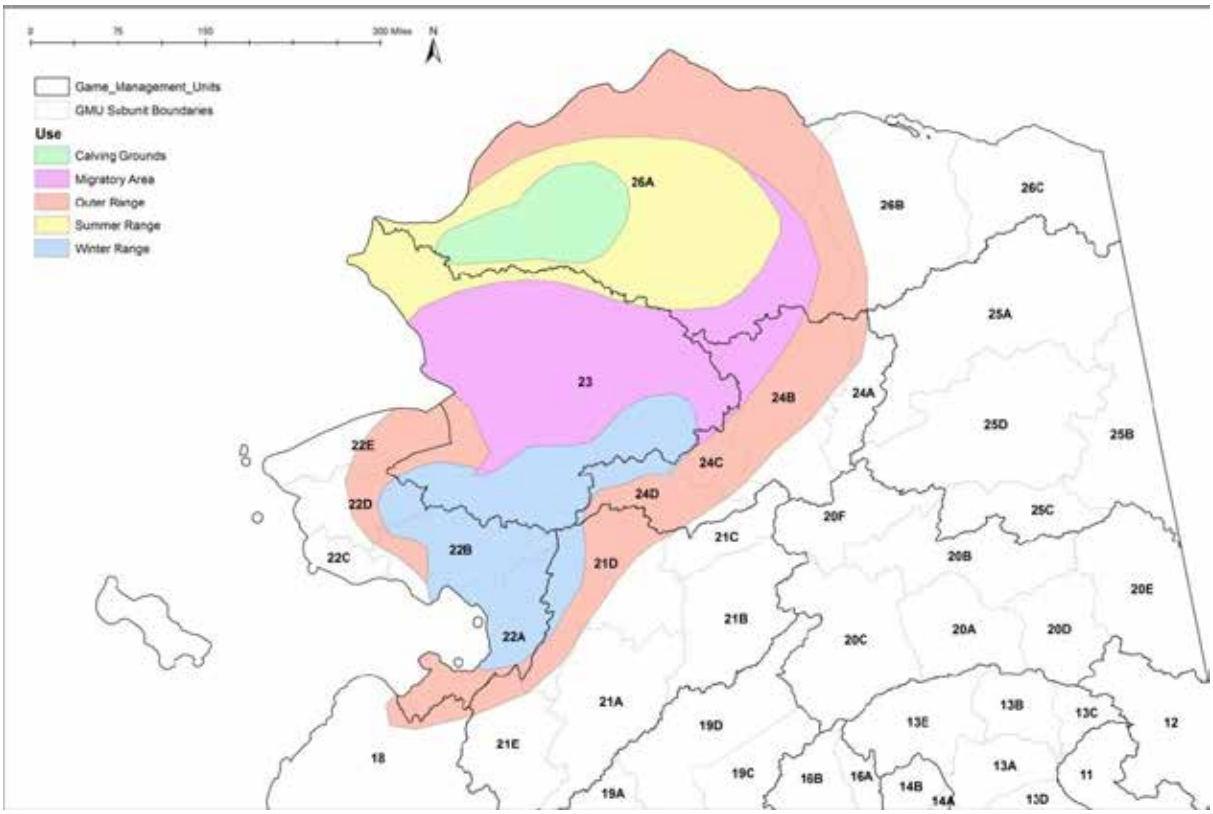


Figure 4. Distribution of caribou crossing the Noatak River during fall. Histograms depict where collared female caribou crossed the Noatak River, generally from north to south, on their fall migration. Relative percentages (top number) and the absolute number (middle number) of caribou are provided. The river is divided into seven (lowest number) color-coded segments, which are displayed in the background. The middle five segments are 100 river kilometers long, while the westernmost segment (red) is 200 km (before extending into the Chukchi Sea) and the easternmost (yellow) runs as far east as WACH caribou are known to migrate. The number of caribou with GPS collars ranged from 39-79 caribou/year with later years having more collared caribou than earlier years (Joly and Cameron 2017).



Map 2. Calving grounds, wintering range, summering range, migratory areas, and home range extent of the Western Arctic Caribou Herd (WACH Working Group 2011)

Table 3. Western Arctic Caribou Herd management levels using herd size, population trend, and harvest rate (WACH Working Group 2011, 2015).

Management and Harvest Level	Population Trend			Harvest Recommendations May Include:
	Declining Low: 6%	**Stable Med: 7%**	**Increasing High: 8%**	
Liberal	Pop: 265,000+	Pop: 230,000+	Pop: 200,000+	• Reduce harvest of bulls by nonresidents to maintain at least 40 bulls: 100 cows • No restriction of bull harvest by resident hunters unless bull:cow ratios fall below 40 bulls:100 cows
	Harvest: 16,000-22,000	Harvest: 16,000-22,000	Harvest: 16,000-22,000	
Conserva-tive	Pop: 200,000-265,000	Pop: 170,000-230,000	Pop: 150,000-200,000	• No harvest of calves • No cow harvest by nonresidents • Restriction of bull harvest by nonresidents • Limit the subsistence harvest of bulls only when necessary to maintain a minimum 40:100 bull:cow ratio
	Harvest: 12,000-16,000	Harvest: 12,000-16,000	Harvest: 12,000-16,000	
Preservative	Pop: 130,000-200,000	Pop: 115,000-170,000	Pop: 100,000-150,000	• No harvest of calves • Limit harvest of cows by resident hunters through permit hunts and/or village quotas • Limit the subsistence harvest of bulls to maintain at least 40 bulls:100 cows • Harvest restricted to residents only, according to state and federal law. Closure of some federal public lands to nonqualified users may be necessary
	Harvest: 8,000-12,000	Harvest: 8,000-12,000	Harvest: 8,000-12,000	
Critical Keep Bull:Cow ratio ≥ 40 Bulls:100 Cows	Pop: < 130,000	Pop: < 115,000	Pop: < 100,000	• No harvest of calves • Highly restrict the harvest of cows through permit hunts and/or village quotas • Limit the subsistence harvest of bulls to maintain at least 40 bulls:100 cows • Harvest restricted to residents only, according to state and federal law. Closure of some federal public lands to nonqualified users may be necessary
	Harvest: 6,000-8,000	Harvest: 6,000-8,000	Harvest: 6,000-8,000	

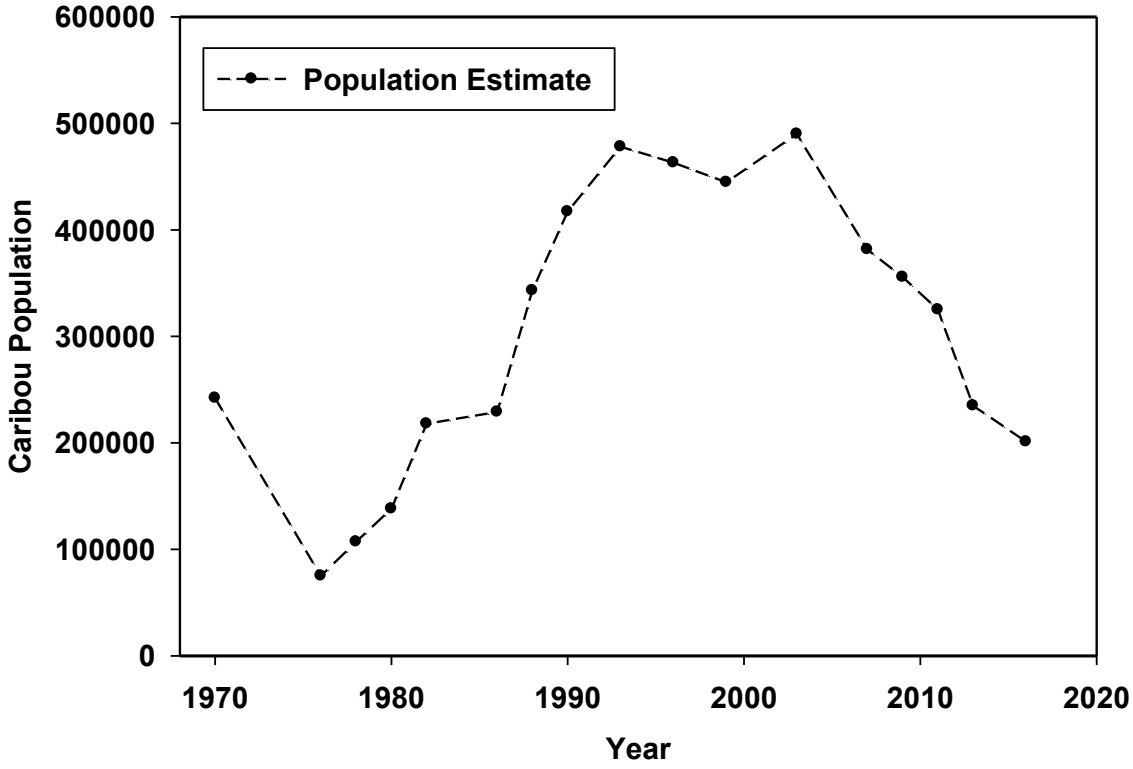


Figure 5. Maximum population estimates of the Western Arctic Caribou Herd from 1970-2016. Population estimates from 1986-2016 are based on aerial photographs of groups of caribou that contained radio–collared animals (Dau 2011, 2013, 2014, 2015a, Parrett 2017a, pers. comm.).

Table 4. Western Arctic Caribou Herd fall composition 1976 – 2014 (Dau 2011, 2013, 2014, 2015a, 2016b).

Regulatory Year	Total bulls: 100 cows[a]	Calves: 100 cows	Calves: 100 adults	Bulls	Cows	Calves	Total
1976/1977	63	52	32	273	431	222	926
1980/1981	53	53	34	715	1,354	711	2,780
1982/1983	58	59	37	1,896	3,285	1,923	7,104
1992/1993	64	52	32	1,600	2,498	1,299	5,397
1995/1996	58	52	33	1,176	2,029	1,057	4,262
1996/1997	51	49	33	2,621	5,119	2,525	10,265
1997/1998	49	43	29	2,588	5,229	2,255	10,072
1998/1999	54	45	29	2,298	4,231	1,909	8,438
1999/2000	49	47	31	2,059	4,191	1,960	8,210
2001/2002	38	37	27	1,117	2,943	1,095	5,155
2004/2005	48	35	24	2,916	6,087	2,154	11,157
2006/2007	42	40	28	1,900	4,501	1,811	8,212
2008/2009	45	48	33	2,981	6,618	3,156	12,755
2010/2011	49	35	23	2,419	4,973	1,735	9,127
2012/2013	42	38	27	2,119	5,082	1,919	9,120
2014/2015	39	[b]	[b]	[b]	[b]	[b]	[b]
2015/2016	41[c]	54	[b]	[b]	[b]	[b]	[b]

[a] 40 bulls:100 cows is the minimum level recommended in the WACH Cooperative Management Plan (WACH Working Group 2011)
[b] Data not available
[c] Estimated from power point presentation presented at the WACH Working Group Meeting December 13, 2016 (Parrett 2016a)

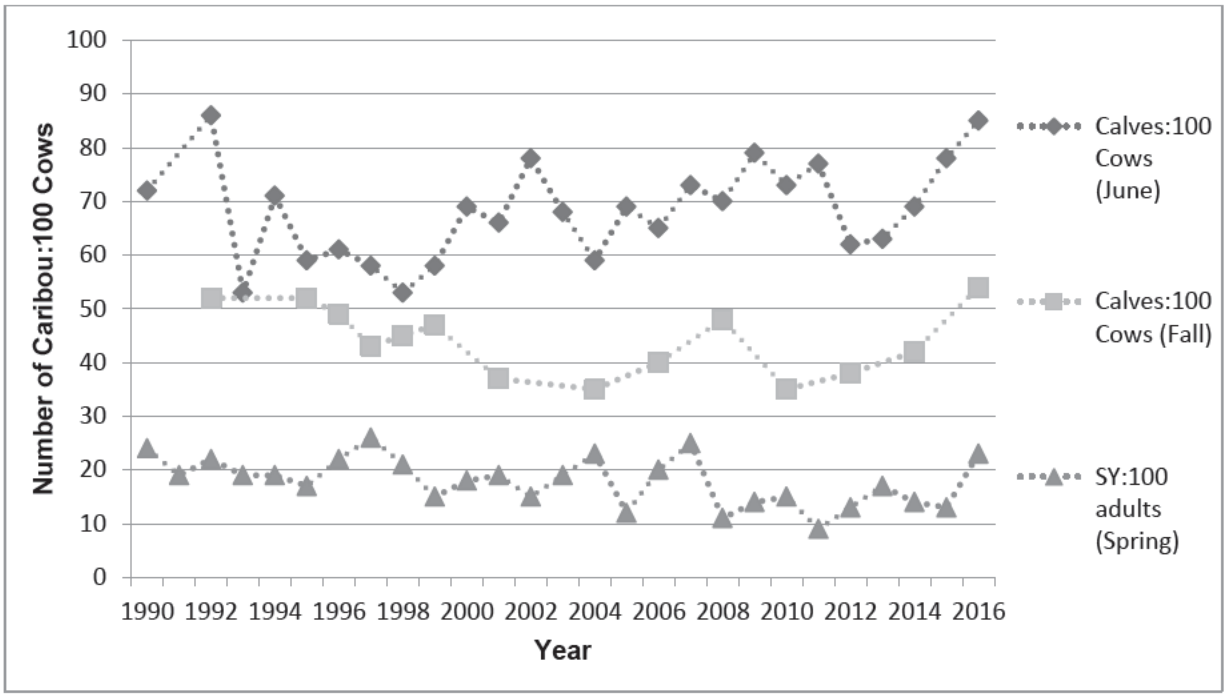


Figure 6. Calf:cow and short-yearling (SY):adult ratios for the WACH (Dau 2013, 2015a, 2016a, ADF&G 2017c). Short -yearlings are 10-11 months old caribou.

Habitat

Caribou feed on a wide variety of plants including lichens, fungi, sedges, grasses, forbs, and twigs of woody plants. Arctic caribou depend primarily on lichens during the fall and winter, but during summer they feed on leaves, grasses and sedges (Miller 2003). The importance of high use areas for the TCH at Teshekpuk Lake during the summer has been well documented (Person et al. 2007, Carroll 2007, Parrett 2011, Wilson et al. 2012, Smith et al. 2015). Presumably the importance of areas to the north, south, and east of Teshekpuk Lake during calving is due to the high concentration of sedge-grass meadows (Wilson et al. 2012) and extremely low predator densities (Parrett 2017, pers. comm.). In 2013 BLM closed 3.1 million acres around Teshekpuk Lake in the NPR–A to oil and gas development in recognition of the importance of these areas for caribou, waterfowl and shorebirds (BLM 1998, 2008, 2013; Cameron et al. 2005, Arthur and Del Vecchio 2009).

Harvest History

Reliance on caribou from a particular herd varies by community. Weather, distance of caribou from the community, terrain, and high fuel costs are some of the factors that can affect the availability and accessibility of caribou (Parrett 2015a). Local residents in Units 21D, 23, 24, 25A, 26A and 26B are defined as those having customary and traditional use in these units (**Table 1**). Generally, in State harvest monitoring efforts, local residents are those that reside within the range of the WACH, TCH, or CACH. Point Hope, which is located in Unit 23, and Anaktuvuk Pass, which is located in Unit 24B near the border with Unit 26A, have a customary and traditional use determination for caribou in Units 26A and 26B.

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Documentation of harvest for Alaska residents has varied depending on whether they live north or south of the Yukon River. Prior to 2017/2018, Alaska residents who lived north of the Yukon River were not required to obtain harvest tickets although they were required to register with ADF&G or an authorized vendor. Compliance with registration requirement was low and not enforced (Braem 2017a, pers. comm.). Harvest by Alaska residents who live south of the Yukon River and nonresidents was monitored using harvest reports (Lenart 2015, Dau 2015a).

Understanding the overlap between caribou hunting by local users and nonlocal users is complicated by the lack of annual information on the exact location, harvest numbers, and caribou herd used by local hunters. Recently enacted State regulations requiring registration permits for residents hunting caribou within the range of the Western Arctic and Teshekpuk herds in Units 21, 23, 24, and 26 seek to improve harvest monitoring and allow for more detailed analysis of harvest trends and distribution.

Central Arctic Caribou Herd

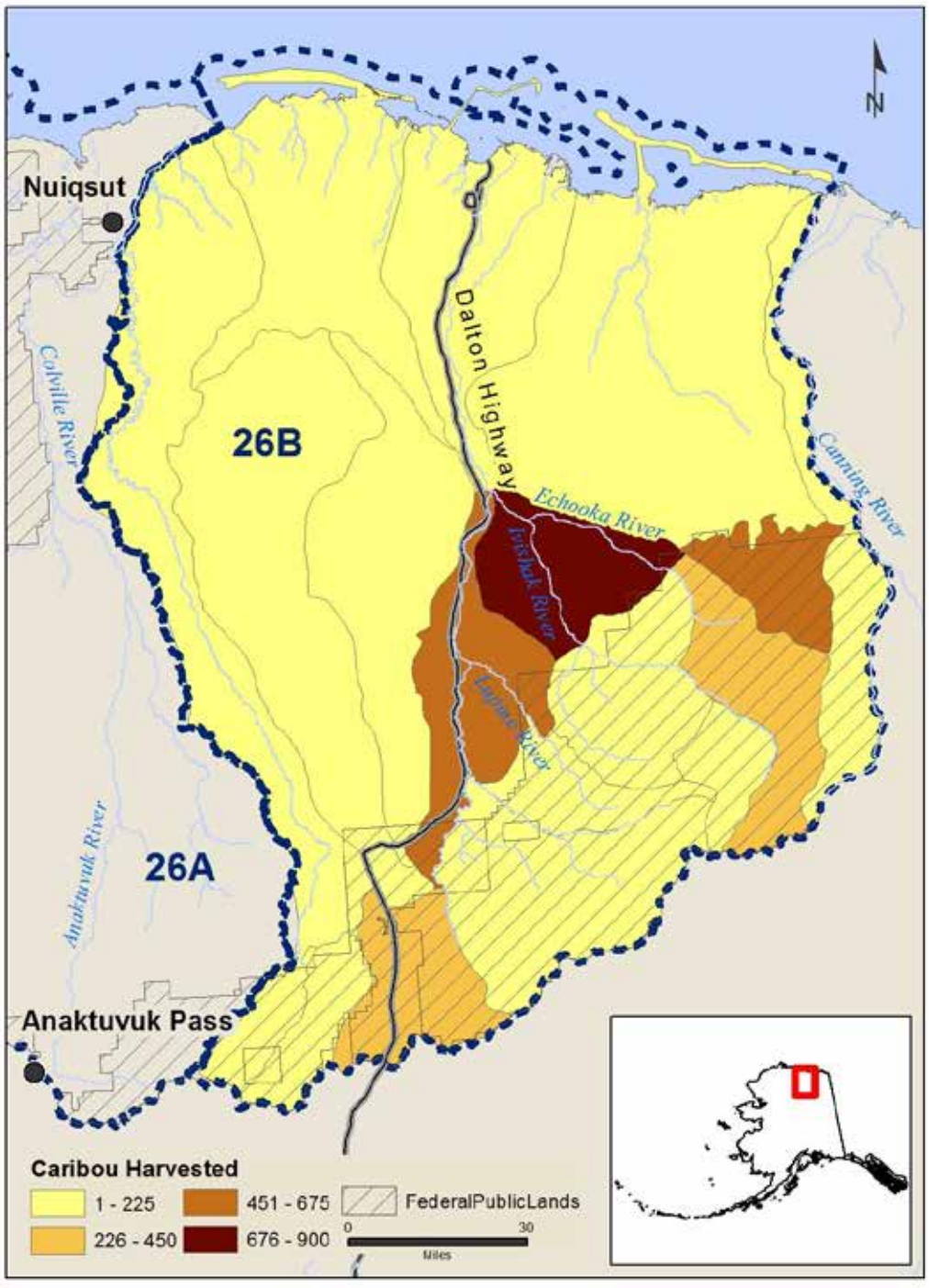
Although most of the harvest from the CACH comes from Unit 26B, some occurs in Units 24A, 24B, 25A, 26A, and 26C. Less than 10% of the harvest in Unit 25A (range 250-400) is estimated to come from the CACH (Caikoski 2015). Harvests in summer and early fall that occur in Units 24A, 24B, 25A, and 26C are primarily from other herds such as the PCH, TCH, or WACH. Additional harvest from the CACH may occur when the CACH is located near Kaktovik (Unit 26C) in the summer, near Wiseman and Coldfoot (Unit 24A) in the fall and winter, and near Arctic Village (Unit 25A) in the fall and winter.. During the fall and winter some caribou from the TCH and WACH occasionally mix with the CACH. For the purposes of documenting the annual harvest from the CACH, Lenart (2017a) used an estimate of 100 caribou (Lenart 2017b) based on community harvest surveys by local residents outside of Unit 26B (**Table 5**). Harvest information presented for the CACH will refer to Unit 26B unless noted otherwise.

Harvest by local hunters from Nuiqsut occurs in the summer and fall, from July through September, and during the spring, from March through April (Braem et al. 2011, Brown et al. 2016). A little more than 50% of the caribou harvest taken by Nuiqsut hunters occurs during the summer and fall and is from both the TCH and CACH (Lenart 2015). Nuiqsut hunters, who usually hunt west of the community, represent most of the local harvest from the CACH. Based on the distribution of caribou and the timing and location, Braem et al. (2011) estimated that 13% of the total harvest between 2002 and 2007 by Nuiqsut residents, was in Unit 26B, just west across the border with Unit 26A where the community is located. Braem et al. (2011) estimated that Nuiqsut hunters averaged approximately 61 caribou from the CACH annually from 2002 and 2007. The average total annual caribou harvest by Nuiqsut hunters, which includes TCH and CACH, from 2000-2007 was 469 caribou. In 2014, 774 caribou were estimated to have been harvested by Nuiqsut residents (Braem 2015). Nuiqsut residents harvested approximately 317 caribou (41%) from the CACH in 2014 (Braem 2017b). In 2014, Nuiqsut residents harvested caribou in all months except May. The most productive months were June (114), July (189), and August (215). Harvest declined sharply after August, only 73 caribou were harvested in September. The fewest caribou were taken in April (2) and November (4). There were 43 caribou harvested for which the date of harvest was not known. Of the caribou harvested in 2014, 72% were bulls. An estimated 166 cows were harvested in 2014 with 45% being harvested in January and February (Brown et al. 2016).

The average annual CACH harvest by nonlocal hunters from 2013/14 to 2015/16 in Unit 26B was approximately 937 caribou. (**Table 5**) (Lenart 2017a, WinfoNet 2017). Bow hunters took approximately 21% of the total harvest during this time. The average number of bulls harvested annually from the CACH from 2012-2015 was 699 and the average number of cows harvested was 234 (**Table 5**). A majority of the reported caribou harvest from the CACH occurs in August and September (Lenart 2015).

The proportion of resident and nonlocal harvest has fluctuated with CACH population trends (WinfoNet 2017) (**Figure 7, Table 6**). In general resident harvest has decreased with the recent population decline and the nonresident harvest has increased slightly (**Figure 7, Table 6).** Nonlocal residents accounted for 89% of the total caribou harvest from 2013-2015, which is approximately 827 caribou annually (Lenart 2017a). The location and total caribou harvest by NFQU hunters from the CACH during the population decline from 2011-2016 is shown in **Map 3**. It should be noted that the displayed spatial data is reflective of reported harvest records with locational data at fine scales; records lacking spatial specificity are not represented. Assuming unreported data is proportional to available data, **Maps 3, 5, and 6** represent general spatial harvest patterns. Between 2011 and 2016, a total of 5,049 caribou were harvested by NFQU in Unit 26B. Among those, 3,433 (68%) were from nonlocal Alaska residents and 1,616 (32%) and from nonresidents (WinfoNet 2017). The annual cow harvest by NFQU in Unit 26B increased from 47 in 2006-2009 to 234 in 2010-2016 (**Figure 8**). This increase coincided with the change in the harvest limits from two to five caribou and harvest season for cows from Oct.1-Apr. 30 to July 1-Apr. 30 in the 2010 State regulations.

Although a harvest rate of 5% of the population has been used as a guideline by ADF&G since 1991 to determine the allowable harvest, the reported harvest has been well below the harvestable surplus, averaging less than 2% since 2000/01 (Lenart 2015). However, with the recent population decline, Lenart (2017a) recommended a harvest level of 3% of the population. ADF&G adopted new caribou regulations for Unit 26B for 2017/2018 with the intended goal of reducing the annual harvest from an average of 937 caribou from 2013-2015 to 680 (3% of 22,360) and reducing the cow harvest from approximately 200 to 75 (Lenart 2017a).



Map 3. Reported caribou harvest in Unit 26B from the CACH by NFQU during the population decline 2011-2016 (WinfoNet 2017).

Table 5. Reported harvest from the Central Arctic Caribou Herd by sex and method of take in Alaska, 2006-2015 (Lenart 2013, 2015, 2017a; ADF&G 2017b).

Regulatory Year[a]	Male	Female	Unit 26A Residents[a]	Total Harvest (# harvested by bow)[b]	Total Hunters
2006/07	795	32	100	927 (301)	1,331
2007/08	596	65	100	761 (183)	1.380
2008/09	658	47	100	805 (180)	1,362
2009/10	750	45	100	895 (224)	1,317
2010/11	976	234	100	1,310 (296)	1,622
2011/12	808	344	100	1,252 (330)	1,401
2012/13	727	276	100	1,103 (285)	1,430
2013/14	721	134	100	955 (190)	1,423
2014/15	717	195	100	1,012 (198)	na[c]
2015/16	522	222	100	844 (92)	na[c]
Mean	699	234	100	1,033 (219)	–

[a] Estimated yearly average from Unit 26A residents from community harvest surveys, Kaktovik and Nuiqsut

[b] Total includes bow harvest and harvest from Unit 26A residents

[c] Not available

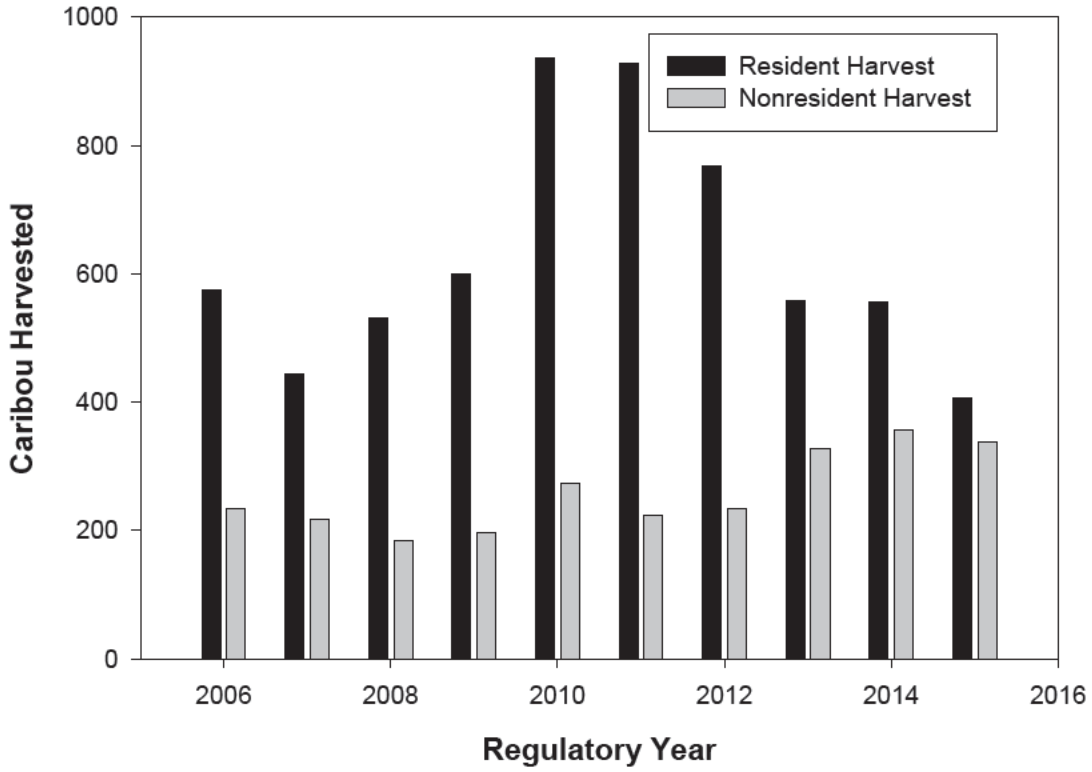


Figure 7. Reported CACH harvest by residency, 2006-2015 (Lenart 2017a).

Table 6. Characteristics of the Central Arctic Caribou Herd average annual harvest in Unit 26B by residency, 2013-2015. The proportion of the total Unit 26B caribou harvest by residency for 2006-2015 is included for comparison (Lenart 2017a).

Residency	Total CACH Harvest	Female CACH Harvest	Proportion of the Harvest (%) 2013-2015	Proportion of the Harvest (%) 2006-2015	Hunters	Success Rate (%)
Unit 26A Residents	100	20	11%	10%	na	na
Other Alaskan Residents	490	158	53%	64%	910	38%
Nonresident	340	24	36%	26%	430	62%
Total	930	202	-	-	-	-

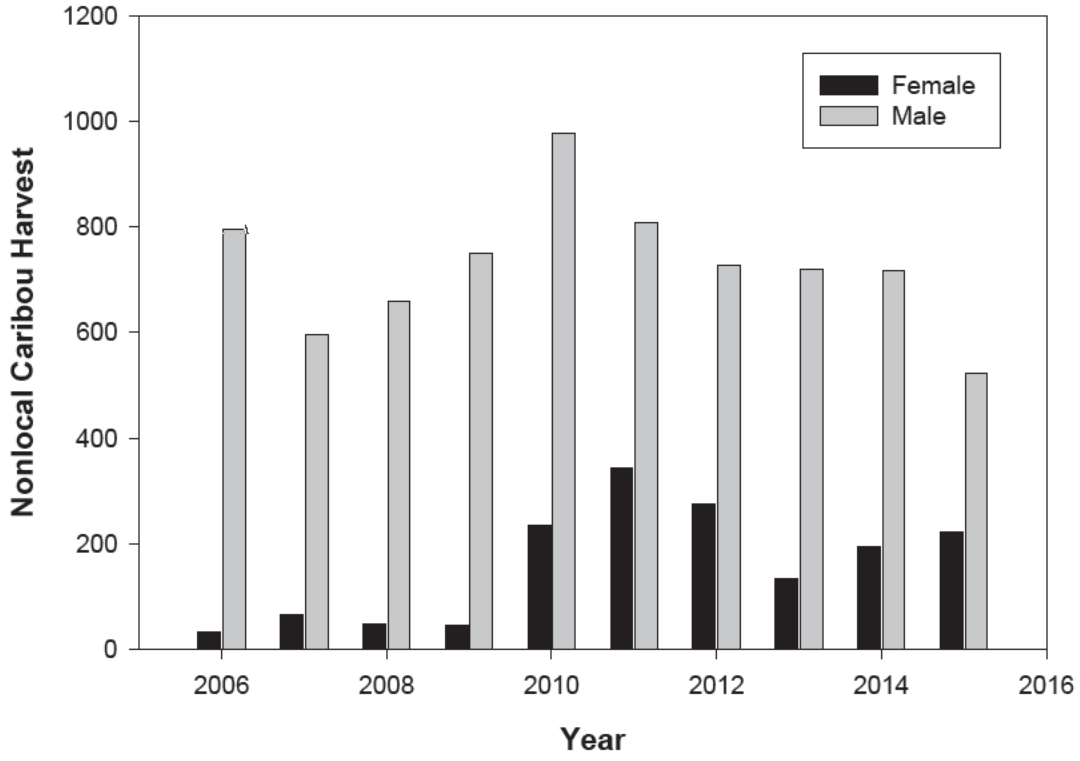
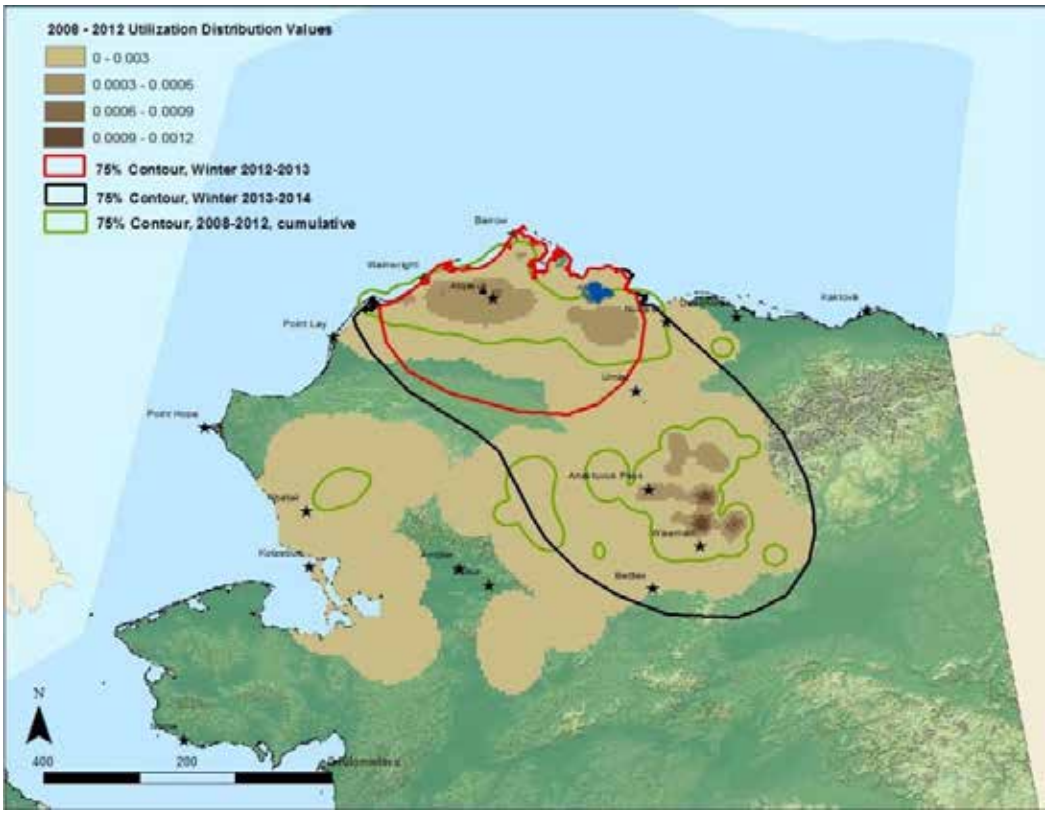


Figure 8. Central Arctic caribou herd harvest by sex by nonlocals in Unit 26B, 2006-2016 (Lenart 2017a)

Teshekpuk Caribou Herd

The TCH annual harvest is 4,000-5,000 (Parrett 2015a). Most of the harvest is by local Federally qualified subsistence users (FQSU). Less than 1% of the TCH harvest is by nonlocal residents in Alaska and nonresidents (Parrett 2011, Parrett 2015a). Residents of Atqasuk, Utqiagvik, Nuiqsut, and Wainwright harvest caribou primarily from the TCH while residents from Anaktuvuk Pass, Point Lay, and Point Hope harvest caribou primarily from the WACH (**Table 7**) (Dau 2011, Parrett 2011). For example the TCH winter range did not overlap Anaktuvuk Pass in 2012/2013 but did in 2013/2014 (**Map 4**). Residents of Nuiqsut, which is on the northeast corner of Unit 26A, harvest approximately 77% and 86% of their caribou from the TCH between 2002 and 2007 and 2010 and 2010, respectively (Parrett 2013). A little more than 50% of the caribou harvest taken by Nuiqsut hunters occurs in the summer and fall and is from both the TCH and CACH (Lenart 2015). Although some harvest from the TCH occurs outside of Unit 26A in Units 23, 24, and 26B, it is unlikely that the overall harvest is significant when the TCH is mixed with other caribou herds (Parrett 2013, 2015a).



Map 4. Cumulative Teshekpuk caribou herd winter range, Alaska, 2008-2012, with utilization distribution values depicted in shades of brown, 75% kernel contour from the 2008-2012 in green. The 75% contours from the two individual winters from 2012-2014 are depicted by the red and black outlines (Parrett 2015a).

Range overlap between the three caribou herds, frequent changes in the wintering distribution of the TCH and WACH, and annual variation in the community harvest survey effort and location make it difficult to determine the proportion of the TCH, WACH and CACH in the harvest. Knowledge of caribou distribution at the time of the reported harvest is often used to estimate the proportion of the harvest from each herd.

The use of harvest tickets, required by nonlocal hunters, provides time and location of the harvest and, together with knowledge of the caribou distribution and allows for a more accurate assessment of the proportion of caribou harvested from each herd by nonlocals. For harvests by FQSU, analysis of the proportional harvest from different herds has been difficult due to poor or non-existent reporting, variation in the timing and effort of community harvest surveys, changes in the distribution and timing of TCH migration, and overlapping distribution with adjacent herds. However, previous efforts from 2002-2007 determined that Utqiagvik residents harvest primarily from the TCH (Parrett 2013, Braem 2017b). If used throughout the range, harvest tickets would allow for better tracking of the FQSU harvest with respect to the overlapping caribou herds. Community harvest surveys continue to be the preferred method to estimate

harvest by FQSU, since previous attempts to conduct registration hunts were not effective (Georgette 1994, Parrett 2015a).

For communities where harvest surveys have not been conducted or the estimates are unreliable, the Division of Wildlife Conservation estimated annual harvests based on the current community population, previous per capoita harvest estimates and yearly caribou availability. A general overview of the relative utilization of caribou herds by community from 2008/09 to 2009/10 is presented in **Table 7** (Parrett 2011, Dau 2011, and Lenart 2011). These years were chosen because there was good separation between the herds during this period. The total estimated annual harvest from the TCH during 2008/09 (3,219 caribou) (Parrett 2011) was similar to 2012/13 and 2013/14 (3387 caribou) (Parrett 2015a) **(Table 7**). Most of the caribou harvest in 2012/2013 and 2013/2014 occurred in August and September (Parrett 2015a). The estimated annual harvest during 2012/13 and 2013/14 using this method was approximately 3,387 (Parrett 2015a).

Table 7. Estimated caribou harvest of the Teshekpuk, Western Arctic and Central Arctic caribou herds during the 2008/2009 regulatory years by FQSU in Unit 26A (Parrett 2011, Dau 2011, Lenart 2011, Sutherland 2005). Note: Due to the mixing of the herds, annual variation in the community harvest surveys and missing data, the percentages for each community do not add up to 100%.

Community	Human population[a]	Per capita caribou harvest[bc]	Approximate total community harvest	Estimated annual TCH harvest (%)[d]	Estimated annual WACH harvest (%)[d]	Estimated annual CACH harvest (%)[d]
Anaktuvuk Pass	298	1.8	524	157 (30)	431 (82)	
Atqasuk	218	0.9	201	197 (98)	6 (2)	
Barrow (Utqiagvik)	4,127	0.5	2,063	2,002 (97)	62 (3)	
Nuiqsut	396	1.1	451	388 (86)	3 (1)	58 (13)
Point Lay	226	1.3	292	58 (20)	210 (72)	
Point Hope	689	0.3	220	0	220 (100)	
Wainwright	547	1.3	695	417 (60)	48 (15)	
Total Harvest				3,219	980	58

[a] Community population size based on 2007 census estimates
[b] Citations associated with per-capita caribou harvest assessment by community can be found in **Table 6** (Parrett 2011).
[c] Sutherland (2005)
[d] Percent of the total community harvest

The harvest estimate for Utqiagvik, from household surveys conducted by ADF&G in 2014/15 was 4,231 caribou (Braem 2015). Based on data collected by the North Slope Borough Wildlife Department and others, the average annual harvest estimate for Utqiagvik from 1992-2003 was 2096 caribou (Braem 2015).

Currently the harvestable surplus for the TCH is estimated to be approximately 2,500 at a 6% harvest rate. A conservative estimated harvest rate for the period between 2012/13 to 2013/14 is approximately 10% of the 2013 (3,917 caribou) population estimate of 39,172 (range 32,000-45,000) (Parrett 2015a). However, due to the mixing of TCH with the WACH and CACH, the lack of annual harvest data for FQSU and the lack of spatial data, it is difficult to determine the actual TCH harvest. The conservative TCH harvest rate of 10% is almost double the harvest rate estimates for the WACH and CACH (Parrett 2015a) and a conservation concern. If the TCH population declines to below 35,000 the harvest rate may be reduced to 4-5%, assuming that the harvest composition remains consistent at approximately 15% bulls and 2% cows (Parrett 2017a, pers. comm.).

Due to the remoteness and inaccessibility of much of the area, most of the TCH harvest is by local hunters (Parrett 2015a). TCH harvest by local hunters in recent years has occurred primarily from July to October (Braem et al. 2011, 2015; Parrett 2011) whereas nonresidents and nonlocal residents typically harvest most of their caribou from the WACH, along the Colville River drainage, in August and September (Parrett 2015a). For example, greater than 95% of the caribou harvested by nonresidents and nonlocal residents in 2012/13 and 2013/14 occurred in August and September (Parrett 2015a). The nonresident and nonlocal resident harvest from the TCH, which averages about 100 caribou a year, or 3% of the total TCH harvest, is split evenly between the nonlocal and nonresidents (Parrett 2013).

Western Arctic Caribou Herd

Annual caribou harvest by local residents is estimated from community harvest surveys, when available. In 2015 the linear model (Sutherland 2005) used to estimate caribou harvests by hunters who live within the range of the WACH was replaced by a new analysis of covariance developed by Adam Craig, a biometrician with ADF&G's Division of Wildlife Conservation Region V (Arctic and Western Alaska). These models incorporate factors such as community size and availability of caribou (Dau 2015a). In 2015, changes to the methods developed by Sutherland (2005) by Craig to analyze the harvest data, resulted in changes to local caribou harvest estimates from past years. While Craig's model accurately reflects long-term trends in annual local harvests, it is too insensitive to detect short-term changes in harvest levels useful to real time management decisions to regulate harvests and does not accurately reflect actual harvest levels or harvest levels by Unit (Dau 2015a). This analysis only considers the updated harvest estimates using the new model (Dau (2015a). The accuracy of harvest reporting by locals may improve with the requirement for registration permits for those that live north of the Yukon River. Caribou harvest by NFQU is based on harvest ticket reports (Dau 2015a).

From 2000–2014, the estimated harvest from the WACH averaged 11,984 caribou/year, ranging from 10,666-13,537 caribou/year (**Figure 9**) (Dau 2015a). The total harvest during 2012/13 and 2013/14 was 13,352 and 12,713 caribou, respectively. These harvest estimates assumed that 95% of all caribou harvested by nonlocal hunters in Unit 26A were from the WACH and the remainder from the TCH. Using the 2011 and 2013 population estimates, the total annual harvest during 2012/13 and 2013/14 was approximately 4-5% of the population (Dau 2015a). These harvest levels are within or below the conservative harvest level specified in the WACH Management Plan (**Table 3**). However, harvest estimates do not include wounding loss or caribou killed but not salvaged, which may be hundreds of

caribou (Dau 2015a). Subsistence hunters throughout the range of the WACH take caribou whenever they are available. Thus the seasonal harvest patterns among communities are dependent upon the seasonal movements of the caribou. Despite year-round seasons prior to 2015, most of the caribou taken by FQSU and NFQU has been between Aug. 25 and Oct. 7 (Dau 2015a). Local residents, defined as living within the range of the WACH, account for approximately 95% of the WACH harvest, with residents of Unit 23 accounting for approximately 58% (**Figure 10**) (Parrett 2017a, pers. comm.). Approximately 37% of the total annual WACH harvest is taken by local residents in Units 22, 24B, 26A, and 26B (**Figure 10**).

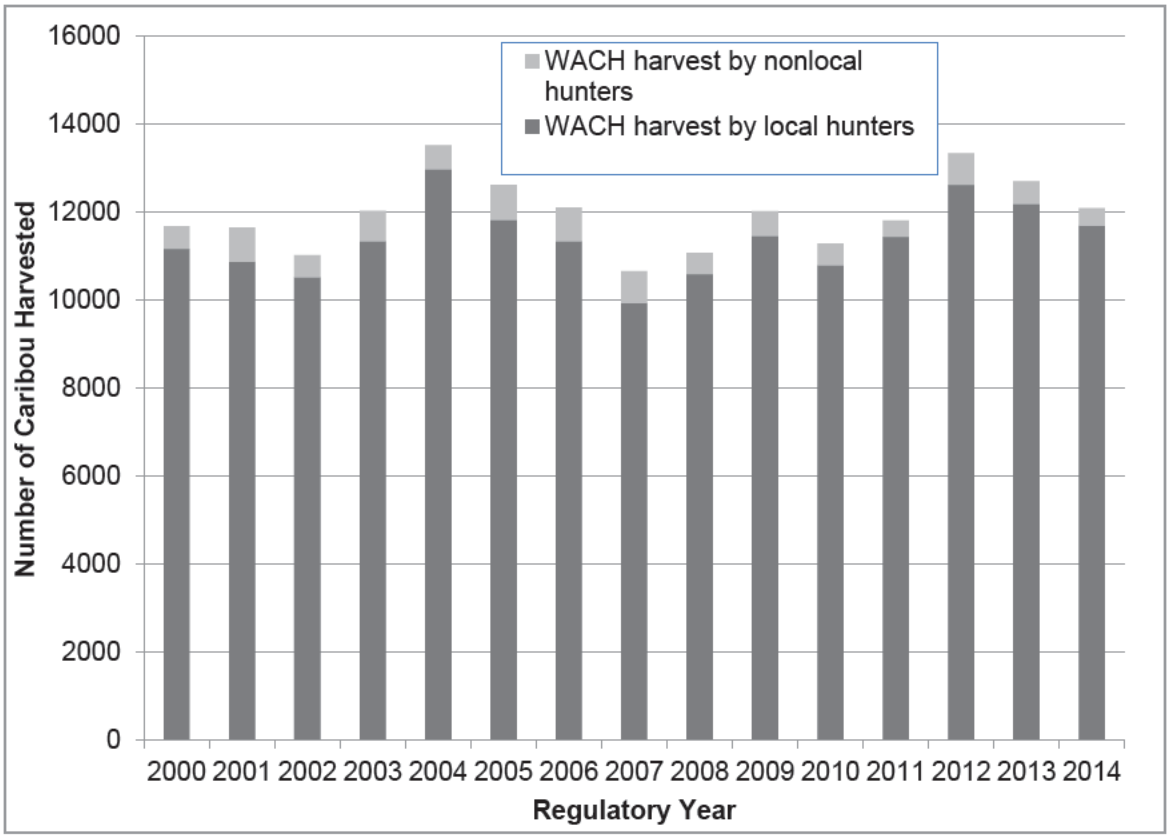


Figure 9. Estimated number of caribou harvested from the WACH by residency (Dau 2015a).

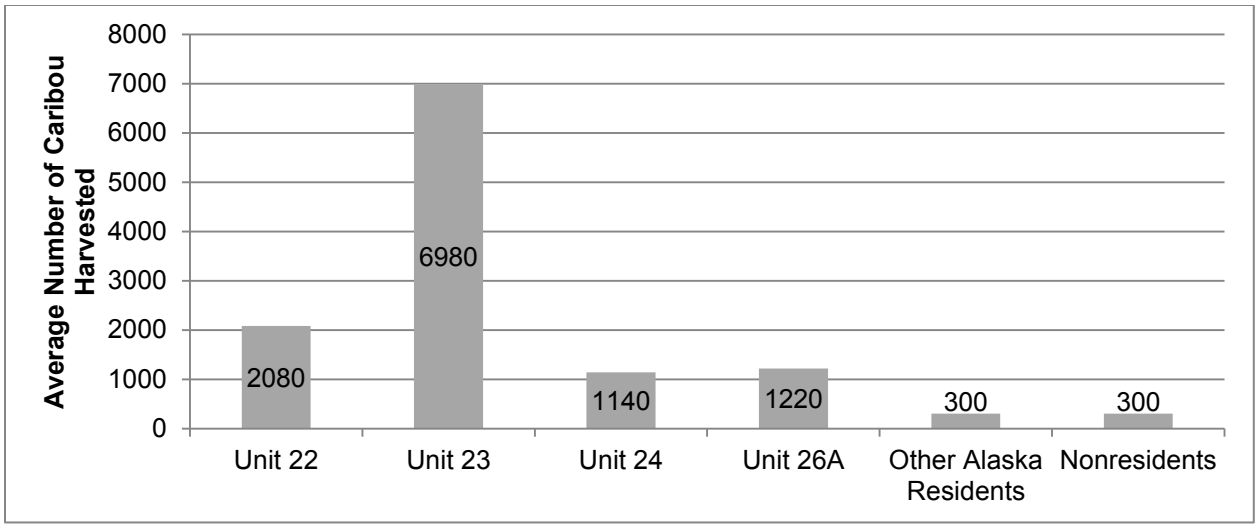


Figure 10. Average WACH annual caribou harvest by unit and residency from 1998-2015 (Parrett 2017a, pers. comm.).

The WACH are on their periphery of their winter range when on the Seward Peninsula (Unit 22). Consequently movements and locations are much less predictable than the core part of the range. Due to the lack of established migratory patterns, local subsistence users need flexibility with respect to the hunting season for bulls and cows so that they can take advantage when the caribou are present. Hunters in the northern areas get access to bulls earlier than in more southern wintering areas of the WACH in Unit 22. Hunters in the more southern locations also consider bulls palatable much later in the fall than hunters up north (Joly 2015).

From 2001-2013, total average annual nonlocal WACH harvest was 598 caribou (range 421-793) (WinfoNet 2017) (**Figure 11**). Over the same time period, nonlocal WACH harvest from Units 26A, 26B, and 24B averaged 102 caribou/year (range 60-144) (**Figure 11**). Nonlocal WACH harvest from Unit 23 and Units 26A, 26B, and 24B combined accounts for 76% and 14% of the total nonlocal WACH harvest on average, respectively.

Between 1998 and 2014, the number of NFQU hunting caribou and the number of caribou harvested by NFQU in Unit 23 averaged 487 hunters (range: 404-662) and 511 caribou (range: 248-669), respectively (**Figure 12,** USFWS 2017). In 2015, after the BOG enacted restrictions, the number of NFQU and caribou harvested by NFQU decreased appreciably (340 hunters and 230 caribou). In 2016, during the closure of Federal lands to NFQU, the number of NFQU and caribou harvested by NFQU decreased even further (149 hunters and 111 caribou), although there may still be some outstanding 2016 harvest reports from nonlocal residents (**Figure 12,** WinfoNet 2017). Based on patterns in submission rates and timing of harvest reports, the State estimates a 50% reduction in the number of and harvest by nonlocal caribou hunters in Unit 23 during 2016/17 as a result of the closure (Parrett 2016b, ADF&G 2017d).

Based on those hunters that provided harvest ticket reports for Unit 26A, the number of nonresidents compared to Alaska residents outside the WACH range that harvested caribou from the WACH increased from 2011-2015 (**Figure 13**). Approximately 95% of the total Unit 26A caribou harvest was from the

WACH and by residents within the WACH range (Dau 2013). The annual harvest by NFQU is a very small percentage (≈1%) of the total WACH harvest (**Figures 11 and 14**). Female harvest by NFQU in Unit 26A averaged 10% (range 2-19) from 2006-2016.

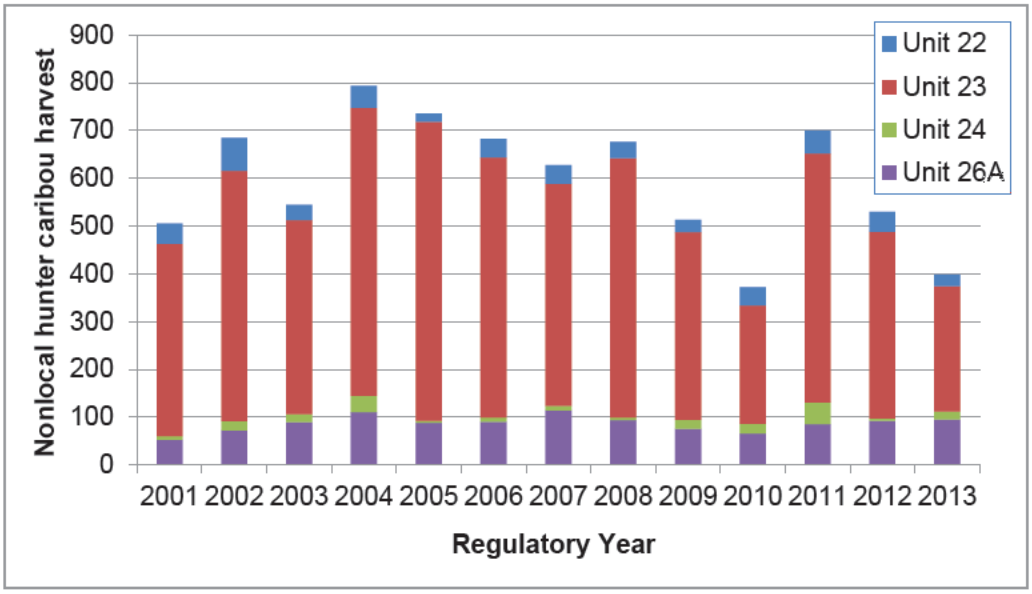


Figure 11. Nonlocal WACH harvest by unit (Dau 2013, 2015a, WinfoNet 2017). Unit 21D was not included as only 0-2 caribou have been harvested from this unit each year.

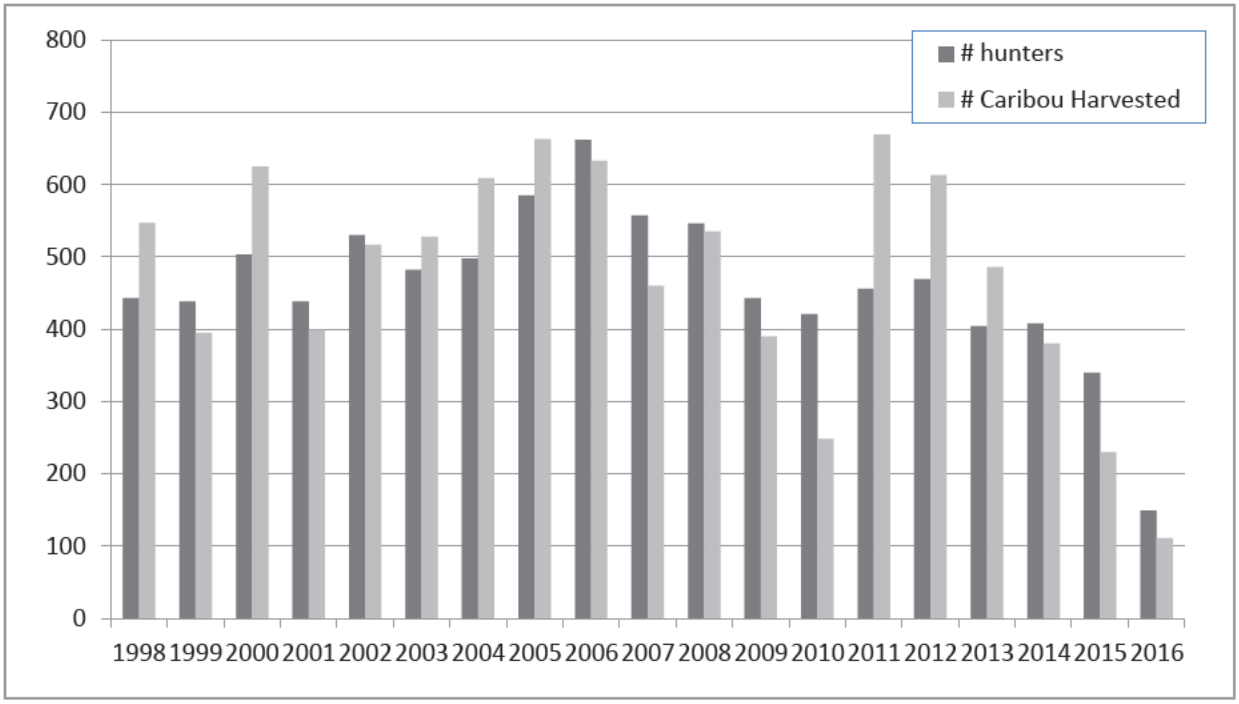


Figure 12. Number of non-Federally qualified users (NFQU) and number of caribou harvested by NFQU in Unit 23 (ADF&G 2016c, USFWS 2016, WinfoNet 2017).

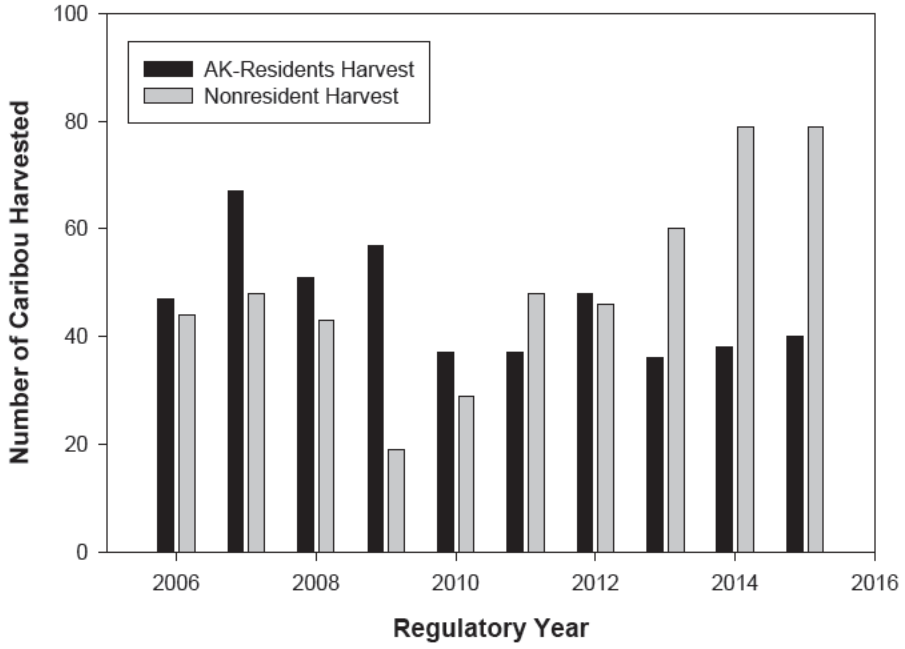


Figure 13. Residency of successful nonlocal caribou hunters from the WACH in Unit 26A, 2006-2015 (Dau 2013, 2015a).

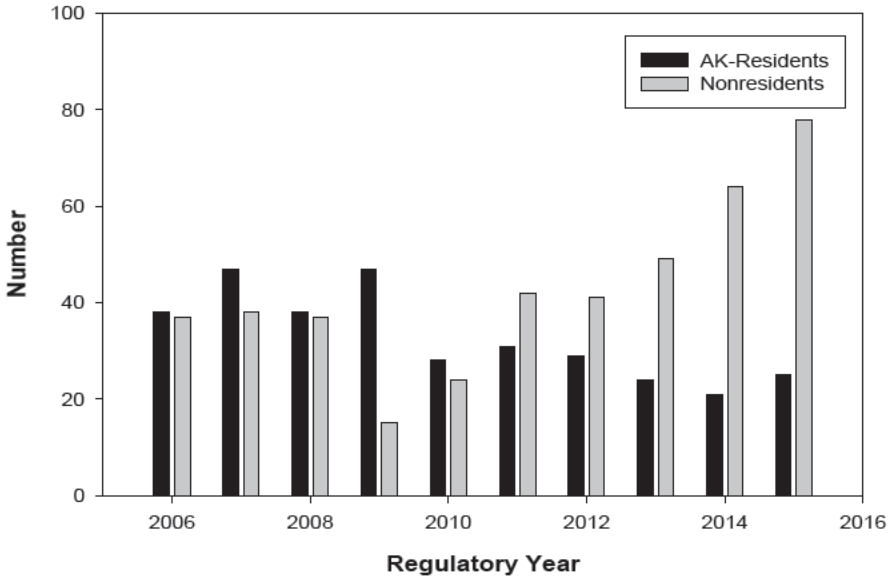
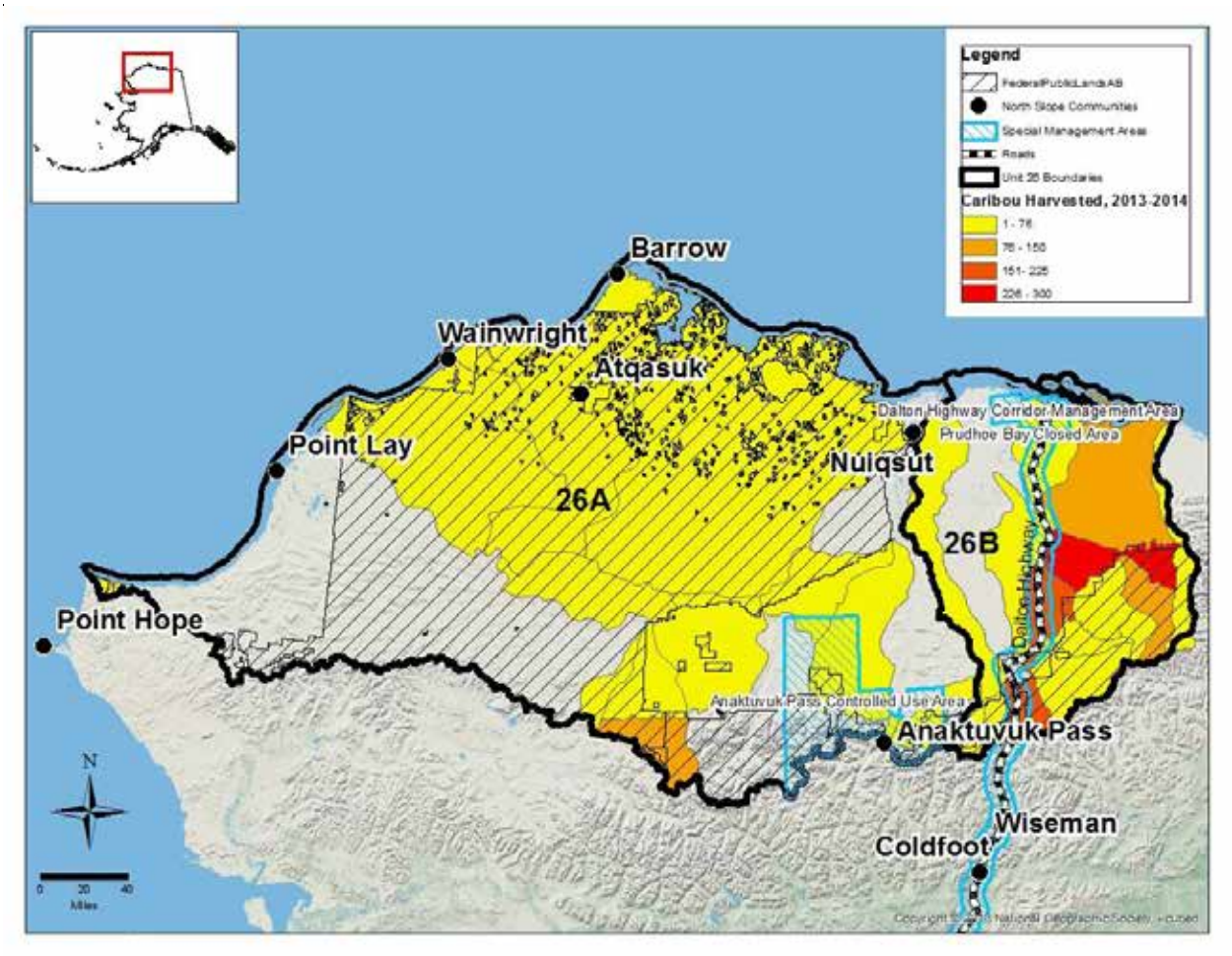


Figure 14. Nonlocal WACH harvest in Unit 26A, 2006-2015 (Dau 2013, ADF&G 2017b).

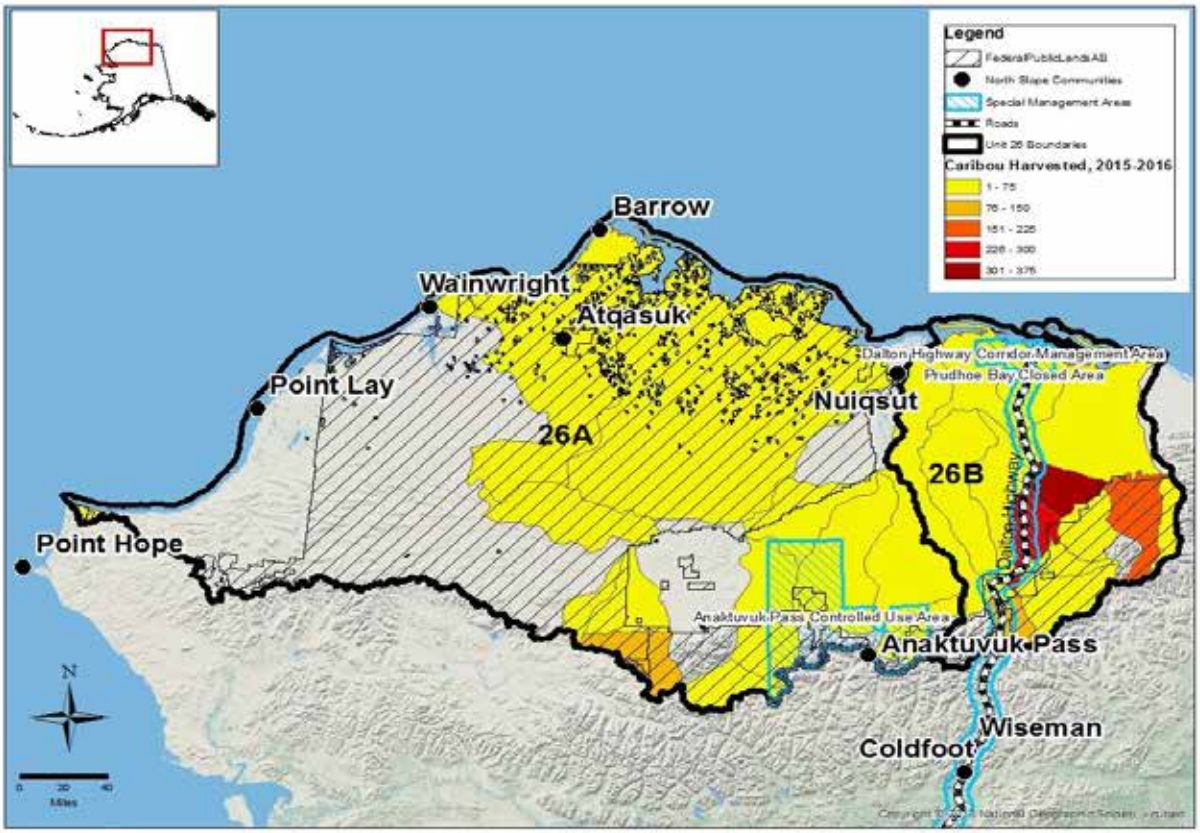
Harvestable surplus for the WACH is calculated as 6% of the population (Braem 2017a, pers. comm.) and when evaluated separately by sex is approximately15% bulls and 2% cows (Dau 2015a). In recent years, as the WACH population has declined, the total harvestable surplus has also declined (Dau 2011, Parrett 2015a). In 2015/16, the combined TCH/WACH harvestable surplus declined from an estimated 13,250 caribou in 2014/15 to an estimated 12,400 caribou. While there is substantial uncertainty in the harvestable surplus estimates, the overall trend is decreasing and it is likely that sustainable harvest will soon be exceeded if the decline continues (Parrett 2015a, Dau 2015a). Of particular concern is the overharvest of cows, which has probably occurred since 2010/11 (Dau 2015a). Dau (2015a) states, "Even modest increases in the cow harvest above sustainable levels could have a significant effect on the population trajectory of the WACH. Harvest from the WACH, which has remained fairly consistent, is one of the factors that prompted the BOG to enact restrictions to WACH and TCH caribou harvest in March 2015.

Using the percentage of harvest reported by community from the WACH in 2008/09 (**Table 7**) and the 2014 community harvest estimates for Utqiagvik, Anaktuvuk Pass, Nuiqsut, and Point Hope (Braem 2015) and the 2014 total nonlocal harvest (117 caribou) (ADFG 2017a), the total WACH caribou harvest for Unit 26A in 2014 was approximately 1,185 caribou. Adding another 120 caribou from Point Lay and Atqasuk (Parrett 2011) would bring the total to approximately 1,305 caribou harvested from the WACH in 2014 in Unit 26A. This year was chosen because it was the most recent community harvest records for the North Slope (Braem 2015).

Comparison of the two year period from 2013-2014 (**Map 5**) with 2015-2016 (**Map 6**) shows an increase in 2015-2016 of the harvest within the vicinity of Anaktuvuk Pass in Unit 26A. These changes in harvest patterns may be due in part to hunters shifting hunting areas and intensity to areas within Unit 26A and 26B in response to changes in the movement of the caribou herds as a result of the closure of Federal public lands to caribou hunting by NFQU in Unit 23 in 2016/2017.



Map 5. Reported caribou harvest in Units 26A and 26B from the WACH, TCH, and CACH by NFQU , 2013-2014 (WinfoNet 2017).



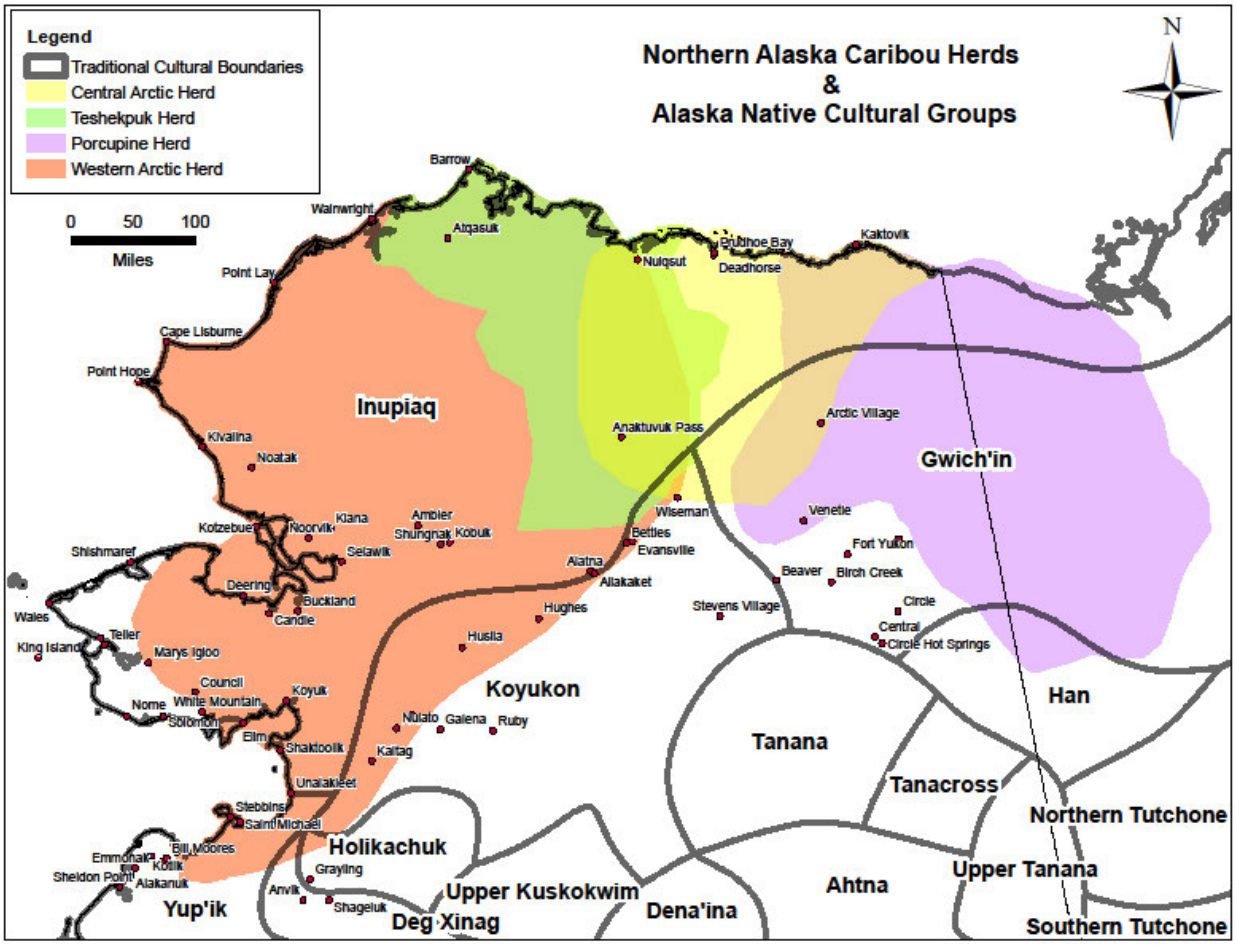
Map 6. Reported caribou harvest in Units 26A and 26B from the WACH, TCH, and CACH by NFQU , 2015-2016 (WinfoNet 2017).

Cultural Knowledge and Traditional Practices

Meeting the nutritional and caloric needs of Arctic and Subarctic communities is important and is the foundation of subsistence activities. Still, the meaning of subsistence extends far beyond human nutrition for Alaska's Native peoples. Holthaus (2012) describes subsistence as the base on which Alaska Native culture establishes its identity though "philosophy, ethics, religious belief and practice, art, ritual, ceremony, and celebration." Fienup-Riordan (1990) also describes subsistence in terms of the cultural cycles of birth and death representing the close human relationship and reciprocity between humans and the natural world. Concerning caribou specifically, Ms. Esther Hugo, a lifelong resident of Anaktuvuk Pass, describes the human-caribou relationship as a "way of life" (NWARAC 2017).

The effects of this proposal span the range of several caribou herds and the traditional territories of several cultural groups (**Map 7**). These cultural groups include the Inupiat of the North Slope, Northwest Arctic and the Seward Peninsula, the Koyukon Athabascans of the Western Interior, and the Gwich'in Athabascans of the Eastern interior. The range of the PCH also includes a small portion of traditional Han Athabascan territory within Alaska, while the range of the WACH includes a small portion of Holikachuk

and Deg Xinag Athabascan territory in Alaska. The southernmost extent of the WACH range extends into the northern extent of the Yup'ik cultural group in the vicinity of Stebbins and Saint Michael.



Map 7. Map depicting the overlap of northern Alaska caribou herds and traditional territories of Alaska Native cultural groups.

Caribou have been a significant resource for Inupiat and Athabascan peoples for thousands of years (Burch 1984, Caulfield 1983, Brown et al. 2004). Caribou bones dating from 8,000 to 10,000 years ago have been excavated from archeological sites on the Kobuk River (ADF&G 1992). Foote (1959, 1961) wrote about caribou hunting in the Noatak region forty years ago, noting that life would not be possible in Noatak without this source of meat. Caribou were traditionally a major source of both food and clothing and continue today to be among the most important land animal consumed in these regions (Burch 1984, 1994, 1998; ADF&G 1992). Uhl and Uhl (1979) documented the importance of caribou as a main source of red meat for Noatak residents as well as other communities in the region. Betcher (2016) also documents the critical contemporary importance of caribou to people residing throughout the Northwest Arctic.

The WACH population declined rapidly in the Northwest Arctic beginning in the late 1800s. At its low point, its range had shrunk to less than half its former size. Famine ensued, primarily due to the absence of caribou. In the early 1900s, reindeer were introduced to fill the need for food and hides. The WACH

began to rebound in the 1940s. Currently, among large terrestrial mammals, caribou are among the most abundant; however, the population in any specific area is subject to wide fluctuations from year to year as caribou migration routes change (Burch 2012).

The availability of WACH, TCH, CACH, and PCH herds within the traditional territories of the interior Athabascans is more variable and depends on annual migratory patterns. Harvest of caribou in these communities depends on the proximity of the migration to each village (Brown et al 2004). Within Koyukon Athabascan territory, Allakaket, Alatna and Huslia have been documented as the largest communities that harvest caribou, although several hunters from Galena have been documented traveling long distances to harvest this species (Brown et al 2004). Communities from this region are thought to primarily harvest WACH caribou (Brown et al 2004). In terms of the use of caribou (which includes caribou received from other households) within Koyukon territory, a 2002-2003 study documented 0% use among households in Kaltag and Ruby, 96% in Allakaket, and 100% in Alatna (Brown et al 2004).

Within traditional Gwich'in Athabascan territory, particularly those villages located in proximity to the Upper Yukon and Porcupine Rivers, residents primarily harvest from the PCH, although Central Arctic and Fortymile Herd animals are occasionally harvested (Caulfield 1983). Residents of other areas in this region have also been documented as traveling north to obtain caribou meat, including residents of Beaver traveling along the Yukon River to the vicinity of Charley Creek [Kandik River] (Schneider 1976) and residents of Fort Yukon traveling above Circle for caribou (Caulfield 1983). Caribou in this region are usually first seen in mid-August while migrating south from the coastal plain along alpine ridges. Caribou meat is generally stored by freezing or drying and is typically prepared by boiling but may also be baked or fried (Caulfield 1983).

Historically the North Slope Inupiat hunted caribou year-round (Braem 2013). Traditionally, coastal groups tended to store caribou frozen in ice cellars while inland groups more commonly stripped and dried the meat (Braem 2013). Today, caribou is frozen, dried, and eaten fresh (Braem 2013). As a food resource, caribou remain important to meeting the subsistence needs of Inupiaq families on the North Slope. In 1989 the coastal community of Wainwright harvested approximately 83,187 lb. of caribou (178 lb. per capita), representing 24% of the community's harvest in that year (ADF&G 2017c). Comparatively, Wainwright harvested approximately 243,594 lbs. of marine mammals (521 lb. per capita), representing 69% of the community's harvest (Brown et al. 2016). Utqiagvik, the largest community in the region, harvested 4,231 caribou in 2014, representing 103 lb. per capita of edible weight.

Historically, during fall and spring caribou migrations, people built "drive fences" out of cairns, bundles of shrubs, or upright logs. These fences were sometimes several miles long and two to three miles wide. Ideally, the closed end of the fence crossed a river, and caribou were harvested while crossing the river and retrieved later; or the fence would end in a corral where caribou were snared and killed with spears (Burch 2012, Caulfield 1983). Caribou drives allowed a large number of caribou to be harvested in a short time (Burch 2012, Spencer 1959, Murdoch 1988). These methods were replaced with firearms in the 19th century.

Caribou were traditionally harvested any month of the year they were available in the Northwest Arctic Region. The objective of the summer hunt was to obtain the hides of adult caribou with their new summer coats. They provided the best clothing material available to the Inupiat. The fall hunt was to acquire large quantities of meat to freeze for winter (Burch 1994). The timing and routing of migration determined caribou hunting. Hunting seasons change from year to year according to the availability of caribou (ADF&G 1991). The numbers of animals and the duration of their stays varies from one year to the next (Burch 1994) and harvest varies from community to community depending on the availability of caribou. Generally, communities in the southern portion of Unit 23 (Buckland, Deering) take a majority of their caribou in the winter and spring, while the other communities in Unit 23 take caribou in the fall, winter, and spring. Kivalina and Point Hope also take caribou in the summer in July (ADF&G 1992) and Selawik residents regularly hunt in the fall (Georgette 2016, pers. comm.). In Gwich'in Athabascan territory, caribou were typically harvested in the fall, winter and spring (Caulfield 1983). Caribou typically only remain available to Arctic Village and Venetie residents through winter and spring (Caulfield 1983).

Currently, caribou hunting by FQSU in Unit 23 is most intensive from September through November. Caribou can be harvested in large numbers, when available, and can be transported back to villages by boat before freeze-up. Hunters often search for caribou and attempt to intercept them at known river crossings. Ideally, caribou harvest occurs when the weather is cool enough to prevent spoilage of meat. If not, meat is frozen for later use. Prior to freeze-up in Inupiaq regions, bulls are preferred because they are fatter than cows (Braem et al. 2015, Georgette and Loon 1993). In Athabascan regions, hunters often select cows between October and February when they are fatter and better tasting than bulls (Caulfield 1983). At other times, bulls or cows may be taken (Caulfield 1983).

Small groups of caribou that have over-wintered may be taken by hunters in areas that are accessible by snowmachine. Braem et al. (2015:141) explain,

> "Hunters harvest cows during the winter because they are fatter than bulls . . . . Caribou harvested during the winter can be aged completely without removing the skin or viscera . . . . Then in the spring, the caribou is thawed. Community members cut it into strips to make dried meat, or they package and freeze it."

In spring, caribou start their northward migration. The Inupiat consider caribou taken at this time to be "lean and good for making dried meat (*paniqtuq*) during the warm, sunny days of late spring" (Georgette and Loon 1993:80).

Caribou are especially important for inland communities such as Atqasuk and Anaktuvuk Pass for which marine mammals are not available. While whaling communities tended to be more permanent, inland peoples traditionally tended toward annual and seasonal movements to reflect caribou migrations (Spencer 1984). The abandonment of this more mobile lifestyle has probably had significant consequences for the adaptability of hunters and their ability to meet subsistence needs. The two dominant modes of subsistence were intertwined by trading relationships between inland and coastal communities that sometimes helped to supplement dietary needs (Spencer 1984).

In 2014, the inland community of Anaktuvuk Pass harvested approximately 104,664 lbs. of caribou (330 lbs. per capita), representing 84% of the community harvest in that year (Brown et al. 2016). Among the harvested animals, 51% were bulls, 39% were cows, and 10% were of unknown sex (Brown et al. 2016). Cows were primarily harvested between November and April while bulls were primarily harvested throughout the rest of the year (Braem 2015). In 2011 approximately 85% of the bulls were taken during the months of August and September (Holen et al. 2012). Approximately 89% of Anaktuvuk Pass households reported using caribou in 2014, with 47% of households giving caribou away and 68% of households receiving caribou (ADF&G 2017c); use and sharing of caribou in this community remains high and has led to food security concerns in recent years when caribou migration patterns shifted away from the community.

User conflict concerns have been voiced in the North Slope region over time, especially regarding the effect of non-local hunting activity on caribou migration patterns (NWARAC and NSRAC 2016, WIRAC 2016, NSRAC 2015, 2016, 2017). Despite documented concerns through repeated public testimony, information is lacking on the degree of impact that these hunting activities have on both short and long-term caribou migration patterns. User conflict on the North Slope has centered primarily on the caribou migration patterns in the vicinity of Anaktuvuk Pass. A long-held cultural practice in the region requires that lead adult female caribou be allowed to establish migratory paths unhindered by human activity. Dau (2015a) suggests that once lead caribou establish migration routes, the caribou behind them will follow regardless of hunting or other disturbances such as aircraft. In response to complaints from Anaktuvuk Pass residents about caribou migration being affected by non-subsistence hunter activity, ADF&G attempted to document such effects from 1991-93, but none were found (OSM 1995).

In 1995 the Board adopted a proposal from the City of Anaktuvuk Pass to close Federal public lands in Unit 26A, south of the Colville River, upstream from and including the Anaktuvuk River drainage, to NFQU from August 1st through September 30th. The justification was to allow for caribou migrations to take their normal route into Anaktuvuk Pass. Concerns have frequently been expressed about activities that disturb caribou migrations by guides and transporters north of Anaktuvuk Pass, especially in light of severe food security concerns for that community in recent years (NWARAC and NSRAC 2016, WIRAC 2016). The BOG established the Anaktuvuk Controlled Use Area in in 2005, to reduce the user conflict during the caribou hunting season and to provide more opportunity for Anaktuvuk Pass residents to harvest caribou. The current regulations close the area to the use of aircraft for hunting caribou, including the transportation of caribou hunters, their hunting gear, or parts of caribou from August 15 through October 15; however, this provision does not apply to the transportation of caribou hunters, their hunting gear, or parts of caribou by aircraft between publicly owned airports. Residents of Anaktuvuk Pass stated that the closure of Federal public lands to non-Federally qualified users for caribou hunting in Unit 23 during the 2016-2017 regulatory year was perceived as having improved the situation, allowing for the resumption of historical migration patterns and harvest activities (OSM 2017a, 2017b).

User conflicts between local and nonlocal hunters have been well documented in Unit 23, specifically in the Noatak NP, the Squirrel River area, and along the upper Kobuk River (Georgette and Loon 1988, Jacobson 2008, Harrington and Fix 2009 *in* Fix and Ackerman 2015, Halas 2015, NWARAC 2015, Braem et al. 2015), even during times of high caribou abundance. Local hunters have expressed concerns over aircraft

and "nonlocal" hunters disrupting caribou migration by "scaring" caribou away from river crossings, landing and camping along migration routes, and shooting lead caribou (Halas 2015, Fix and Ackerman 2015, NWARAC 2015).

Halas (2015; **Map 5**), in a case study of Noatak caribou hunters and their interactions with transported hunters, examined the links between caribou behavior and migration, user group interactions, and changes to subsistence caribou hunting. In describing observations by Noatak hunters in 2012 and 2014 Halas (2015:81) explained,

> Observations of caribou behavior ("spooked" caribou, deflected caribou groups from river crossings) due to aircraft are likely witnessed as a dramatic event not easily forgotten by a waiting Noatak hunter. Whether the aircraft intentionally or unintentionally may be "influencing" caribou movement, observing "scared" caribou can be a powerful experience for hunters.

Some studies and local observations of WACH caribou response to aircraft have suggested that animal response is limited in temporal and spatial scale (Fullman et al. 2017) and that many factors contribute to larger scale shifts in migration. Dau (2015a) noted that despite substantial transporter traffic in the Anisak drainage, which is within the Noatak NP, has not diverted migrating WACH caribou. Fullman et al. (2017) studied the effects of environmental features and sport hunting on caribou migration in northwestern Alaska. These authors found that caribou tended to avoid rugged terrain and that the migration of caribou through Noatak NP does not appear to be hindered by sport hunting activity. They indicated that their results do not preclude the possibility of short-term effects (< 8 hours) altering the availability of caribou for individual hunters, and that the lack of observed influence of hunting activity could be related to limitations in the telemetry and sport hunter datasets used in the study (i.e. caribou locations were only recorded every 8 hours, not every sport hunter camp was included, and only landings events from transporter aircraft were considered).

Concerns over the impact of sport hunting activities on caribou migration have also been expressed. Aircraft can affect caribou behavior in the short-term (< 8 hours), which can impact hunting success. However, aircraft are unlikely to have long-term impacts on caribou migration through the Noatak NP (Fullman et al. 2017, Halas 2015, Dau 2015a). The WACH have migrated through Unit 23 for thousands of years, although specific migration routes change annually (Figure 4). The long-held Inupiaq tradition of letting lead caribou pass unmolested in order to establish migration routes also suggests that once migration routes are established, other caribou will follow regardless of hunting or other disturbances such as airplanes (Dau 2015a).

Shifts in caribou migration paths have created difficulty for Noatak, Kivalina, and Kotzebue hunters (Dau 2015a). Local WACH harvest has been relatively stable in Unit 23 since the 1990s, but residents of some communities have had to "greatly increase their expenditure of money and effort to maintain these harvest levels" (Dau 2015a:14-30). This is due in part to having to travel farther, more frequently, and for longer durations to find caribou (Halas 2015). Some communities such as Unalakleet and Noatak have "not met their subsistence needs in many recent years" (Dau 2015a:14-30). This was also expressed by Northwest

Arctic Council members during meetings in October 2015 and March 2016 (NWARAC 2015, NWARAC and NSRAC 2016).

Northwest Arctic Council members reported ongoing concerns about extensive user conflicts in Unit 23 prior to the closure of Federal public lands (NWARAC 2015). Council members have testified that these conflicts have confounded their ability to successfully harvest caribou for subsistence purposes in some areas, and that these conflicts have caused degradation to their subsistence lifestyle through landscape modifications (e.g. abandoned structures and trash; landing strips; ATV trails), herd diversion and positioning (e.g. pushing or scaring caribou with low-flying aircraft for hunting, sightseeing, photography and other purposes; creating camp structures along migratory paths), and hunting of lead caribou. Aircraft activity was of particular concern and includes operations by transporters, guides, "nonlocal" hunters utilizing personal aircraft, and recreational users. Specifically, aircraft in the vicinity of the Squirrel River was cited as particularly problematic (NWARAC 2015).

Effects of the Proposal

If this proposal is adopted, Federally qualified subsistence users would have less opportunity to harvest cow and bull caribou from the WACH, TCH, and CACH due to shorter harvest seasons on Federal public lands in Units 21, 22, 23, 24, 25A, 26A, and 26B. The peak of the caribou harvest from these populations in Units 23, 24, 25A, 26A and 26B occurs during late summer and fall from mid-August to early October. Starting the cow season on October 1 would eliminate September, which has traditionally been a heavily used month by Federally qualified subsistence users (FQSU). Limiting the bull hunt in Unit 22 from July 1 to Oct. 10 will limit the hunt to primarily those caribou that reside there year-round and would reduce flexibility to hunt caribou when they are present. The North Slope Subsistence Regional Advisory Council (NSRAC) discussed the start date following the rut, when changes were made to the caribou regulations in 2016, and they were adamant that bull caribou are edible by early December versus Feb. 1 as proposed by the proponent.

There are some potential benefits to delaying the start of the cow season until October 1 as the more restrictive cow harvest season would allow calves to stay with cows longer in the fall, thus increasing their survival. Also, delaying the hunting season may give cows from the WACH, TCH, and CACH more time to establish their preferred migration routes prior to disturbance from hunters if this is occurring given the current level of hunting activity. This may benefit local subsistence hunters if the caribou establish routes closer to the communities and traditional hunting corridors. However, it should be noted that many caribou will still be in migration, and thus, the possibility of deflecting the herds still exists.

OSM PRELIMINARY CONCLUSION

Oppose Proposal WP18-32.

Justification

Modifying the cow seasons as suggested by the proponent would likely reduce the overall cow harvest and increase calf survival which may lessen the population decline and aid in recovery. However, the changes

proposed for cow and bull seasons would have little effect in reducing deflections of the caribou herds. This is due to the variability of the timing and location of migration patterns between calving, summer, and winter areas of the WACH, TCH, and CACH, the location of communities and their dependence on these caribou, traditional hunting patterns of local subsistence users, and current Federal and State regulations already in place to protect caribou in each unit. In addition to human disturbance, population expansion and contraction, long-term effects of habitat fragmentation, climate change, habitat loss, and industrial development also affect variation in the migratory patterns and seasonal habitat use by the WACH, TCH, and CACH.

Ending the cow caribou season on Feb. 1, which is approximately 2 months before the start of the spring migration, is an unnecessary conservation measure for the protection of migrating caribou although it may help reduce the overall cow harvest. Shortening the start of the bull season is likely to have little impact as most subsistence hunters will not hunt bull caribou in the rut and those that do, for example in Unit 22, would oppose this change (WACH 2016).

For the proposed changes to the cow and bull caribou seasons to be fully effective, similar changes would need to be made to State regulations by the BOG. Rather than seasonal changes to minimize caribou migration deflections over the range of the three herds in seven Game Management Units as suggested by the proponent a more effective approach may be to have local Federal and State land managers in each unit enact short term seasonal hunting restrictions when needed to allow the lead animals to migrate through undisturbed. In response to the declines in the WACH and TCH populations, the BOG and the Board adopted caribou hunting restrictions regulations in 2015 and 2016 to reduce the cow harvest and overall harvest. Recently enacted conservation actions for the WACH, TCH, and CACH need to be given time, to determine if they are effective in reducing the caribou harvest in slowing down or reversing the population declines in the WACH, TCH, and CACH, before additional changes are made to the caribou regulations and to see what effect, if any, they have on the migratory patterns of caribou. Reasons for the OSM Justification are discussed on a unit-specific basis below.

Unit 26B

The primary caribou herd in Unit 26B is the CACH. NFQU are responsible for a majority (89%) of the caribou harvest in Unit 26B. Under State regulations, Unit 26B is divided up into two hunt areas, one in the northwest corner of Unit 26B and Unit 26B remainder. State caribou regulations for the northwestern corner have liberal seasons and harvest limits to support local subsistence users, primarily from Nuiqsut. In response to the recent decline in the CACH population, the State adopted new caribou hunting regulations which eliminated the cow harvest, reduced the harvest from 5 caribou per day to 2 bull caribou for residents, and 1 bull caribou for nonresidents in Unit 26B remainder for 2017/2018. The combination of variable migratory patterns of the CACH from year to year, hunting pressure that is distributed across the landscape, the relatively small percentage of Federal lands, and high use of State lands by NFQU suggest the restricted cow season would have little effect on reducing disturbance to the fall CACH migration across the DHCMA. The newly enacted State regulations for Unit 26B, which will likely reduce the overall CACH caribou harvest and have the greatest effect on reducing harvest pressure and impact to migrating caribou across the DHCMA, need to be given time to determine if they are effective.

The start for the bull season following the rut was discussed extensively by the NSRAC for the previous caribou regulations enacted in 2015 and 2016. The Dec. 10 start date versus the proposed Feb. 1 start date provides more opportunity for FQSU.

Unit 26A

The availability of caribou to local communities in Units 26A is dependent on the seasonal movements of the TCH and WACH. Utqiagvik, Wainwright, and Atqasuk harvest primarily from the TCH and Point Hope, Point Lay, and Anaktuvuk Pass harvest primarily from the WACH. Most of the caribou migration through Unit 26A occurs prior to Oct. 1, the proposed start date for the cow season, and thus would have the desired effect of allowing the caribou to migrate on Federal public lands undisturbed. However, it would also eliminate the prime caribou hunting season for cows from the WACH and TCH, which occurs during the months of August and September. Federally qualified subsistence users would also have less opportunity to harvest caribou if they were restricted to a bull only harvest during August and September. The potential benefit of a later cow season to allow unrestricted migration of the cows from the WACH and TCH does not outweigh the need for FQSU to harvest caribou when they are available.

The start for the bull season following the rut was discussed extensively by the NSRAC for the previous caribou regulations enacted in 2015 and 2016. The Dec. 6 start date following the rut versus the proposed Feb. 1 start date provides more opportunity for FQSU.

Unit 25A (West)

Although caribou in Unit 25A are harvested from three herds (PCH, Forty Mile Herd, and the CACH), the PCH is the primary herd for subsistence users. Arctic Village is the primary subsistence community in Unit 25A. Overlap with the PCH and CACH on the wintering grounds makes it difficult to determine the percentage of harvest from each herd. Although there is lack of data on the CACH harvest and migration in Unit 25A, it is estimated that <10% of the harvest is from the CACH. The PCH is at an all-time high, so sex-specific season restrictions to protect migration of the small proportion of wintering caribou from the CACH are not warranted.

Unit 24

Residents of Anaktuvuk Pass, who are highly dependent on caribou, have expressed concerns that NFQU have been responsible for deflecting WACH from their normal migration routes, thus causing hardship for local users. The closure of caribou hunting in Unit 23 to NFQU during the 2016-2017 regulatory year was perceived as having improved the situation, allowing for historical migration patterns and harvest activities in Anaktuvuk Pass in 2016. Changing the start date to Oct. 1 for the cow season would have the desired effect of allowing the caribou to migrate on Federal public lands undisturbed. However, to be fully effective similar regulations would have to be adopted by the Alaska Board of Game. However, it would also eliminate the prime caribou hunting season for cows from primarily the WACH, and to a lesser extent the TCH, which occurs during the months of August and September. Federally qualified subsistence users would also have less opportunity to harvest caribou if they were restricted to a bull only harvest during August and September. The potential benefit of a later cow season to allow unrestricted migration of the

cows from the WACH and TCH does not outweigh the need for FQSU to harvest caribou when they are available.

Unit 23

A majority of the harvest from the WACH occurs in Unit 23. The start of the cow migration can vary by a month, which adds to the complexity of trying to establish a cow season to protect the migration of the lead cows. Some of the caribou in the northern portion of the unit will have migrated through the Unit by Oct. 1 while many more will still be migrating through the southern portion of Unit 23. In addition, changing the cow season to Oct.1 - Feb.1 would eliminate the month of September which overlaps with the primary hunting period from the WACH of Aug. 25-Oct. 7 (Dau 2015a). Setting the end date for the caribou season as February is two months prior to the start of the spring migration so will have no effect to the migration but may help reduce the overall cow harvest. It also would reduce the opportunity of FQSU to harvest cows by two months compared to the current Federal regulations. Given the seasonal, yearly, and spatial variability during the WACH spring and fall migration, establishment of Oct. 1 as the start date for the cow season in Unit 23 does not meet the proponent's objectives in Unit 23. Additionally, caribou harvest by NFQU is already somewhat reduced due to the 2015 changes to State regulations (e.g. reduction in nonresident harvest limit) (**Figures 9 and 12**).

Unit 22

On average, cows cross the Selawik River during the fall migration around Oct. 15th, so cow caribou would still be migrating on Oct. 1, the proposed start date for the cow season. Restricting the bull season to July1 - Oct. 10 and Feb. 1 to June 30 would limit the hunt to those caribou that reside year-round. In addition, many of the Federally qualified subsistence users have expressed the need for longer not shorter caribou hunting seasons because of the lack of established migration patterns in this unit and the need to be able to hunt caribou whenever they become available. For example, FQSU in the north typically have access to caribou much earlier than hunters in the southern areas.

Unit 21

The number of cows making it to this unit prior to Oct. 1 is negligible, so the proposed fall date does little to meet the proponent's goal. There is no spring season in Unit 21, so any deflection of lead cow caribou by NFQU is not an issue.

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Appendix A

Regulatory History

Unit 21D

In 1991, the Federal Subsistence Board (Board) adopted Proposal P91-132 with modification to designate new hunt areas in Unit 21D and establish a to-be-announced winter season with a harvest limit of two caribou (FWS 1991).

In 1992, the Board approved Temporary Special Action S92-06 to open a temporary winter season for caribou in Unit 21D north of the Yukon River and east of the Koyukuk River (FWS 1992).

In 2007, the Board adopted Proposal WP07-33, closing Unit 21D north of the Yukon River and east of the Koyukuk River to caribou hunting during the Federal fall season. This was done in order to conserve the declining Galena Mountain Caribou Herd (FWS 2007).

Unit 22

In 1994, the Board adopted Proposal P94-63A with modification to allow snowmachines to be used to take caribou and moose in Unit 22 (OSM 1994a).

In 1996, the Board adopted Proposal P96-049 with modification to provide a customary and traditional use determination for caribou in Unit 22 for rural residents of Unit 21D west of the Koyukuk and Yukon rivers, Units 22 (except St. Lawrence Island), 23, 24. The Proposal also provided a customary and traditional use determination for caribou in Unit 22A for residents of Kotlik, Emmonak, Marshall, Mountain Village, Pilot Station, Pitka's Point, Russian Mission, St. Mary's, Sheldon Point, and Alakanuk (OSM 1996).

In 1997, the Board adopted Proposal P97-54 with modification to add residents of Hooper Bay, Scammon Bay, and Chevak to the customary and traditional use determination for caribou in Unit 22A (OSM 1997).

In 2000, the Board adopted Proposal WP00-53 with modification allowing the use of snowmachines to position a hunter to select individual caribou for harvest in Units 22 and 23. This was done to recognize a customary and traditional practice in the region (OSM 2000a).

In 2002, the ADF&G issued two emergency orders addressing caribou/reindeer conflicts. The first, EO 05-03-02, closed the portion of Unit 22D within the Pilgrim River drainage south of the Pilgrim River bridge to caribou hunting between Aug. 31, 2002 and June 30, 2003. The purpose of this action was to prevent the harvest of reindeer, since no caribou were present in the area during this time. The second, EO 05-04-02, opened this same area to the harvest of caribou from Oct. 17, 2002 through Jun. 30, 2003. This emergency order provided harvest opportunity after caribou had moved into the area (Dau 2005).

In 2003, the Board adopted Proposal WP03-40 with modification to establish a harvest season of July 1-June 30 and a 5 caribou per day harvest limit in portions of Units 22D and 22E. This was done because caribou had expanded their range into these subunits and harvest was not expected to impact the caribou or

reindeer herds, to provide additional subsistence hunting opportunities, and to align State and Federal regulations (OSM 2003).

In 2005, the Alaska Board of Game (BOG) adopted a proposal creating two new hunt areas for caribou in Units 22B and 22D. This proposal also changed the season for these newly described areas to Oct. 1 – Apr. 15.

In 2006, the Board adopted Proposal WP06-37 with modification, which designated a new hunt area in Unit 22B with an open season of Oct. 1-Apr. 30 and a closed season from May 1-Sept. 30 unless opened by a Federal land manager. This was done to prevent incidental take of privately-owned reindeer and to reduce user conflicts (OSM 2006a).

In 2016, the BOG adopted Proposal 140 as amended to make the following changes to Unit 22 caribou regulations: establish a registration permit hunt (RC800), set an annual harvest limit of 20 caribou total, and lengthen cow and bull seasons in several hunt areas.

Unit 23

In 1995, the Board adopted Proposal P95-51 to increase the caribou harvest limit from 5 per day to 15 per day to increase opportunity for subsistence hunters to maximize their hunting when the caribou were available (FWS 1995a).

In 1997, the Board adopted Proposal P97-66 with modification to provide a positive customary and traditional use determination for caribou in Unit 23 for rural residents of Unit 21D west of the Koyukuk and Yukon rivers, Galena, Units 22, 23, 24 including residents of Wiseman, but not other residents of the Dalton Highway Corridor Management Area and Unit 26A (FWS 1995b, 1997b).

In 2000, Board adopted Proposal WP00-53 with modification allowing the use of snowmachines to position and select individual caribou for harvest in Units 22 and 23. This was done to recognize a customary and traditional practice in the region (FWS 2000a).

In 2013, an aerial photocensus indicated significant declines in the TCH (Caribou Trails 2014), WACH (Dau 2011), and the Central Arctic Caribou Herd (CACH) populations. In response, the BOG adopted modified Proposal 202 (RC76) in March 2015 to reduce harvest opportunities for both residents and nonresidents within the range of the WACH and the TCH. These regulation changes – which included lowering bag limits, changing harvest seasons, modifying the hunt area descriptors, and restricting bull and cow harvest and prohibiting calf harvest – were adopted to slow or reverse the population decline.

In 2015, The Board approved Temporary Special Action WSA15-03/04/05/06 with modification to simplify and clarify the regulatory language; maintain the current hunt areas in Units 23; decrease the harvest limit from 15 to 5 caribou per day, shorten the cow and bull seasons and prohibit the harvest of calves and cows with calves in Unit 23 (OSM 2015).

In 2015, the Northwest Arctic Subsistence Regional Advisory Council submitted Temporary Special Action Request WSA16-01 to close caribou hunting on Federal public lands in Unit 23 to non-Federally qualified users (NFQU) for the 2016/17 regulatory year (OSM 2016a). The Council stated that their request was necessary for conservation purposes but were also needed because nonlocal hunting activities were negatively affecting subsistence harvests. In April 2016, the Board approved WSA16-01, basing its decision on the strong support of the Northwest Arctic and North Slope Councils, public testimony in favor of the request, as well as concerns over conservation and continuation of subsistence uses (FSB 2016).

In June 2016, the State submitted Temporary Special Action Request WSA16-03 to reopen caribou hunting on Federal public lands in Unit 23 to NFQU, providing new biological information (e.g. calf recruitment, weight, body condition) on the WACH. The State specified that there was no biological reason for the closure and that it could increase user conflicts. In January 2017, the Board rejected WSA16-03 due to the position of all four affected Councils (Northwest Arctic, North Slope, Seward Peninsula, and Western Interior Alaska Regional Advisory Councils), public testimony, and Tribal consultation comments opposing the request. Additionally, the Board found the new information provided by the State to be insufficient to rescind the closure (FSB 2017, OSM 2017a).

In January 2017, the BOG adopted Proposal 2, requiring registration permits for residents hunting caribou within the range of the Western Arctic and Teshekpuk herds in Units 22, 23, and 26 a similar proposal was passed for Unit 22 in 2016). ADF&G submitted the proposal in order to better monitor harvest and improve management flexibility (ADF&G 2017a).

Also in January 2017, the BOG rejected Proposal 45, which proposed requiring big game hunting camps to be spaced at least three miles apart along the Noatak, Agashashok, Eli, and Squirrel Rivers. The Noatak/Kivalina & Kotzebue Fish and Game Advisory Committee (AC) submitted the proposal to allow caribou to migrate through those areas with less disruption and barriers. The proposal failed as it would be difficult to enforce.

In March 2017, the Northwest Arctic Subsistence Regional Advisory Council submitted Temporary Special Action Request WSA17-03 to close caribou hunting on Federal public lands in Unit 23 to NFQU for the 2017/18 regulatory year. The Northwest Arctic Subsistence Regional Advisory Council stated that the intent of the proposed closure was to ensure subsistence use in the 2017/18 regulatory year, to protect declining caribou populations, and to reduce user conflicts. In June 2017, the Board approved Temporary Special Action WSA17-03 with modification to close Federal public lands to caribou hunting within a 10 mile wide corridor (5 miles on either side) along a portion of the Noatak River and within the Squirrel River drainage for the 2017/2018 regulatory year. While these closures may help reduce user conflicts along these high use areas, the Board concluded that closure of all Federal public lands to NFQU was not warranted.

Unit 24

In 2000, the Board adopted Proposal P00-44 to expand the hunting area north of the Kanuti River for caribou to allow Federally qualified subsistence users additional opportunities to harvest from the WACH (OSM 2000b). The harvest limit was set at 5 caribou per day with the restriction that cows may not be

taken from May 16-June 30 (FWS 2000b). The Board, however, did not change the harvest limit of one caribou in the southern section of Unit 24B and 24A which was enacted to protect the Ray Mountain Caribou Herd, a small population of about 1,000 animals, on their wintering range (Jandt 1998).

In 2015, The Board approved Temporary Special Action WSA15-03/04/05/06 with modification to shorten the cow and bull seasons and to prohibit the harvest of calves in Unit 24 remainder (OSM 2015).

Unit 25A

In 2010 the Board adopted Proposal WP10-94 with modification to increase the caribou hunting season to year-round and restricted the harvest season to bulls only from May 16- June 30. The increase to a year-round harvest season was in response to increasing trend of the CACH. Restricting the harvest to bulls only during May and June was implemented to protect calving females. The hunt occurs in the area where the CACH winter in Unit 25A (OSM 2010).

Unit 26A and 26B

The Board adopted Proposal P94-82 with modification to allow motor-driven boats and snowmachines to be used to take caribou in Unit 26A and to allow swimming caribou to be taken with a firearm in Unit 26A (OSM 1994b).

In 1995, the Federal Subsistence Board (Board) adopted Proposal P95-64 to increase the harvest limit from 5 caribou per day to 10 caribou per day in Unit 26 to increase opportunity for subsistence hunters (OSM 1995a). The Board also adopted Proposal P95-62 which closed the area east of the Killik River and south of the Colville River to NFQU (OSM 1995b). This closure was enacted to prevent NFQU from harvesting lead animals, which may have caused the migration to move away from the area that local subsistence users hunted in Unit 26A (OSM 1995b).

In 2005, the BOG established a Controlled Use Area for the Anaktuvuk River drainage that prohibited the use of aircraft for caribou hunting from Aug. 15–Oct. 15. The intent of this proposal was to limit access by nonlocal hunters, reduce user conflicts, and lessen the impact on caribou migration.

In 2006, the Board adopted Proposal WP06-65 which opened the area east of the Killik River and south of the Colville River to NFQU (OSM 2006b). The 1995 closure was lifted for several reasons. First, due to changes in land status, lands formerly managed by BLM were transferred to Alaska Native corporations or the State pursuant to the Alaska Native Claims Settlement Act or the Statehood Act, respectively. However, only the lands east of Anaktuvuk Pass were affected by the closure, making the closure less effective. Second, the WACH, TCH, and CACH populations, which traverse Unit 26A, were healthy and could support both subsistence and non–subsistence uses.

In 2013, an aerial photocensus indicated significant declines in the TCH (Caribou Trails 2014), WACH (Dau 2011), and possibly the CACH (Caribou Trails 2014). In response, the BOG adopted modified Proposal 202 (RC76) in March 2015 to reduce harvest opportunities for both residents and non-residents within the range of the WACH and the TCH. These regulation changes, which included lower bag limits,

changes to harvest seasons, modification of hunt areas, restrictions on bull and cow harvest and a prohibition on calf harvest, were adopted to slow or reverse the population decline. These regulatory changes, which were the result of extensive discussion and compromise among a variety of user groups, took effect on July 1, 2015.

In an effort to enact conservation measures the North Slope Subsistence Regional Advisory Council submitted four temporary wildlife special actions (WSA) for Units 23, 24, 26A, and 26B to change caribou harvest regulations on Federal public lands for the 2015/16 regulatory year. The Board approved Temporary Special Actions WSA15-03/04/05/06, which were similar to the changes made to State regulations in an attempt to reverse or slow the decline of the WACH and TCH. To address two primary factors contributing to the decline, low calf survival and high adult cow mortality, WSA15-03/04/05/06 prohibited the harvest of cows with calves, prohibited the harvest of calves, and reduced the harvest limit from 10 to 5 caribou per day, and shortened the cow and bull seasons in Unit 26A. Compared to the new State caribou regulations, it requested 3 additional weeks to the bull harvest season (Dec. 6- Dec. 31). In Unit 26B WSA15-03/04/05/06 reduced the harvest limit from 10 to 5 caribou and shortened the cow and bull seasons (OSM 2015).

Changes to caribou regulations in 2015 by the State Board of Game and the Federal Subsistence Board represented the first time in over 30 years that major changes to the harvest regulations were implemented for the WACH and TCH. These restrictions for the WACH were also supported by management recommendations outlined in the Western Arctic Herd Management Plan (WACH Working Group 2011). The intent of these regulations was to reduce the overall harvest and cow mortality to allow the WACH and TCH populations to recover. In 2015, three proposals were submitted for the 2016-2018 wildlife regulatory cycle concerning caribou regulations in Unit 26A and 26B, two from the North Slope Subsistence Regional Advisory Council (WP16-63 and WP16-64) and one from Jack Reakoff (WP16-37). The Board adopted WP16-37 with modification and took no action on WP16-63/64 based on action taken on WP16-37 (OSM 2016b). Changes to the 2016-2018 Federal regulations in Unit 26A included a reduction from ten to five caribou per day harvest limit, splitting Unit 26A into two hunt areas based on range and migration patterns of the WACH and TCH, selecting the opening date for bulls in the winter season as December 6, a prohibition on the take of calves, and protection of cows with calves from July 16-Oct. 15. Changes to caribou regulations in Unit 26B which include harvest from the CACH were: a reduced harvest limit from ten to five caribou per day; splitting Unit 26B into two hunt areas, one south of 69°30’ N. lat. west of the Dalton Highway and 26B remainder; a restricted cow season from July to April/May; and a reduction in the cow and bull seasons.

In February 2017, in response to the decline in the CACH, the BOG adopted Proposal 105 (RC22) with amendments to reduce overall caribou harvest from 930 to 680 and the cow harvest from 202 to 75 in Unit 26B (Lenart 2017a).

In March 2017, the Norwest Arctic and North Slope Subsistence Regional Advisory Councils submitted Temporary Special Action Requests WSA17-03,and WSA-04, to close caribou hunting on Federal public lands in Unit 23 and in Units 26A and 26B, respectively to NFQU for the 2017/18 regulatory year. Both Councils stated that the intent of the proposed closures was to ensure continuation of subsistence uses in the

2017/18 regulatory year, to protect declining caribou populations, and to reduce user conflicts. In June 2017, the Board approved Temporary Special Action WSA17-03 with modification to close Federal public lands to caribou hunting within a 10 mile wide corridor (5 miles on either side) along a portion of the Noatak River;within the Squirrel River drainage; and within the northern and southern boundaries of the Eli and Agashasshok River drainages; for the 2017/2018 regulatory year. While these closures may help reduce user conflicts along these high use areas, the Board concluded that closure of all Federal public lands to NFQU was not warranted at that time.

In June 2017, the Board rejected WSA17-04 for a variety of reasons including: 1) the relatively small cow harvest by NFQU in Unit 26A; 2) the need for adequate time to determine if the recently enacted conservation actions for WACH, TCH, and CACH are effective in reducing the caribou harvest and reversing or slowing down the population declines; 3) the closure of Federal public lands in Unit 26A would likely shift hunters to State lands around Anaktuvuk Pass; 4) closure of Federal public lands in Unit 26B, which makes up only about 30% of the unit, is not likely to have as much effect as recent BOG regulations to protect the CACH; and 5) a reduction in hunting pressure along the Dalton Highway Corridor Management Area (DHCMA), which is thought to affect the migration of the CACH, is unlikely to be effective, as most NFQU will use the DHCMA to access adjacent State lands.

WP18–48/49 Executive Summary	
General Description	Proposal WP18-48/49 requests that Federal reporting requirements for caribou in Units 22, 23, and 26A be aligned with the State's registration permit requirements. *Submitted by: Western Arctic Caribou Herd Working Group and Louis Cusack.*
Proposed Regulation	**Unit 22—Caribou** *Unit 22B—that portion west of Golovnin Bay and west of a line along the west bank of the Fish and Niukluk Rivers to the mouth of the Libby River, and excluding all portions of the Niukluk River drainage upstream from and including the Libby River drainage—5 caribou per day* ***by State registration permit****. Calves may not be taken* — *Oct. 1-Apr. 30. May 1-Sep. 30, a season may be announced.* *Units 22A—that portion north of the Golsovia River drainage, 22B remainder, that portion of Unit 22D in the Kuzitrin River drainage (excluding the Pilgrim River drainage), and the Agiapuk River drainages, including the tributaries, and Unit 22E—that portion east of and including the Tin Creek drainage—5 caribou per day* ***by State registration permit****. Calves may not be taken* — *July 1-June 30.* *Unit 22A, remainder—5 caribou per day* ***by State registration permit****. Calves may not be taken* — *July 1-June 30, season may be announced.* *Unit 22D, that portion in the Pilgrim River drainage—5 caribou per day* ***by State registration permit****. Calves may not be taken* — *Oct. 1-Apr. 30. May 1-Sep. 30, season may be announced.* *Units 22C, 22D remainder, 22E remainder—5 caribou per day* ***by State registration permit****. Calves may not be taken* — *July 1-June 30, season may be announced*

WP18–48/49 Executive Summary

Unit 23—Caribou

Unit 23—that portion which includes all drainages north and west of, and including, the Singoalik River drainage—5 caribou per day as follows ***by State registration permit****: Calves may not be taken*

Bulls may be harvested	*July 1-Oct. 14.* *Feb. 1-June 30.*
Cows may be harvested. However, cows accompanied by calves may not be taken July 15-Oct. 14	*July 15-Apr. 30.*

Unit 23, remainder—5 caribou per day, as follows ***by State registration permit****: Calves may not be taken.*

Bulls may be harvested	*July 1-Oct. 14.* *Feb. 1-June 30.*
Cows may be harvested. However, cows accompanied by calves may not be taken July 31-Oct. 14	*July 31-Mar. 31*

Unit 26A—Caribou

Unit 26A—that portion of the Colville River drainage upstream from the Anaktuvuk River, and drainages of the Chukchi Sea south and west of, and including the Utukok River drainage—5 caribou per day as follows ***by State registration permit****: Calves may not be taken.*

Bulls may be harvested	*July 1-Oct. 14.* *Dec. 6-June 30.*
Cows may be harvested; however, cows accompanied by calves may not be taken July 16-Oct. 15	*July 16-Mar. 15.*

Unit 26A remainder—5 caribou per day as follows ***by State registration permit****: Calves may*

WP18–48/49 Executive Summary	
	not be taken. *Bulls may be harvested* *July 1-Oct. 15.* *Dec. 6-June 30.* *Up to 3 cows per day may be harvested; however, cows accompanied by calves may not be taken July 16-Oct. 15* *July 16-Mar. 15.* *You may not transport more than 5 caribou per regulatory year from Unit 26 except to the community of Anaktuvuk Pass*
OSM Preliminary Conclusion	**Support** Proposal WP18-48; and **Take No Action** on Proposal WP18-49.
Southeast Alaska Subsistence Regional Advisory Council Recommendation	
Southcentral Alaska Subsistence Regional Advisory Council Recommendation	
Kodiak/Aleutians Subsistence Regional Advisory Council Recommendation	
Bristol Bay Subsistence Regional Advisory Council Recommendation	
Yukon-Kuskokwim Delta Subsistence Regional Advisory Council Recommendation	
Western Interior Alaska Subsistence Regional Advisory Council	

WP18–48/49 Executive Summary	
Recommendation	
Seward Peninsula Subsistence Regional Advisory Council Recommendation	
Northwest Arctic Subsistence Regional Advisory Council Recommendation	
Eastern Interior Alaska Subsistence Regional Advisory Council Recommendation	
North Slope Subsistence Regional Advisory Council Recommendation	
Interagency Staff Committee Comments	
ADF&G Comments	
Written Public Comments	**None**

DRAFT STAFF ANALYSIS
WP18-48/49

ISSUES

Proposal WP18-48, submitted by the Western Arctic Caribou Herd Working Group (WACH Working Group) and Proposal WP18-49, submitted by Louis Cusack, requests that Federal reporting requirements for caribou in Units 22, 23, and 26A be aligned with the State's registration permit requirements.

DISCUSSION

The WACH Working Group recognizes the registration permit hunt as a useful tool to monitor harvest and inform herd management, which is particularly important given the WACH population decline.

Mr. Cusack states that the intent of Proposal WP18-49 is to improve harvest data, herd management, and opportunity for all hunters. The proponent states that registration permits will help managers make sound decisions and determine the best means to curtail the current caribou population declines without taking more drastic measures. The proponent notes that given the current population decline, the impact of hunting on the WACH, and the inaccuracy of present harvest estimation methods for local harvest, more accurate reporting of both total harvest and composition of the harvest are needed. The proponent states that given the mix of Federal and non-Federal lands in these units, caribou hunting would be very cumbersome and confusing to manage under different Federal and State reporting requirements. The proponent references several reports to support the need for more accurate harvest reporting. He also notes that all users should be willing to work together in order to protect important natural resources.

Existing Federal Regulations

Unit 22—Caribou

Unit 22B—that portion west of Golovnin Bay and west of a line along the west bank of the Fish and Niukluk Rivers to the mouth of the Libby River, and excluding all portions of the Niukluk River drainage upstream from and including the Libby River drainage—5 caribou per day. Calves may not be taken	*Oct. 1-Apr. 30. May 1-Sep. 30, a season may be announced.*
Units 22A—that portion north of the Golsovia River drainage, 22B remainder, that portion of Unit 22D in the Kuzitrin River drainage (excluding the Pilgrim River drainage), and the Agiapuk River drainages, including the tributaries, and Unit 22E—that portion east of and including the Tin Creek drainage—5 caribou per day. Calves may not be taken	*July 1-June 30.*

Unit 22A, remainder—5 caribou per day. Calves may not be taken	*July 1-June 30, season may be announced.*
Unit 22D, that portion in the Pilgrim River drainage—5 caribou per day. Calves may not be taken	*Oct. 1-Apr. 30.* *May 1-Sep. 30, season may be announced.*
Units 22C, 22D remainder, 22E remainder—5 caribou per day. Calves may not be taken	*July 1-June 30, season may be announced*

Unit 23—Caribou

Unit 23—that portion which includes all drainages north and west of, and including, the Singoalik River drainage—5 caribou per day as follows: Calves may not be taken	
Bulls may be harvested	*July 1-Oct. 14.* *Feb. 1-June 30.*
Cows may be harvested. However, cows accompanied by calves may not be taken July 15-Oct. 14	*July 15-Apr. 30.*
Unit 23, remainder—5 caribou per day, as follows: Calves may not be taken.	
Bulls may be harvested	*July 1-Oct. 14.* *Feb. 1-June 30.*
Cows may be harvested. However, cows accompanied by calves may not be taken July 31-Oct. 14	*July 31-Mar. 31*

Unit 26A—Caribou

Unit 26A—that portion of the Colville River drainage upstream from the Anaktuvuk River, and drainages of the Chukchi Sea south and west of, and including the Utukok River drainage—5 caribou per day as follows: Calves may not be taken.	
Bulls may be harvested	*July 1-Oct. 14.* *Dec. 6-June 30.*
Cows may be harvested; however, cows accompanied by calves may not be taken July 16-Oct. 15	*July 16-Mar. 15.*
Unit 26A remainder—5 caribou per day as follows: Calves may not be taken.	

Bulls may be harvested	*July 1-Oct. 15.* *Dec. 6-June 30.*
Up to 3 cows per day may be harvested; however, cows accompanied by calves may not be taken July 16-Oct. 15	*July 16-Mar. 15.*

Proposed Federal Regulations

Unit 22—Caribou

Unit 22B—that portion west of Golovnin Bay and west of a line along the west bank of the Fish and Niukluk Rivers to the mouth of the Libby River, and excluding all portions of the Niukluk River drainage upstream from and including the Libby River drainage—5 caribou per day ***by State registration permit****. Calves may not be taken*	*Oct. 1-Apr. 30.* *May 1-Sep. 30, a season may be announced.*
Units 22A—that portion north of the Golsovia River drainage, 22B remainder, that portion of Unit 22D in the Kuzitrin River drainage (excluding the Pilgrim River drainage), and the Agiapuk River drainages, including the tributaries, and Unit 22E—that portion east of and including the Tin Creek drainage—5 caribou per day ***by State registration permit****. Calves may not be taken*	*July 1-June 30.*
Unit 22A, remainder—5 caribou per day ***by State registration permit****. Calves may not be taken*	*July 1-June 30, season may be announced.*
Unit 22D, that portion in the Pilgrim River drainage—5 caribou per day ***by State registration permit****. Calves may not be taken*	*Oct. 1-Apr. 30.* *May 1-Sep. 30, season may be announced.*
Units 22C, 22D remainder, 22E remainder—5 caribou per day ***by State registration permit****. Calves may not be taken*	*July 1-June 30, season may be announced*

Unit 23—Caribou

Unit 23—that portion which includes all drainages north and west of, and including, the Singoalik River drainage—5 caribou per day as follows ***by State registration permit****: Calves may not be taken*

Bulls may be harvested	*July 1-Oct. 14.* *Feb. 1-June 30.*
Cows may be harvested. However, cows accompanied by calves may not be taken July 15-Oct. 14	*July 15-Apr. 30.*

Unit 23, remainder—5 caribou per day, as follows ***by State registration permit****: Calves may not be taken.*

Bulls may be harvested	*July 1-Oct. 14.* *Feb. 1-June 30.*
Cows may be harvested. However, cows accompanied by calves may not be taken July 31-Oct. 14	*July 31-Mar. 31*

Unit 26A—Caribou

Unit 26A—that portion of the Colville River drainage upstream from the Anaktuvuk River, and drainages of the Chukchi Sea south and west of, and including the Utukok River drainage—5 caribou per day as follows ***by State registration permit****: Calves may not be taken.*

Bulls may be harvested	*July 1-Oct. 14.* *Dec. 6-June 30.*
Cows may be harvested; however, cows accompanied by calves may not be taken July 16-Oct. 15	*July 16-Mar. 15.*

Unit 26A remainder—5 caribou per day as follows ***by State registration permit****: Calves may not be taken.*

Bulls may be harvested	*July 1-Oct. 15.* *Dec. 6-June 30.*
Up to 3 cows per day may be harvested; however, cows accompanied by calves may not be taken July 16-Oct. 15	*July 16-Mar. 15.*

You may not transport more than 5 caribou per regulatory year from Unit 26 except to the community of Anaktuvuk Pass

Existing State Regulations

Unit 22—Caribou

22A, north of the Golsovia River drainage	*Residents—Twenty caribou total, up to 5 per day; however, calves may not be taken. Permit available online at http://hunt.alaska.gov or in person at Nome ADF&G, and license vendors within Unit 22 beginning June 15*	*Bulls*	*RC800*	*no closed season*
		Cows	*RC800*	*July 1-Mar. 31*
	Nonresidents—one bull; however, calves may not be taken		*HT*	*Aug. 1-Sept. 30*
22A remainder	*Residents—Twenty caribou total, up to 5 per day; however, calves may not be taken, bulls may not be taken Oct 15-Jan 31, and cows may not be taken Apr 1-Aug 31. Permit available online at http://hunt.alaska.gov or in person at Nome ADF&G, and license vendors within Unit 22 beginning June 15*		*RC800*	*May be announced*
	Nonresidents—one bull; however, calves may not be taken		*HT*	*May be announced*
Unit 22B, west of Golovnin Bay, west of the west banks of Fish and Niukluk rivers below the Libby river (excluding the Libby River drainage and Niukluk River drainage above the mouth of the Libby River)	*Residents—Twenty caribou total, up to 5 per day; however, calves may not be taken. Permit available online at http://hunt.alaska.gov or in person at Nome ADF&G, and license vendors within Unit 22 beginning June 15*	*Bulls*	*RC800*	*Oct. 1-Apr. 30*
		Cows	*RC800*	*Oct. 1-Mar. 31*
	Residents- Twenty caribou total, up to 5 per day; however, calves may not be taken, and bulls may not be taken Oct 15-Jan 31, and cows may not be taken Apr 1-Aug 31. Permit available online at http://hunt.alaska.gov or in person at Nome ADF&G, and license vendors within Unit 22 beginning June 15		*RC800*	*may be announced*
	Nonresidents: one bull; however, calves may not be taken		*HT*	*may be announced*

22B remainder	*Residents—Twenty caribou total, up to 5 per day; however, calves may not be taken. Permit available online at http://hunt.alaska.gov or in person at Nome ADF&G, and license vendors within Unit 22 beginning June 15*	*Bulls*	*RC800*	*no closed season*
		Cows	*RC800*	*July. 1-Mar. 31.*
	Nonresidents—one bull; however, calves may not be taken		*HT*	*Aug. 1-Sept. 30*
22C	*Residents—Twenty caribou total, up to 5 per day; however, calves may not be taken, bulls may not be taken Oct 15-Jan 31, and cows may not be taken Apr 1-Aug 31. Permit available online at http://hunt.alaska.gov or in person at Nome ADF&G, and license vendors within Unit 22 beginning June 15*		*RC800*	*May be announced*
	Nonresidents—one bull; however, calves may not be taken		*HT*	*May be announced*
22D Pilgrim River drainage	*Residents—Twenty caribou total, up to 5 per day; however, calves may not be taken. Permit available online at http://hunt.alaska.gov or in person at Nome ADF&G, and license vendors within Unit 22 beginning June 15*	*Bulls*	*RC800*	*Oct. 1-Apr. 30*
		Cows	*RC800*	*Oct. 1-Mar. 31*
	Residents- Twenty caribou total, up to 5 per day; however, calves may not be taken, and bulls may not be taken Oct 15-Jan 31, and cows may not be taken Apr 1-Aug 31. Permit available online at http://hunt.alaska.gov or in person at Nome ADF&G, and license vendors within Unit 22 beginning June 15		*RC800*	*may be announced*
	Nonresidents: one bull; however, calves may not be taken		*HT*	*may be announced*

22D, in the Kuzitrin River drainage (excluding the Pilgrim River drainage) and the Agiapuk river drainage	*Residents—Twenty caribou total, up to 5 per day; however, calves may not be taken. Permit available online at http://hunt.alaska.gov or in person at Nome ADF&G, and license vendors within Unit 22 beginning June 15*	*Bulls*	*RC800*	*no closed season*
		Cows	*RC800*	*July. 1-Mar. 31.*
	Nonresidents—one bull; however, calves may not be taken		*HT*	*Aug. 1-Sept. 30*
22D remainder	*Residents—Twenty caribou total, up to 5 per day; however, calves may not be taken, bulls may not be taken Oct 15-Jan 31, and cows may not be taken Apr 1-Aug 31. Permit available online at http://hunt.alaska.gov or in person at Nome ADF&G, and license vendors within Unit 22 beginning June 15*		*RC800*	*May be announced*
	Nonresidents—one bull; however, calves may not be taken		*HT*	*May be announced*
22E, east of and including the Sanaguich River drainage	*Residents—Twenty caribou total, up to 5 per day; however, calves may not be taken. Permit available online at http://hunt.alaska.gov or in person at Nome ADF&G, and license vendors within Unit 22 beginning June 15*	*Bulls*	*RC800*	*no closed season*
		Cows	*RC800*	*July. 1-Mar. 31.*
	Nonresidents—one bull; however, calves may not be taken		*HT*	*Aug. 1-Sept. 30*
22E remainder	*Residents—Twenty caribou total, up to 5 per day; however, calves may not be taken, bulls may not be taken Oct 15-Jan 31, and cows may not be taken Apr 1-Aug 31. Permit available online at http://hunt.alaska.gov or in person at Nome ADF&G, and license vendors within Unit 22 beginning June 15*		*RC800*	*May be announced*
	Nonresidents—one bull; however, calves may not be taken		*HT*	*May be announced*

Unit 23—Caribou

23, north of and including Singoalik River drainage	*Residents—Five caribou per day; however, calves may not be taken.*	*Bulls*	*RC907*	*July 1-Oct. 14* *Feb. 1-June 30*
		Cows	*RC907*	*Jul. 15-Apr. 30*
	Nonresidents—One bull; however, calves may not be taken		*HT*	*Aug. 1-Sept. 30*
23 remainder	*Residents—Five caribou per day; however, calves may not be taken.*	*Bulls*	*RC907*	*July 1-Oct. 14* *Feb. 1-June 30*
		Cows	*RC907*	*Sept. 1-Mar. 31*
	Nonresidents—One bull; however, calves may not be taken		*HT*	*Aug. 1-Sept. 30*

Unit 26—Caribou

26A, the Colville River drainage upstream from the Anaktuvuk River, and drainages of the Chukchi Sea south and west of, and including the Utukok River drainage	*Residents—Five caribou per day; however, calves may not be taken.*	*Bulls*	*RC907*	*July 1-Oct. 14* *Feb. 1-June 30*
		Cows	*RC907*	*Jul. 15-Apr. 30*
	Nonresidents—One bull; however, calves may not be taken		*HT*	*July 15-Sept. 30*
26A, Remainder	*Residents—Five bulls per day; however, calves may not be taken;*		*RC907*	*July 1-July 15* *Mar. 16-June 30*
	Five caribou per day three of which may be cows; calves may not be taken, and cows with calves may not be taken		*RC907*	*July 16-Oct. 15*
	Three cows per day however, calves may not be taken		*RC907*	*Oct. 16-Dec. 31*
	Five caribou per day three of which may be cows; calves may not be taken		*RC907*	*Jan. 1-Mar. 15*

Nonresidents—One bull however, calves may not be taken	*HT*	*July 15-Sept. 30*

Extent of Federal Public Lands

Federal public lands comprise approximately 43% of Unit 22 and consist of 28% Bureau of Land Management (BLM) managed lands, 12% National Park Service (NPS) managed lands, and 3% U.S. Fish and Wildlife Service (USFWS) managed lands.

Federal public lands comprise approximately 71% of Unit 23 and consist of 40% NPS managed lands, 22% BLM managed lands, and 9% USFWS managed lands.

Federal public lands comprise approximately 73% of Unit 26A and consist of 66% BLM managed lands and 7% NPS managed lands.

Customary and Traditional Use Determinations

Residents of Units 21D west of the Koyukuk and Yukon Rivers, 22 (except residents of St. Lawrence Island), 23, 24, Kotlik, Emmonak, Hooper Bay, Scammon Bay, Chevak, Marshall, Mountain Village, Pilot Station, Pitka's Point, Russian Mission, St. Marys, Nunam Iqua, and Alakanuk have a customary and traditional use determination for caribou in Unit 22A.

Residents of Units 21D west of the Koyukuk and Yukon Rivers, 22 (excluding residents of St. Lawrence Island), 23, and 24 have a customary and traditional use determination for caribou in Unit 22 remainder.

Residents of Unit 21D west of the Koyukuk and Yukon Rivers, Galena, 22, 23, 24 including residents of Wiseman but not including other residents of the Dalton Highway Corridor Management Area, and 26A have a customary and traditional use determination for caribou in Unit 23.

Residents of Unit 26, Anaktuvuk Pass, and Point Hope have customary and traditional use determination for caribou in Unit 26A.

Regulatory History

In 1984, the Alaska Department of Fish and Game (ADF&G) changed harvest reporting requirements for individuals hunting caribou north of the Yukon River. Instead of a standard harvest ticket and report, individuals were required to register with ADF&G (at specified vendors) and then return a harvest report form that was mailed to them by ADF&G later in the season (Georgette 1994). In 1989, harvest tickets were once again required for individuals living south (but hunting caribou north) of the Yukon River while the hunter registration system was retained for individuals living and hunting caribou north of the Yukon River (Georgette 1994).

In 1990, the Federal caribou hunting seasons in Units 22A, 22B, 23, and 26A were open year round with a 5 caribou/day harvest limit and a restriction on the take of cows May 16-June 30. There was no open caribou season in Units 22C, 22D, and 22E.

In 1994, the Federal Subsistence Board (Board) adopted Proposal P94-63A with modification to allow snowmachines to be used to take caribou and moose in Unit 22. The Board also adopted Proposal P94-82 with modification to allow motor-driven boats and snowmachines to be used to take caribou in Unit 26 and to allow swimming caribou to be taken with a firearm using rimfire cartridges in Unit 26. (Swimming caribou could be taken with a firearm using rimfire cartridges in Unit 23 since 1990).

In 1995, the Board adopted Proposal P95-51 to increase the caribou harvest limit in Unit 23 from 5 to 15 caribou per day so that subsistence hunters could maximize their hunting efforts when caribou were available. The Board also adopted Proposal P95-64 to increase the harvest limit from 5 caribou per day to 10 caribou per day in Unit 26 to increase harvest opportunity for subsistence hunters. The Board also adopted Proposal P95-62 which closed the area east of the Killik River and south of the Colville River to caribou hunting by non-Federally qualified users from Aug. 1-Sept. 30. This closure was enacted to prevent non-Federally qualified users from harvesting lead animals, which may have caused the migration to move away from the area that local subsistence users hunted in Unit 26A.

In 1996, the Board adopted Proposal P96-049 with modification to provide a customary and traditional use determination for caribou in Unit 22 for rural residents of Unit 21D west of the Koyukuk and Yukon rivers, and Units 22 (except St. Lawrence Island), 23, and 24. The proposal also provided a customary and traditional use determination for caribou in Unit 22A for residents of Kotlik, Emmonak, Marshall, Mountain Village, Pilot Station, Pitka's Point, Russian Mission, St. Mary's, Sheldon Point, and Alakanuk.

In 1997, the Board adopted Proposal P97-54 with modification to add residents of Hooper Bay, Scammon Bay, and Chevak to the customary and traditional use determination for caribou in Unit 22A.

In 1997, the Board adopted Proposal P97-66 with modification to provide a customary and traditional use determination for caribou in Unit 23 for rural residents of Unit 21D west of the Koyukuk and Yukon rivers, Galena, Units 22, 23, 24 including residents of Wiseman, but not other residents of the Dalton Highway Corridor Management Area and Unit 26A.

In 2000, the Board adopted Proposal WP00-53 with modification allowing the use of snowmachines to position a hunter to select individual caribou for harvest in Units 22 and 23. This was done to recognize a customary and traditional practice in the region.

In 2003, the Board adopted Proposal WP03-40 with modification to establish a harvest season of July 1-June 30 and a 5 caribou per day harvest limit in portions of Units 22D and 22E. This was done because caribou had expanded their range into these subunits and harvest was not expected to impact the caribou or reindeer herds, to provide additional subsistence hunting opportunities, and to align State and Federal regulations.

In 2006, the Board adopted Proposal WP06-37 with modification, which designated a new hunt area in Unit 22B with an open season of Oct. 1-Apr. 30 and a closed season from May 1-Sept. 30 unless opened by a Federal land manager. This was done to prevent incidental take of privately-owned reindeer and to reduce user conflicts.

Also in 2006, the Board adopted Proposal WP06-65 which opened the area east of the Killik River and south of the Colville River to non-Federally qualified users. The 1995 closure was lifted for several reasons. First, due to changes in land status, lands formerly managed by BLM were transferred to Alaska Native corporations or the State pursuant to the Alaska Native Claims Settlement Act or the Statehood Act, respectively. After these land transfers, only lands east of Anaktuvuk Pass were affected by the closure, making the closure less effective. Second, the population was at a point where it could support both subsistence and non–subsistence uses.

In 2013, an aerial photo census indicated significant declines in the Teshekpuk Caribou Herd (TCH), WACH, and possibly the Central Arctic Caribou Herd (CACH) populations (Caribou Trails 2014). In response, the Alaska Board of Game (BOG) adopted modified Proposal 202 (RC76) in March 2015 to reduce harvest opportunities for both Alaska residents and nonresidents within the range of the WACH and the TCH, including Units 22, 23, and 26A. These regulation changes – which included lowering bag limits for nonresidents from two caribou to one bull, reductions in bull and cow season lengths, the establishment of new hunt areas, and prohibiting calf harvest – were adopted to slow or reverse the population decline.

In 2015, two special actions, WSA15-03/05, requesting changes to caribou regulations in Units 23 and 26A, were submitted by the North Slope Subsistence Regional Advisory Council (North Slope Council). Temporary Special Action WSA15-03 requested designation of a new hunt area for caribou in the northwest corner of Unit 23 where the harvest limit would be reduced from 15 to 5 caribou per day, the harvest season would be shortened for bulls and cows, and the take of calves would be prohibited. Temporary Special Action WSA15-05, requested that the bull caribou harvest limit in Unit 26A be reduced from 10 caribou per day to 5 caribou per day, the cow harvest limit be reduced to 3 per day, the harvest seasons for bulls and cows be reduced, and the take of calves and cows with calves be prohibited. Compared to the new State caribou regulations, it requested 3 additional weeks to the bull harvest season (Dec. 6- Dec. 31).

The Board approved Temporary Special Actions WSA15-03/04/05/06 with modification to simplify and clarify the regulatory language; maintain the current hunt areas in Units 23; decrease the harvest limit from 15 to 5 caribou per day and shorten the cow and bull seasons throughout Unit 23; prohibit the harvest of cows with calves throughout the affected units; and reduce the harvest limit in Unit 26B remainder from 10 to 5 caribou per day and shorten the season. These special actions took effect on July 1, 2015. These State and Federal regulatory changes in 2015 were the first time that harvest restrictions had been implemented for the WACH in over 30 years.

In 2015, the Northwest Arctic Subsistence Regional Advisory Council (Northwest Arctic Council) submitted a temporary special action request (WSA16-01) to close caribou hunting on Federal public lands in Unit 23 to non-Federally qualified users for the 2016/17 regulatory year. The Council stated that its request was necessary for conservation purposes but also needed because nonlocal hunting activities were negatively affecting subsistence harvests. In April 2016, the Board approved WSA16-01, basing its decision on the strong support of the Northwest Arctic and North Slope Councils, public testimony in favor of the request, as well as concerns over conservation and continuation of subsistence uses.

Six proposals (WP16-37, WP16-48, WP16-49/52, WP16-61, and WP16-63) concerning caribou regulations in Units 22, 23, and 26A were submitted to the Board for the 2016-2018 wildlife regulatory cycle. In April 2016, the Board adopted WP16-48 with modification to allow the positioning of a caribou, wolf, or wolverine for harvest in Unit 23 on BLM lands only. Proposal WP16-37 requested that Federal caribou regulations mirror the new State regulations across the ranges of the WACH and TCH (Units 21D, 22, 23, 24, 26A, and 26B). The Board adopted Proposal WP16-37 with modification to reduce the harvest limit to 5 caribou per day, restrict bull season during rut and cow season around calving, prohibit the harvest of calves and the harvest of cows with calves before weaning (mid-Oct.) in some areas, to create new hunt areas, and to establish new seasons in Unit 22. The Board took no action on the remaining proposals (WP16-49/52, WP16-61, and WP16-63) because of action taken on WP16-37.

In 2016, the BOG adopted Proposal 140 as amended to make the following changes to Unit 22 caribou regulations: establish a registration permit hunt (RC800), set an annual harvest limit of 20 caribou total, and lengthen cow and bull seasons in several hunt areas. The BOG also adopted a portion of Proposal 85, removing the caribou harvest ticket and report exception for residents living north of the Yukon River in Units 21, 24, 25, 26B, and 26C. The Board deferred Proposal 85 for the remaining units (Units 18, 22, 23, and 26A) to the Arctic/Western Region meeting in Jan. 2017.

In June 2016, the State submitted a special action request (WSA16-03) to reopen caribou hunting on Federal public lands in Unit 23 to non-Federally qualified users, providing new biological information (e.g. calf recruitment, weight, body condition) on the WACH. The State specified that there was no biological reason for the closure and that it could increase user conflicts. In January 2017, the Board rejected WSA16-03 due to the position of all four affected Councils (Northwest Arctic, North Slope, Seward Peninsula, and Western Interior) as well as public testimony and tribal consultation comments opposing the request. Additionally, the Board found the new information provided by the State to be insufficient to rescind the closure.

In January 2017, the BOG adopted Proposal 2, requiring registration permits for residents hunting caribou within the ranges of the WACH and TCH in Units 23 and 26. ADF&G submitted the proposal in order to better monitor harvest and improve management flexibility. The BOG rejected Proposal 3 (deferred Proposal 85 from 2016) due to action taken on Proposal 2.

In March 2017, the Northwest Arctic and North Slope Councils submitted temporary special action requests (WSA17-03 and -04, respectively) to close caribou hunting on Federal public lands in Unit 23 and in Units 26A and 26B, respectively, to non-Federally qualified users for the 2017/18 regulatory year. Both Councils stated that the intent of the proposed closures was to ensure subsistence use in the 2017/18 reg-

ulatory year, to protect declining caribou populations, and to reduce user conflicts. The Board voted to approve WSA17-03 with modification to close all Federal public lands within a 10 mile wide corridor (5 miles either side) along the Noatak River from the western boundary of Noatak National Preserve upstream to the confluence with the Cutler River; within the northern and southern boundaries of the Eli and Agashashok River drainages, respectively; and within the Squirrel River drainage, to caribou hunting except by Federally qualified subsistence users for the 2017/18 regulatory year. The Board considered the modification a reasonable compromise for all users and that closure of the specified area was warranted in order to continue subsistence use. The Board rejected WSA17-04 due to recent changes to State regulations that should reduce caribou harvest.

Current Events

Several proposals concerning Federal caribou harvest regulations in Units 23 and 26A were submitted for the 2018-2020 wildlife regulatory cycle (WP18-32, 45, 46/47, and 57). At the WACH Working Group meeting in December 2016, the group voted to submit two wildlife proposals. Proposal WP18-46 is to close Federal public lands in Unit 23 to caribou hunting by non-Federally qualified users. It also voted to submit this proposal (WP18-48).

At the Western Interior Council meeting in February 2017, the Council voted to submit Proposal WP18-32 to align caribou seasons across the ranges of the WACH, TCH, and CACH. The intent of this proposal is to protect cows during migration. The Council expressed its intent to submit a similar proposal to the BOG.

At the Northwest Arctic Council meeting in March 2017, the Council voted to submit Proposal WP18-45 to decrease the caribou harvest limit in Unit 23 from 5 to 3 caribou per day.

At the North Slope Council meeting in March 2017, the Council voted to submit Proposal WP18-57 to close Federal public lands to caribou hunting by non-Federally qualified users in Units 26A and 26B (similar to WSA17-04). This is in response to declines in the WACH, TCH, and CACH, which are seasonally present in the area.

Enoch Mitchell submitted Proposal WP18-47 to close Federal public lands in Unit 23 to caribou hunting by non-Federally qualified users for the 2018/19- 2020/21 regulatory years. The proposal was co-sponsored by the Native Village of Noatak, the Cape Krusenstern National Monument Subsistence Resource Commission (SRC), the Kobuk Valley National Park SRC, and the Noatak/Kivalina Fish and Game Advisory Committee.

Biological Background

Caribou abundance naturally fluctuates over decades (Gunn 2001, WACH Working Group 2011). Gunn (2001) reports the mean doubling rate for Alaskan caribou as 10 ± 2.3 years. Although the underlying mechanisms causing these fluctuations are uncertain, climatic oscillations (i.e. Arctic and Pacific Decadal Oscillations) may play an important role (Gunn 2001, Joly et al. 2011). Climatic oscillations can influence factors such as snow depth, icing, forage quality and growth, wildfire occurrence, insect levels, and

predation, which all contribute to caribou population dynamics (Joly et al. 2011). Density-dependent reduction in forage availability, resulting in poorer body condition may exacerbate caribou population fluctuations (Gunn 2001).

Caribou calving generally occurs from late May to mid-June (Dau 2013). Weaning generally occurs in late October and early November before the breeding season (Taillon et al. 2011). Calves stay with their mothers through their first winter, which improves calves' access to food and body condition (Holand et al. 2012). Calves orphaned after weaning (October) have greater chances of survival than calves orphaned before weaning (Holand et al. 2012, Joly 2000, Russell et al. 1991, Rughetti and Fest-Bianchet 2014).

The TCH, WACH, and CACH have ranges that overlap in Unit 26A (**Map 1**), and there can be considerable mixing of herds during the fall and winter. During the 1970s, there was little overlap between these herds, but the degree of mixing seems to be increasing. Thus, interpretation of population estimates is difficult due to both temporary and permanent immigration (Person et al. 2007).

The total number of caribou among the various herds wintering on the North Slope peaked at over 700,000 animals in the early 2000s (this includes the Porcupine Caribou Herd in northeast Alaska and Northwest Territories, Canada), which may have been the highest number since the 1970s. This number has declined substantially since the early 2000s. Currently, the WACH, TCH, and CACH populations are all declining (Dau 2011, 2015a, Lenart 2011, Parrett 2011, 2015c, 2015d).

Western Arctic Caribou Herd

The WACH has historically been the largest caribou herd in Alaska and has a home range of approximately 157,000 square miles in northwestern Alaska. In the spring, most mature cows move north to calving grounds in the Utukok Hills, while bulls and immature cows lag behind and move toward summer range in the Wulik Peaks and Lisburne Hills (**Map 2**, Dau 2011, WACH Working Group 2011).

Dau (2013) determined the calving dates for the WACH to be June 9–13. This is based upon long-term movement and distribution data obtained from radio-collared caribou (these are the dates cows ceased movements). After the calving period, cows and calves move west toward the Lisburne Hills where they mix with the bulls and non-maternal cows. During the summer, the herd moves rapidly to the Brooks Range.

In the fall, the herd moves south toward wintering grounds in the northern portion of the Nulato Hills. Rut occurs during fall migration (Dau 2011, WACH Working Group 2011). Dau (2013) determined the WACH rut dates to be October 22–26. This is based on back-calculations from calving dates using a 230-day gestation period. Since about 2000, the timing of fall migration has been less predictable, often occurring later than in previous decades (Dau 2015a). From 2010-2015, the average date that GPS collared caribou crossed the Noatak River ranged from Sep. 30 – Oct. 23 (Joly and Cameron 2017). The proportion of caribou using certain migration paths varies each year (**Figure 1**, Joly and Cameron 2017). In recent years (2012-2014), the path of fall migration has shifted east (Dau 2015a).

The WACH Working Group developed a WACH Cooperative Management Plan in 2003, and revised it in 2011 (WACH Working Group 2011). The WACH Management Plan identifies seven plan elements: cooperation, population management, habitat, regulations, reindeer, knowledge, and education as well as associated goals, strategies, and management actions. As part of the population management element, the WACH Working Group developed a guide to herd management determined by population size, population trend, and harvest rate. Population sizes guiding management level determinations were based on recent (since 1970) historical data for the WACH (WACH Working Group 2011). Revisions to recommended harvest levels under liberal and conservative management (+/- 100 - 2,850 caribou) were made in December 2015 (WACH Working Group 2015, **Table 1**). The State of Alaska manages the WACH to protect the population and its habitat, provide for subsistence and other hunting opportunities on a sustained yield basis, and provide for viewing and other uses of caribou (Dau 2011). State management objectives for the WACH are the same as the goals specified in the WACH Management Plan (Dau 2011, WACH Working Group 2011) and include:

- Encourage cooperative management of the WACH among State, Federal, local entities, and all users of the herd.
- Manage for healthy populations using management strategies adapted to fluctuating population levels and trends.
- Assess and protect important habitats.
- Promote consistent and effective State and Federal regulations for the conservation of the WACH.
- Seek to minimize conflict between reindeer herders and the WACH.
- Integrate scientific information, traditional ecological knowledge of Alaska Native users, and knowledge of all users into management of the herd.
- Increase understanding and appreciation of the WACH through the use of scientific information, traditional ecological knowledge of the Alaska Native users, and knowledge of all other users.

The WACH population declined rapidly in the early 1970s, bottoming out at about 75,000 animals in 1976. Aerial photo censuses have been used since 1986 to estimate population size. The WACH population increased throughout the 1980s and 1990s, peaking at 490,000 animals in 2003 (**Figure 2**). Since 2003, the herd has declined at an average annual rate of 7.1% from approximately 490,000 caribou to 200,928 caribou in 2016 (Caribou Trails 2014; Dau 2011, 2014, Parrett 2016a).

Between 1982 and 2011, the WACH population was within the liberal management level prescribed by the WACH Working Group (**Figure 2, Table 1**). In 2013, the herd population estimate fell below the population threshold for liberal management of a decreasing population (265,000), slipping into the conservative management level. In July 2015, ADF&G attempted an aerial photo census of the herd. However, the photos taken could not be used due to poor light conditions that obscured unknown portions of the herd (Dau 2015b). ADF&G conducted a successful photocensus of the WACH on July 1, 2016. This census resulted in a minimum count of 194,863 caribou with a point estimate of 200,928 (Standard Error = 4,295), suggesting the WACH was still within the conservative management level, although close to the threshold for preservative management (**Figure 2, Table 1**). Results of this census indicate an average annual decline of 5% per year since 2013, representing a much lower rate than the 15% annual

decline between 2011 and 2013. The large cohorts of 2015 and 2016, which currently comprise a substantial proportion of the herd, contributed to the recent decreased rate of decline, but remain vulnerable to difficult winter conditions due to their young age (Parrett 2016a). ADF&G is planning to conduct another photocensus in the summer of 2017 and is transitioning from film to digital cameras, which will enhance their ability to complete successful and timely censuses (Parrett 2016a, Parrett 2017, pers. comm.).

Between 1970 and 2016, the bull:cow ratio exceeded critical management levels (40 bulls:100 cows, **Table 1**) in all years except 1975, 2001, and 2014 (**Figure 3**). Reduced sampling intensity in 2001 likely biased the 2001 bull:cow ratio low (Dau 2013). Since 1992, the bull:cow ratios has trended downward (Dau 2015a). The average annual number of bulls:100 cows was greater during the period of population growth (54:100 between 1976–2001) than during the recent period of decline (44:100 between 2004–2016). Additionally, Dau (2015a) states that while trends in bull:cow ratios are accurate, actual values should be interpreted with caution due to sexual segregation during sampling and the inability to sample the entire population, which likely account for more annual variability than actual changes in composition.

Although factors contributing to the population decline are not known with certainty, fall and winter icing events likely initiated the decline (Dau 2015a). Increased adult cow mortality, and decreased calf recruitment and survival also played a role (Dau 2011). Since the mid-1980s, adult mortality has slowly increased while recruitment has slowly decreased (Dau 2013, **Figure 4**). In a population model developed specifically for the WACH, Prichard (2009) found adult survival to have the largest impact on population size.

Calf production has likely had little influence on the population trajectory (Dau 2013, 2015a). Between 1990 and 2003, the June calf:cow ratio averaged 66 calves:100 cows/year. Between 2004 and 2016, the June calf:cow ratio averaged 71 calves:100 cows/year (**Figure 5**). In June 2016, 85 calves:100 cows were observed, which approximates the highest parturition (calving) level ever recorded for the herd (86 calves:100 cows in 1992) (Dau 2016a).

Decreased calf survival through summer and fall and recruitment into the herd are likely contributing to the current population decline (Dau 2013, 2015a). Fall calf:cow ratios indicate calf survival over summer. Between 1976 and 2016, the fall calf:cow ratio ranged from 35 to 59 calves:100 cows/year, averaging 46 calves:100 cows/year (**Figure 5**). Fall calf:cow ratios declined from an average of 46 calves:100 cows/year between 1990-2003 to an average of 42 calves:100 cows/year between 2004-2016 (Dau 2015a, **Figure 5**). Since 2008, ADF&G has recorded calf weights at Onion Portage as an index of herd nutritional status. In September 2015, calf weights averaged 100 lbs., the highest average ever recorded (Parrett 2015b).

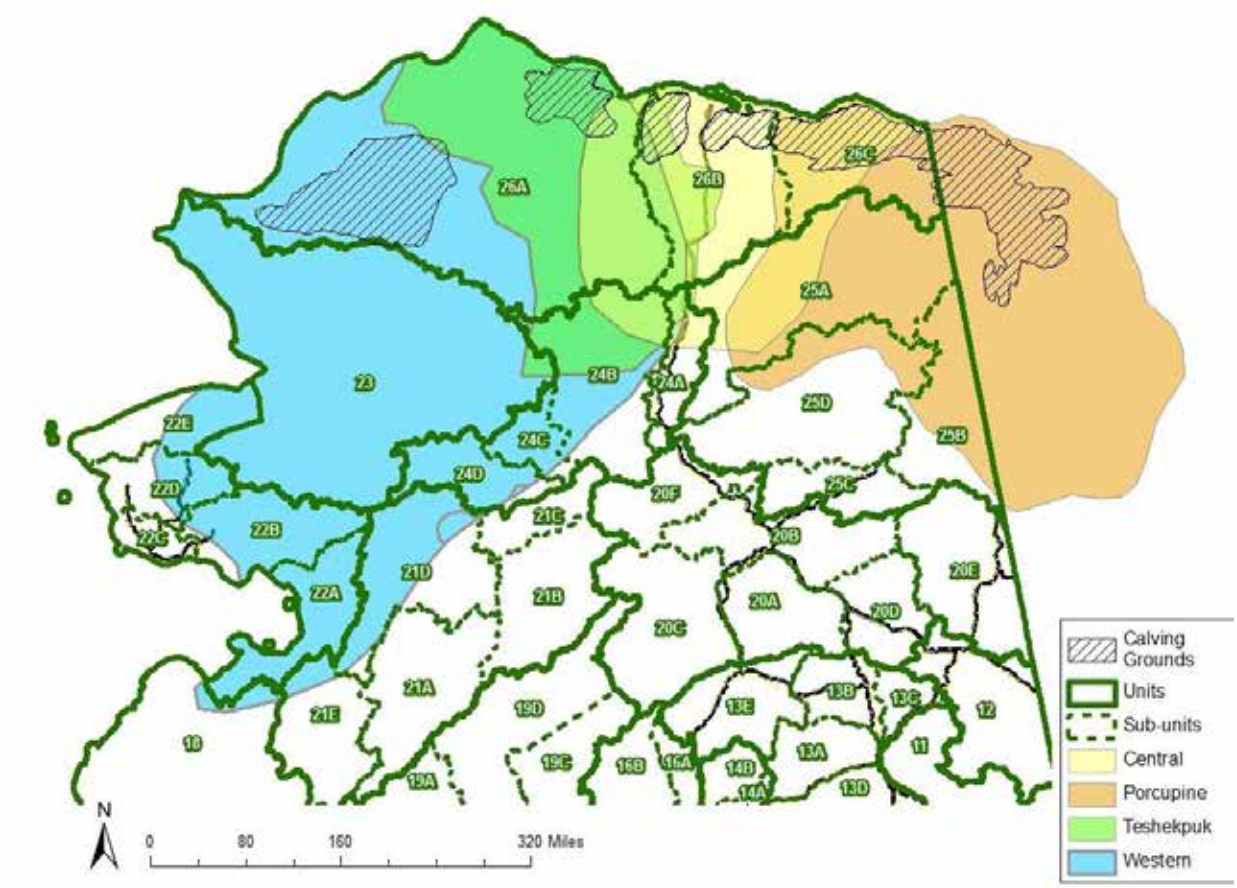
Similarly, the ratio of short yearlings (SY, 10-11 months old caribou) to adults provides a measure of overwintering calf survival and recruitment. Between 1990 and 2003, SY:adult ratios averaged 20 SY:100 adults/year. Since the decline began in 2003, SY:adult ratios have averaged 16 SY:100 adults/year (2004-2016, Dau 2013, 2015a, 2016b, **Figure 5**). However, 23 SY:100 adults were observed during spring 2016 surveys, the highest ratio recorded since 2007 (Dau 2016b). The overwinter calf survival for the 2015 cohort (Oct. 2015-Jun. 2016) was 84% (Parrett 2016b). While 2016 indices suggest

improvements in recruitment, the overall trend since the early 1980s has been downward (Dau 2015a, 2016b).

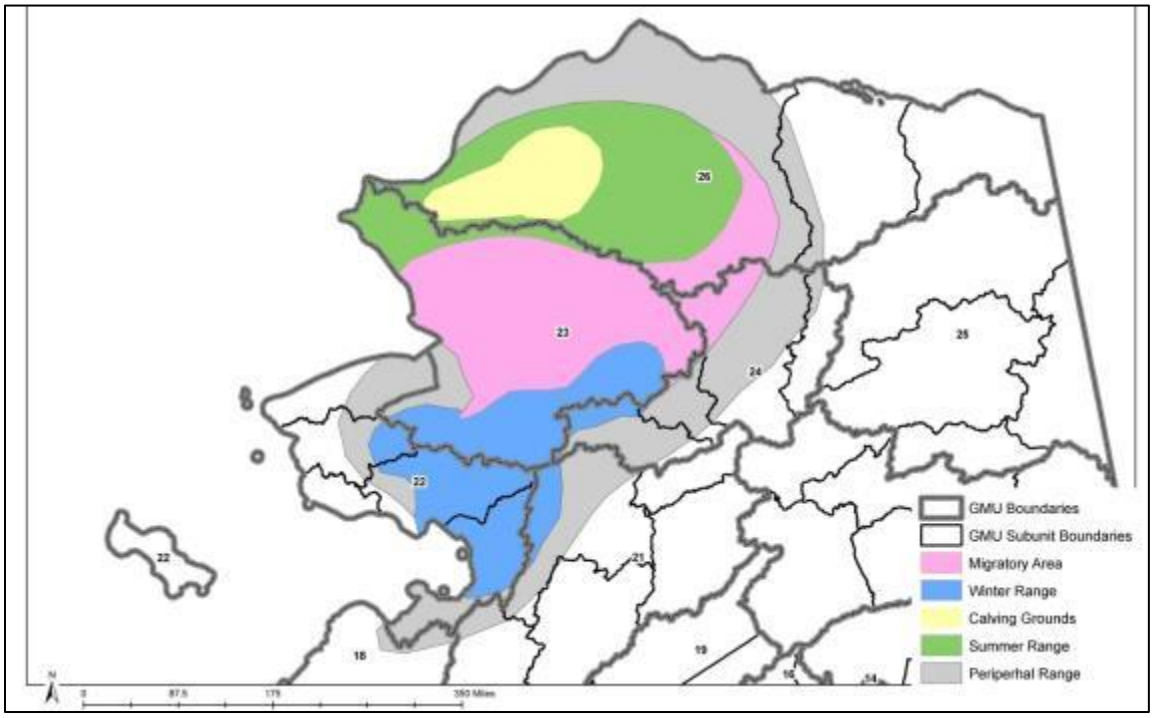
Increased cow mortality is likely affecting the trajectory of the herd as well (Dau 2011, 2013). The annual mortality rate of radio-collared adult cows increased from an average of 15% between 1987 and 2003 to 23% from 2004–2014 (Dau 2011, 2013, 2014, 2015a, **Figure 4**). Estimated mortality includes all causes of death including hunting (Dau 2011). Dau (2015a) states that cow mortality estimates are conservative due to exclusion of unhealthy (i.e. diseased) and yearling cows. Dau (2013) attributed the high mortality rate for 2011–2012 (33%, **Figure 4**) to a winter with deep snows, which weakened caribou and enabled wolves to prey on them more easily. Prior to 2004, estimated adult cow mortality only exceeded 20% twice, but has exceeded 20% in 7 out of 9 regulatory years between 2004 and 2012 (**Figure 4**). The annual mortality rate was 8% as of April 2016 (Dau 2016b). This may fluctuate substantially throughout the year based on changing local conditions and harvest levels. Dau (2015a) indicates that mortality rates may also change in subsequent management reports as the fate of collared animals is determined, and that these inconsistencies are most pronounced for the previous 1–3 years.

Far more caribou died from natural causes than from hunting between 1992 and 2012 (Dau 2013). Cow mortality remained constant throughout the year, but natural and harvest mortality for bulls spiked during the fall. Predation, particularly by wolves, accounted for the majority of natural mortality (Dau 2013). However as the WACH has declined and estimated harvest has remained relatively stable, the percentage of mortality due to hunting has increased relative to natural mortality. For example, during the period October 1, 2013 to September 30, 2014, estimated hunting mortality was approximately 42% and estimated natural mortality about 56% (Dau 2014). In previous years (1983–2013), the estimated hunting mortality exceeded 30% only once in 1997-1998 (Dau 2013). Additionally, Prichard (2009) and Dau (2015a) suggest that harvest levels and rates of cows can greatly impact population trajectory. If bull:cow ratios continue to decline, harvest of cows may increase, exacerbating the current population decline.

Although icing events likely precipitated the population decline, increased predation, hunting pressure, deteriorating range condition (including habitat loss and fragmentation), climate change, and disease may also be contributing factors (Dau 2015a, 2014). Joly et al. (2007) documented a decline in lichen cover in portions of the wintering areas of the WACH. Dau (2011, 2014) reported that degradation in range condition is not thought to be a primary factor in the decline of the herd because animals have generally maintained good body condition since the decline began. Body condition is assessed on a subjective scale from 1-5. The fall body condition of adult females in 2015 was characterized as "fat" (mean = 3.9/5) with no caribou being rated as skinny or very skinny (Parrett 2015b). However, the body condition of the WACH in the spring may be a better indicator of the effects of range condition versus the fall when the body condition of the herd is routinely assessed and when caribou are in prime condition (Joly 2015, pers. comm.).



Map 1. Herd overlap and ranges of the WACH, TCH, CACH, and PCH.



Map 2. Range of the WACH.

Table 1. Western Arctic Caribou Herd management levels using herd size, population trend, and harvest rate (WACH Working Group 2011, 2015).

Management and Harvest Level	Population Trend			Harvest Recommendations May Include:
	Declining Low: 6%	**Stable Med: 7%**	**Increasing High: 8%**	
Liberal	Pop: 265,000+	Pop: 230,000+	Pop: 200,000+	• Reduce harvest of bulls by nonresidents to maintain at least 40 bulls: 100 cows • No restriction of bull harvest by resident hunters unless bull:cow ratios fall below 40 bulls:100 cows
	Harvest: 16,000-22,000	Harvest: 16,000-22,000	Harvest: 16,000-22,000	
Conservative	Pop: 200,000-265,000	Pop: 170,000-230,000	Pop: 150,000-200,000	• No harvest of calves • No cow harvest by nonresidents • Restriction of bull harvest by nonresidents • Limit the subsistence harvest of bulls only when necessary to maintain a minimum 40:100 bull:cow ratio
	Harvest: 12,000-16,000	Harvest: 12,000-16,000	Harvest: 12,000-16,000	
Preservative	Pop: 130,000-200,000	Pop: 115,000-170,000	Pop: 100,000-150,000	• No harvest of calves • Limit harvest of cows by resident hunters through permit hunts and/or village quotas • Limit the subsistence harvest of bulls to maintain at least 40 bulls:100 cows • Harvest restricted to residents only, according to state and federal law. Closure of some federal public lands to nonqualified users may be necessary
	Harvest: 8,000-12,000	Harvest: 8,000-12,000	Harvest: 8,000-12,000	
Critical Keep Bull:Cow ratio ≥ 40 Bulls:100 Cows	Pop: < 130,000	Pop: < 115,000	Pop: < 100,000	• No harvest of calves • Highly restrict the harvest of cows through permit hunts and/or village quotas • Limit the subsistence harvest of bulls to maintain at least 40 bulls:100 cows • Harvest restricted to residents only, according to state and federal law. Closure of some federal public lands to nonqualified users may be necessary
	Harvest: 6,000-8,000	Harvest: 6,000-8,000	Harvest: 6,000-8,000	

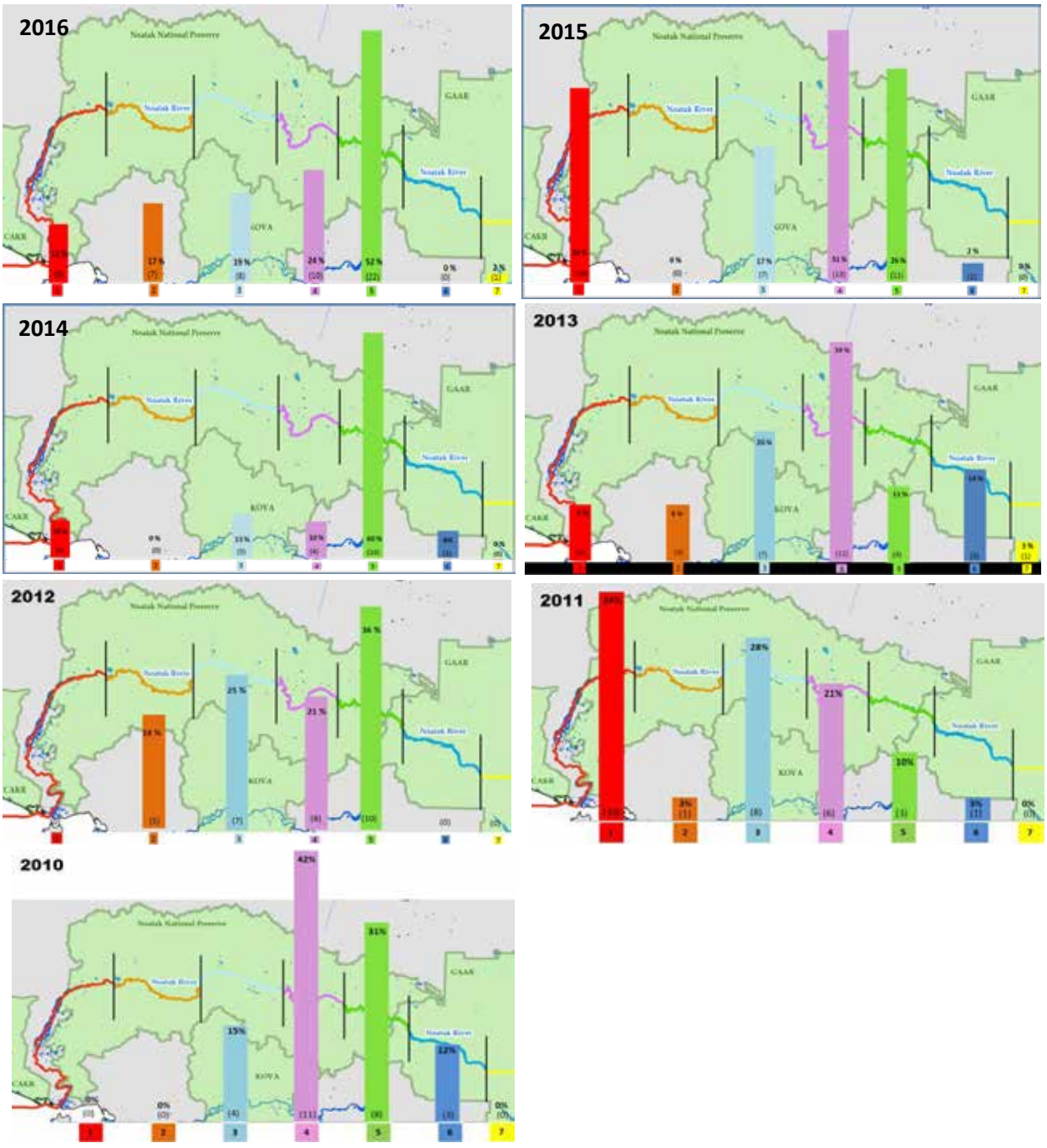


Figure 1. Distribution of caribou crossing the Noatak River during fall. Histograms depict where collared female caribou crossed the Noatak River, generally from north to south, on their fall migration. Relative percentages (top number) and the absolute number (middle number) of caribou are provided. The river is divided into seven (lowest number) color-coded segments which are displayed in the background. The middle five segments are 100 river kilometers long, while the westernmost segment (red) is 200 km (before extending into the Chukchi Sea) and the easternmost (yellow) runs as far east as WAH caribou are known to migrate. The number of caribou with GPS collars ranged from 39-79 caribou/year with later years having more collared caribou than earlier years (Joly and Cameron 2017).

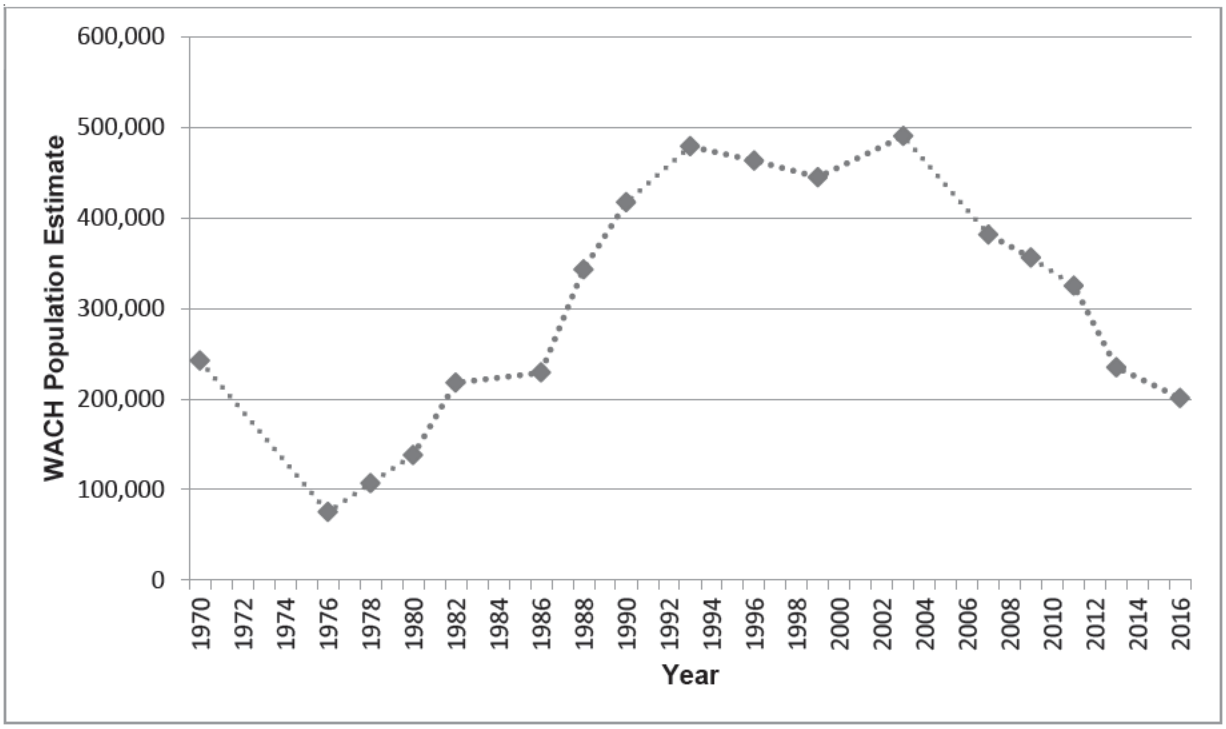


Figure 2. The WACH population estimates from 1970–2015. Population estimates from 1986–2016 are based on aerial photographs of groups of caribou that contained radio-collared animals (Dau 2011, 2013, 2014, Parrett 2016a).

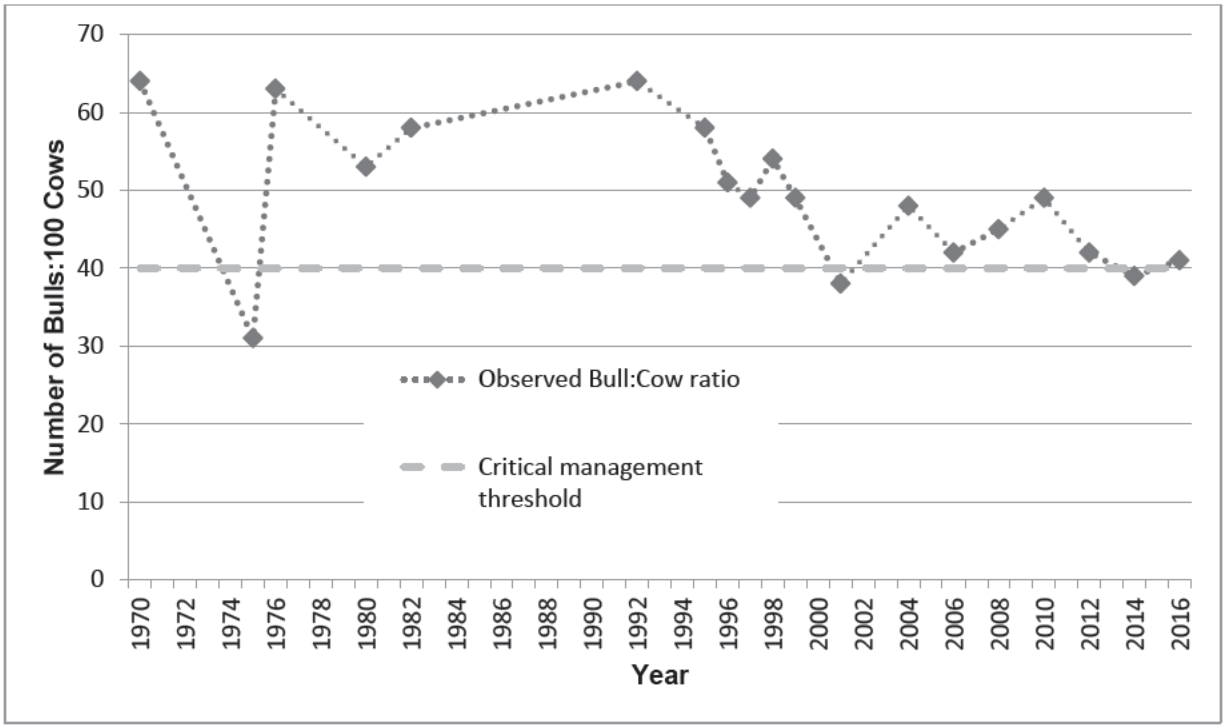


Figure 3. Bull:Cow ratios for the WACH (Dau 2015a, ADF&G 2017c).

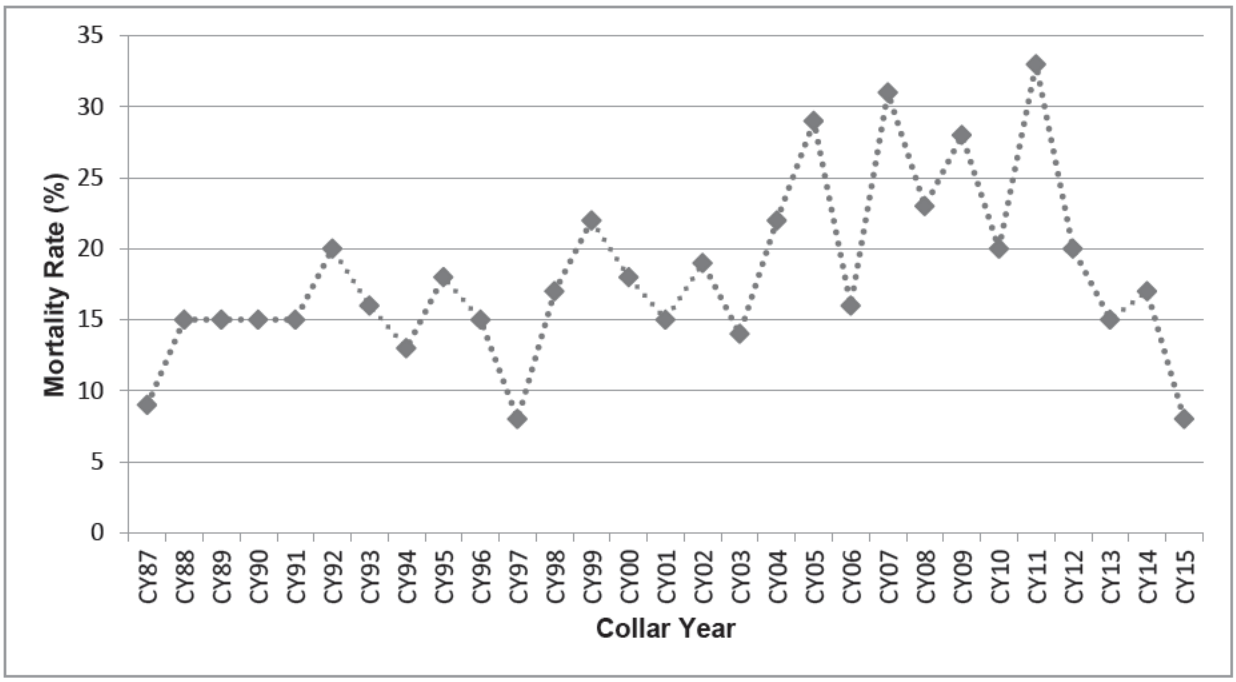


Figure 4. Mortality rate of radio-collared caribou in the Western Arctic caribou herd (Dau 2013, 2015a, 2016b). Collar Year = 1 Oct-30 Sept. 2015 collar year is Oct. 2015-Apr. 2016.

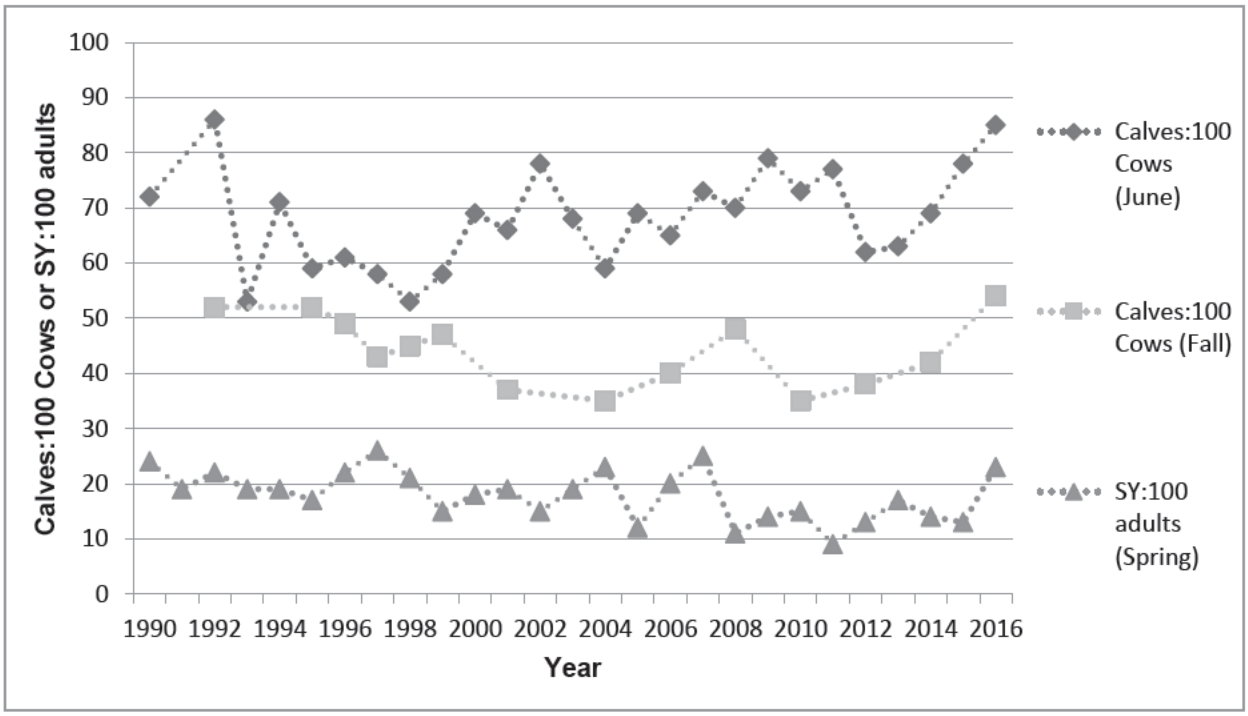


Figure 5. Calf:cow and short yearling (SY):adult ratios for the WACH (Dau 2013, 2015a, 2016a, ADF&G 2017c). Short yearlings are 10-11 months old caribou.

Teshekpuk Caribou Herd

The TCH calving and summering areas overlap with the eastern portion of the National Petroleum Reserve–Alaska. Most of the TCH moves toward Teshekpuk Lake in May to calve in early June. The primary calving grounds of the TCH (approximately 1.8 million acres) occur to the east, southeast and northeast of Teshekpuk Lake (**Map 1**, Person et al. 2007, Wilson et al. 2012).

From late June through July cows and bulls move to the Beaufort Sea coast from Dease Inlet to the mouth of the Kogru River (Utqiagvik to the Colville Delta), around the north and south side of the Teshekpuk Lake, and the sand dunes along the Ikpikpuk River to seek relief from insects (Carroll 2007, Parrett 2007). The narrow corridors of land to the east and northwest of the Teshekpuk Lake are important migratory corridors to insect relief areas (Yokel et al. 2009). River corridors are also used more during periods of insect harassment (Parrett 2015c).

Fall migration routes are variable due in part to highly variable wintering locations. Some TCH caribou are classified as non-migratory due to a lack of directional, seasonal movements. A substantial portion of the TCH remains on the coastal plain during the winter while other common wintering locations include the central Brooks Range and river drainages in Unit 23 (Parrett 2015c).

The State manages the TCH to provide for subsistence and other hunting opportunities on a sustained yield basis, ensure that adequate habitat exists, and provide for viewing and other uses of caribou (Parrett 2013). Specific State management objectives for the TCH are as follows (Parrett 2013):

- Attempt to maintain a minimum population of 15,000 caribou, recognizing that caribou numbers naturally fluctuate.
- Maintain a harvest level of 900–2,800 caribou using strategies adapted to population levels and trends.
- Maintain a population composed of least 30 bulls per 100 cows.
- Monitor herd characteristics and population parameters (on an annual or regular basis).
- Develop a better understanding of the relationships and interactions among North Slope caribou herds.
- Encourage cooperative management of the herd and its habitat among State, Federal, and local entities and all users of the herd.
- Seek to minimize conflicts between resource development and the TCH.

The TCH population is estimated from aerial photocensuses and using methods described by Rivest et al. (1998). Between 1984 and 2008, the TCH population increased from an estimated 18,292 caribou to 68,932 caribou. Since 2008, the TCH population declined 40% to an estimated 41,542 caribou in 2015 (**Figure 6**, Parrett 2015c, 2015d).

Between 1991 and 2016, the TCH bull:cow ratio averaged 53 bulls:100 cows, although surveys were not conducted every year (**Figure 7**). However, since 1993, the bull:cow ratio has exhibited a downward

trend. The 2016 bull:cow ratio (28 bulls:100 cows) was the lowest ratio since 1991 and is below management objectives of 30 bulls:100 cows (Parrett 2013, 2015c, ADF&G 2017c).

TCH calf production is measured as the percent of collared cows with calves at the end of June calving surveys. Between 1999 and 2016, calf production averaged 56%. However, from 2006-2014, calf production exhibited a declining trend, bottoming out at 16% in 2014. Production increased substantially in 2016 to 81% (**Figure 8**, Parrett 2015c, ADF&G 2017c).

Between 2009 and 2016, fall calf:cow ratios averaged 33 calves:100 cows and exhibited an increasing trend (**Figure 9**, Parrett 2015c, ADF&G 2017c). Over the same time period, spring SY:adult ratios averaged 16.5 SY:100 adults. This ratio was static between 2009 and 2014 (13-15 SY:100 adults), but increased substantially in 2016 to 29 SY:100 adults (**Figure 9**, Parrett 2015c, ADF&G 2017c).

The mortality rate for the TCH is measured from radio-collared cows by collar year (CY). CY is defined as July 1-June 30. Between CY 2000/01 and CY 2015/16, the TCH mortality rate averaged 16%. However, the highest mortality rates ever recorded for this herd occurred in 2012 (32%) and 2013 (28%), which contributed substantially to the current decline (**Figure 10**, Parrett 2015c, ADF&G 2017c). Mortality decreased substantially in CY 2015/16 to only 8% (ADF&G 2017c).

Mean calf weights from 2011-2014 were among the lightest weights ever recorded in North America (Parrett 2015c). Similarly, the 2014 parturition (calving) rate was only 28%, which is very low for caribou. These metrics suggest poor nutrition may be affecting the TCH (Parrett 2015c, ADF&G 2017c). However, in 2016, both metrics improved (ADF&G 2017c).

From 2011-2013, ADF&G conducted a TCH calf survival study. Survival on the calving grounds and through the summer was high (~80%) while over winter survival and recruitment into the herd was low (~25-40%). The primary causes of calf mortality included predation and starvation. Starvation was especially important spatially as calves that wintered in the Brooks Range had higher survival than calves wintering on the North Slope (ADF&G 2017c).

While recent population estimates (2013-2015) suggest that the TCH population may be stabilizing, demographic metrics (i.e. parturition and mortality rates) indicate that the population was likely still declining during those years. It is possible that the 2013 population estimate was an underestimate (Parrett 2015d). However, improved herd performance in 2016 (i.e. recruitment, calf production, calf weight) suggest that the TCH population may be stabilizing or declining at a slower rate (ADF&G 2017c).

Habitat

Caribou feed on a wide variety of plants including lichens, fungi, sedges, grasses, forbs, and twigs of woody plants. Arctic caribou depend primarily on lichens during the fall and winter, but during summer they feed on leaves, grasses and sedges (Miller 2003).

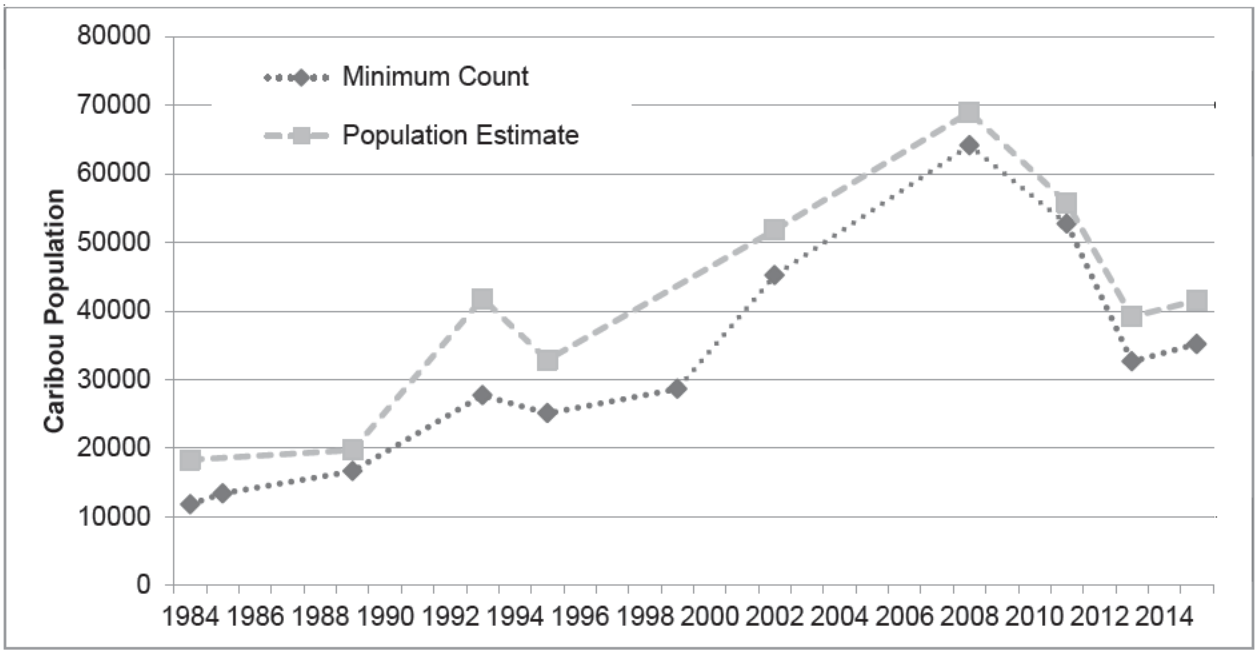


Figure 6. Minimum counts and population estimates of the Teshekpuk Caribou Herd from 1980-2015. Population estimates are based on aerial photographs of groups of caribou that contained radio–collared animals (Parrett 2011, 2013, 2015a, 2015d).

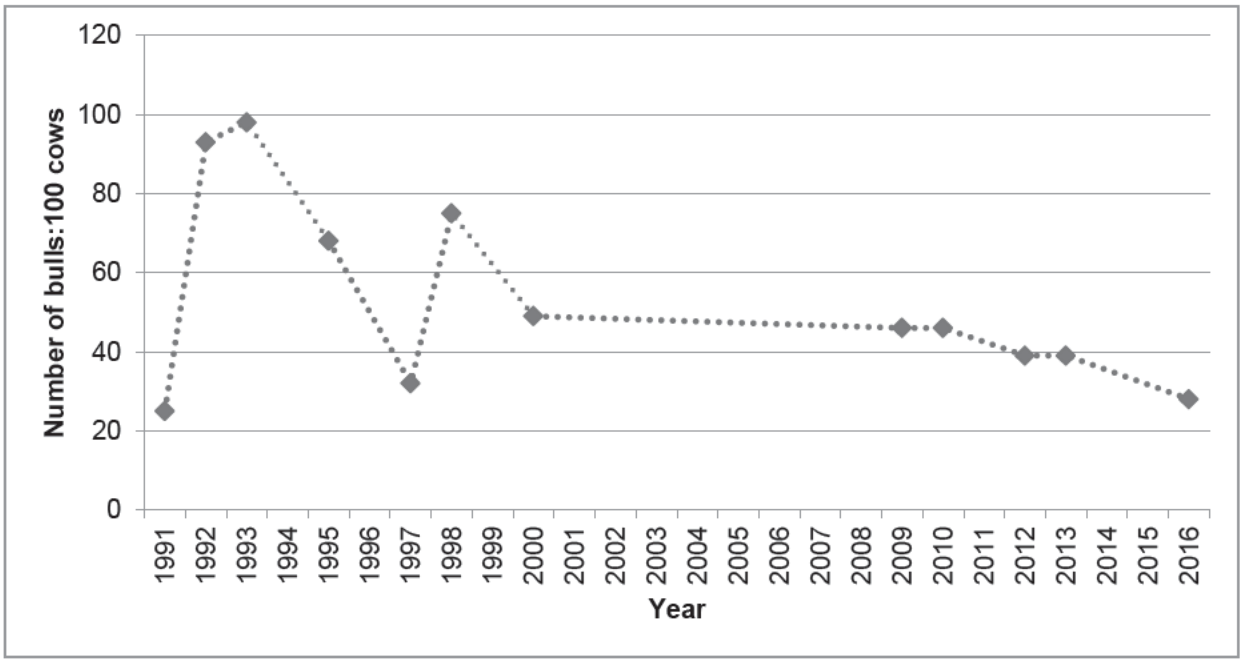


Figure 7. Bull:cow ratios of the Teshekpuk Caribou Herd. From 1991-2000, surveys were conducted in July. From 2009 onward, surveys were conducted in Nov. (Parrett 2013, 2015c, ADF&G 2017c).

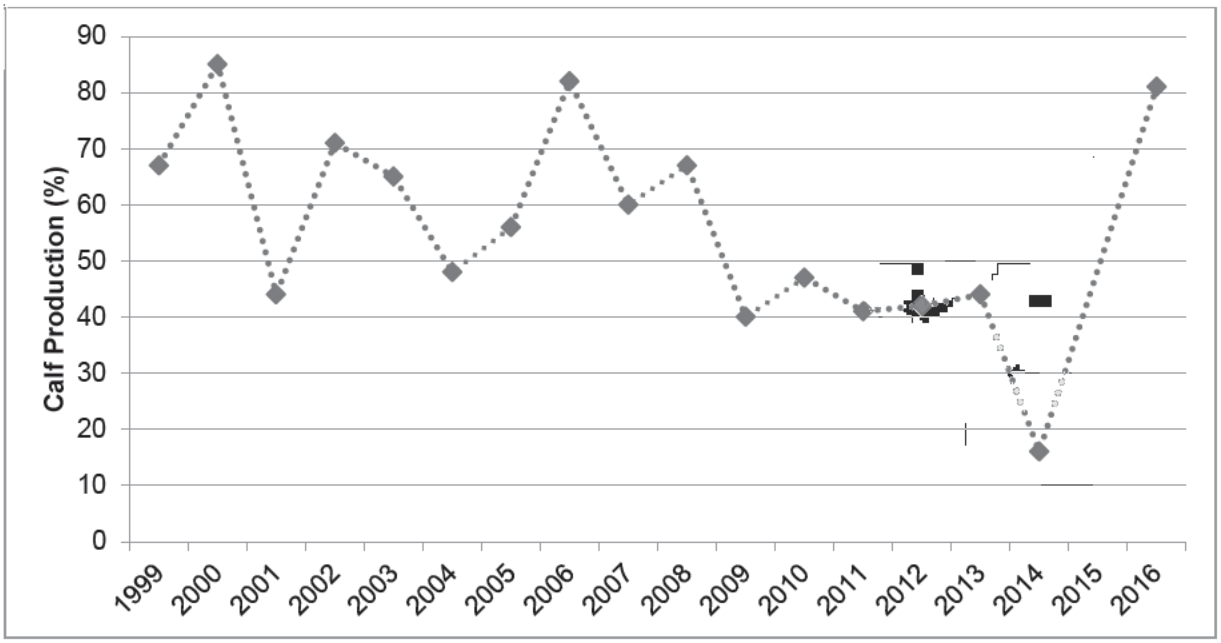


Figure 8. Teshekpuk caribou herd calf production (% of collared cows with calves) (Parrett 2015c, ADF&G 2017c).

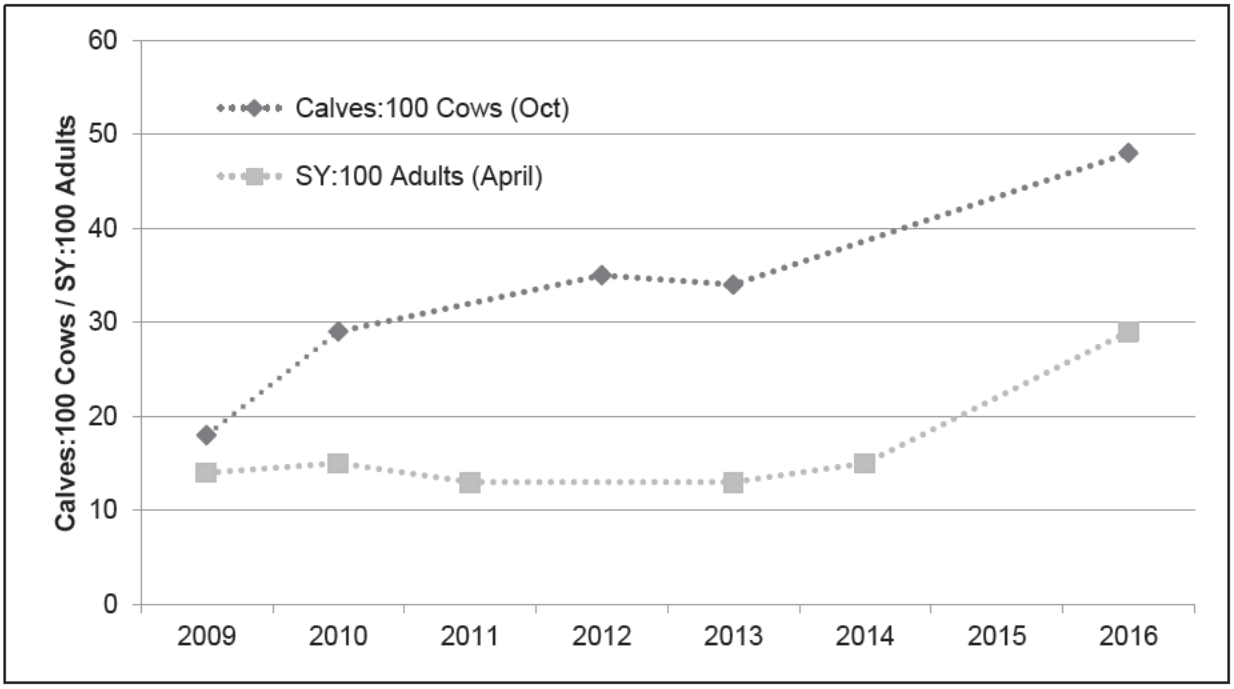


Figure 9. Fall calf:cow and spring short yearling (SY):adult ratios for the Teshekpuk Caribou Herd (Parrett 2015c, ADF&G 2017c). Short yearlings are 10-11 month old caribou.

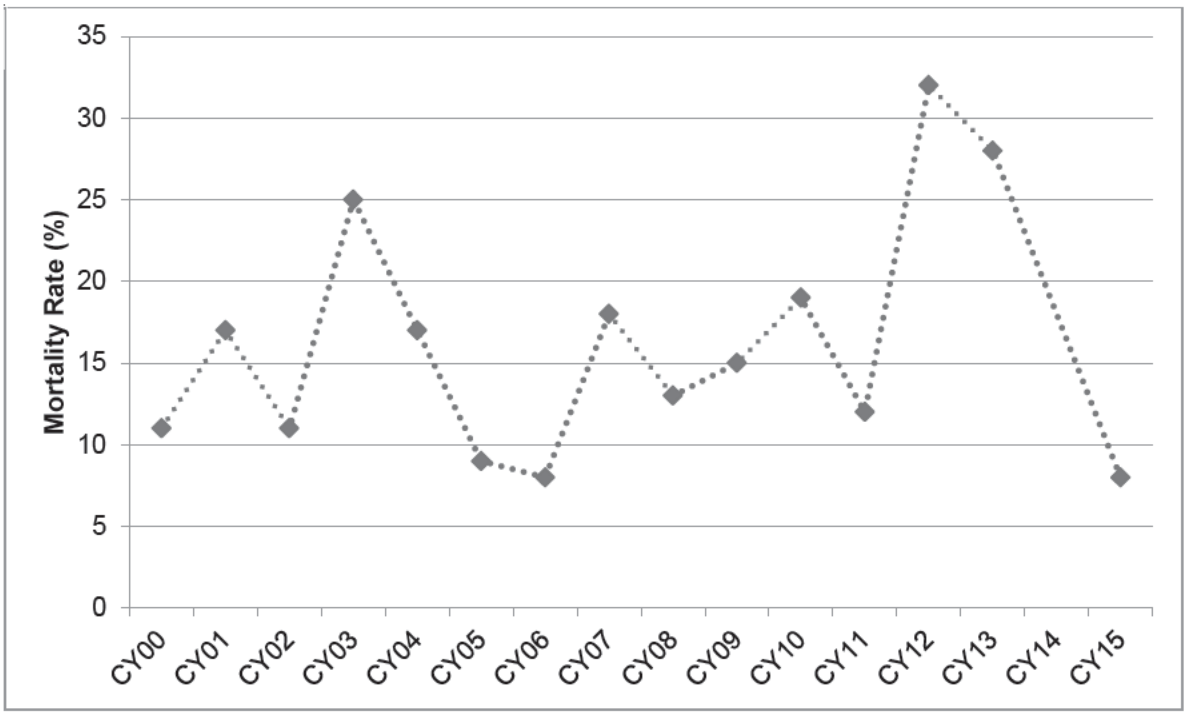


Figure 10. Annual mortality rate of radio-collared cows in the TCH (Parrett 2015c, ADF&G 2017c). Collar year (CY) is defined as July 1-June 30.

Cultural Knowledge and Traditional Practices

Meeting the nutritional and caloric needs of Arctic communities is vitally important and is the foundation of subsistence activities. Still, the meaning of subsistence extends far beyond human nutrition for Alaska's native peoples. Holthaus (2012) describes subsistence as the base on which Alaska Native culture establishes its identity though "philosophy, ethics, religious belief and practice, art, ritual, ceremony, and celebration." Fienup-Riordan (1990) also describes subsistence in terms of the cultural cycles of birth and death representing the close human relationship and reciprocity between humans and the natural world. Concerning caribou specifically, Ms. Esther Hugo – a lifelong resident of Anaktuvuk Pass - describes the human-caribou relationship as a "way of life".

Caribou have been an important resource for the Iñupiat of the Seward Peninsula, Northwest Arctic, and North Slope regions for thousands of years. Caribou bones dating from 8,000 to 10,000 years ago have been excavated from archeological sites on the Kobuk River (ADF&G 1992). Foote (1959, 1961) wrote about caribou hunting in the Noatak region forty years ago, noting that life would not be possible in Noatak without this source of meat. Caribou were traditionally a major source of both food and clothing and continues today to be the most important land animal consumed in many communities (Burch 1984, 1994, 1998, ADF&G 1992).

Historically, during fall and spring caribou migrations, people built "drive fences" out of cairns, bundles of shrubs, or upright logs. These fences were sometimes several miles long and two to three miles wide. Ideally, the closed end of the fence crossed a river, and caribou were harvested while crossing the river and

retrieved later; or the fence would end in a corral where caribou were snared and killed with spears (Burch 2012). Burch (2012:40) notes, "The landscape of Northwest Arctic, especially in hills and mountains, is littered with the remains of drive fences that were in every stage of construction when they were abandoned."

The WACH population declined rapidly beginning in the late 1800s. At its low point, its range had shrunk to less than half its former size. Famine ensued, primarily due to the absence of caribou. In the early 1900s, reindeer were introduced to fill the need for food and hides. The WACH began to rebound in the 1940s. Currently, among large terrestrial mammals, caribou are among the most abundant; however, the population in any specific area is subject to wide fluctuations from year to year as caribou migration routes change (Burch 2012).

Caribou were traditionally harvested any month of the year they were available. The objective of the summer hunt was to obtain the hides of adult caribou with their new summer coats. They provided the best clothing material available to the Iñupiat. The fall hunt was to acquire large quantities of meat to freeze for winter (Burch 1994). The timing and routing of migration determined caribou hunting. Hunting seasons change from year to year according to the availability of caribou (ADF&G 1991). The numbers of animals and the duration of their stays varies from one year to the next (Burch 1994) and harvest varies from community to community depending on the availability of caribou.

Caribou can be harvested in large numbers, when available, and can be transported back to villages by boat before freeze-up. Hunters search for caribou and attempt to intercept them at known river crossings. Some villages such as Anaktuvuk Pass settled specifically in locations where caribou migrate through, and residents of these communities await the annual arrival of caribou (NS RAC 2017). Ideally, caribou harvesting occurs when the weather is cool enough to prevent spoilage of meat. If not, meat is frozen for later use. Prior to freeze-up, bulls are preferred because they are fatter than cows (Braem et al. 2015, Georgette and Loon 1993).

Small groups of caribou that have over-wintered may be taken by hunters in areas that are accessible by snowmachine. Braem et al. (2015:141) explain, "Hunters harvest cows during the winter because they are fatter than bulls . . . . Caribou harvested during the winter can be aged completely without removing the skin or viscera . . . . Then in the spring, the caribou is thawed. Community members cut it into strips to make dried meat, or they package and freeze it." In spring, caribou start their northward migration. The caribou that are harvested are "lean and good for making dried meat (*paniqtuq*) during the warm, sunny days of late spring" (Georgette and Loon 1993:80).

Harvest History

Western Arctic Caribou Herd

The State manages the WACH on a sustained yield basis (i.e. managing current harvests to ensure future harvests). The harvestable surplus when the WACH population is declining is calculated as 6% of the estimated population (WACH working group 2011, Parrett 2017, pers. comm.). In recent years, as the WACH population has declined, the total harvestable surplus for the WACH has also declined (Dau 2011,

Parrett 2015a). In 2016, the WACH harvestable surplus was 12,056 caribou (6% of 200,928 caribou). Comparatively, the harvestable surplus was 14,085 caribou in 2013 when the WACH numbered approximately 234,757 caribou. While there is substantial uncertainty in harvestable surplus estimates, it is likely that sustainable harvest will soon be exceeded (Parrett 2015a, Dau 2015a). Of particular concern is the overharvest of cows, which has probably occurred since 2010/11 (Dau 2015a). Dau (2015a:14-29) states, "even modest increases in the cow harvest above sustainable levels could have a significant effect on the population trajectory of the WACH."

Harvest from the WACH, which has remained fairly consistent since 1990, now represents a larger proportion of the annual mortality. This is one of the factors that prompted the BOG and the Board to enact restrictions on WACH harvest in March 2015 and April 2016, respectively.

Caribou harvest by local hunters is estimated from community harvest surveys, if available, and from models developed by A. Craig with ADF&G's Division of Wildlife Conservation, Region V. These models incorporate factors such as community size, availability of caribou, and per capita harvests for each community (Dau 2015a). In 2015, Craig's models replaced models developed by Sutherland (2005), resulting in changes to local caribou harvest estimates from past years. While Craig's models accurately reflect harvest trends, they do not accurately reflect actual harvest numbers (Dau 2015a). (Note: no model accurately reflects harvest numbers). This analysis only considers the updated harvest estimates using Craig's new model as cited in Dau (2015a). Caribou harvest by nonlocal residents and nonresidents are based on harvest ticket reports (Dau 2015a). Local and nonlocal hunters are defined in ADF&G management reports as living within and outside the range of the WACH, respectively.

From 2000–2014, the average annual estimated harvest from the WACH was 11,984 caribou, ranging from 10,666-13,537 caribou per year (Dau 2015a, **Figure 11**). While these harvest estimates are within or below the conservative harvest level specified in the WACH Management Plan (**Table 1**), they approach or exceed the current harvestable surplus. Additionally, harvest estimates do not include wounding loss, which may be hundreds of caribou (Dau 2015a).

Local hunters account for approximately 95% of the total WACH harvest. Residents of Units 22, 23, and 26A account for approximately 17%, 58%, and 10% of the total WACH harvest, respectively (**Figure 12**, ADF&G 2017c). Comparison of caribou harvest by community from household survey data (**Appendix 1)** with **Figure 1** demonstrates that local community harvests parallel WACH availability rather than population trends. For example, Ambler only harvested 325 caribou when the WACH population peaked in 2003, but harvested 685 caribou in 2012 when most of the WACH migrated through western Unit 23. Similarly, Noatak only harvested 66 caribou in 2010 when zero GPS-collared caribou migrated through eastern Unit 23. Harvest increased substantially the following year when 37% of the GPS-collared caribou (and thus, a greater proportion of the WACH) migrated through eastern Unit 23.

From 2001-2013, total nonlocal WACH harvest averaged 598 caribou per year (**Figure 13**). Most (~76%) nonlocal WACH harvest occurs in Unit 23. In recent years (2012–2014), numbers of nonlocal hunters are slightly lower, partially because transporters have had to travel further to find caribou and thus, could not book as many clients (Dau 2015a).

From 1999-2013, 72% of nonlocal hunters on average accessed the WACH by plane. Most nonlocal harvest (85-90%) occurs between Aug. 25 and Oct. 7. In contrast, most local, subsistence hunters harvest WACH caribou whenever they are available using boats, 4-wheelers, and snowmachines (Dau 2015a, Fix and Ackerman 2015). In Unit 23, caribou are generally available during fall migration. The temporal concentration of nonlocal hunters during times of intensive subsistence hunting is responsible for user conflicts in Unit 23 (Dau 2015a). Commercially licensed transporters and guides assist approximately 60% and 10% of nonlocal hunters in Unit 23, respectively (Unit 23 Working Group 2016).

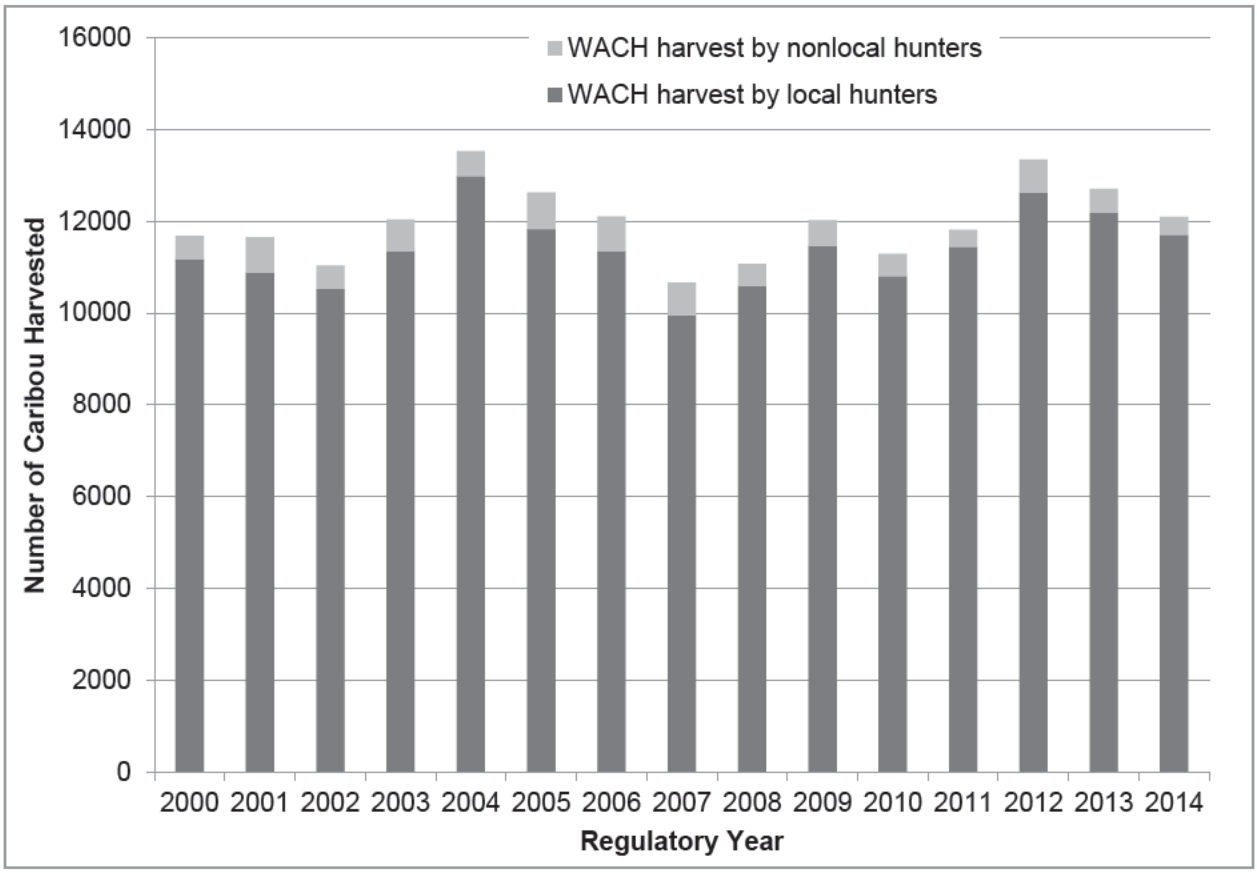


Figure 11. Estimated number of caribou harvested from the WACH by residency (Dau 2015a).

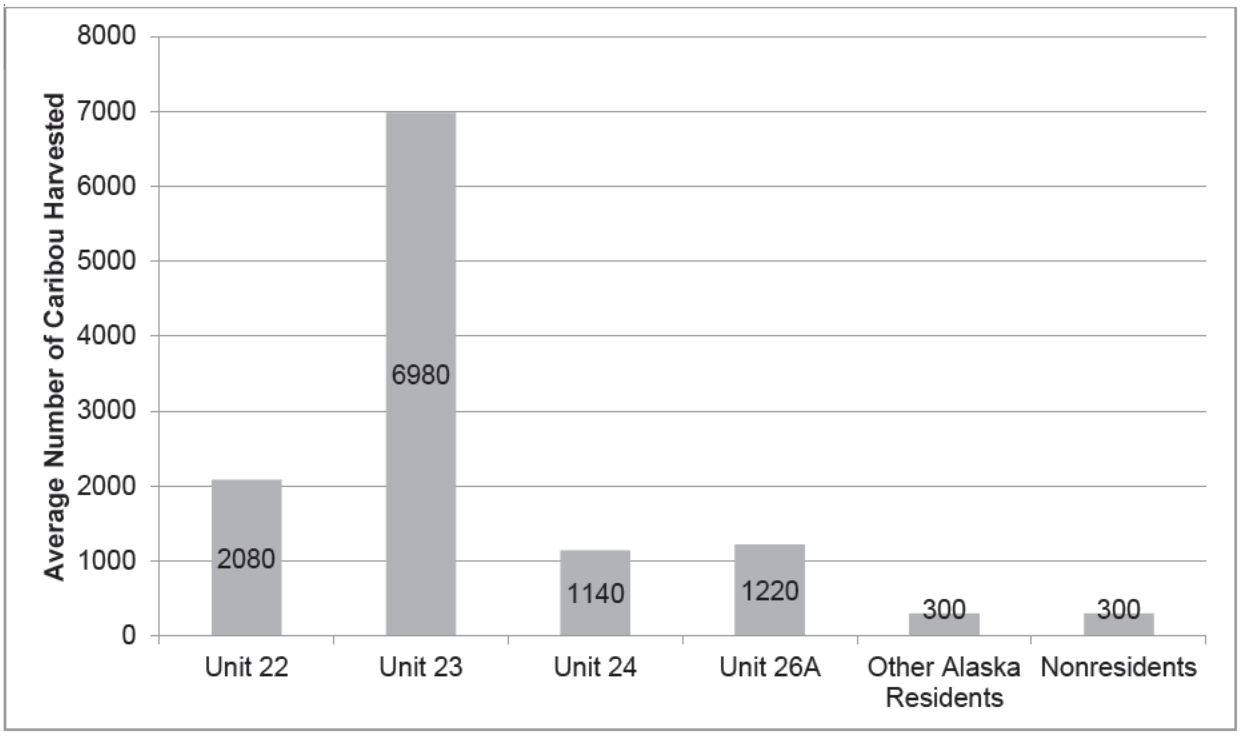


Figure 12. Average number of caribou harvested by unit and residency from 1998-2015 (ADF&G 2017c).

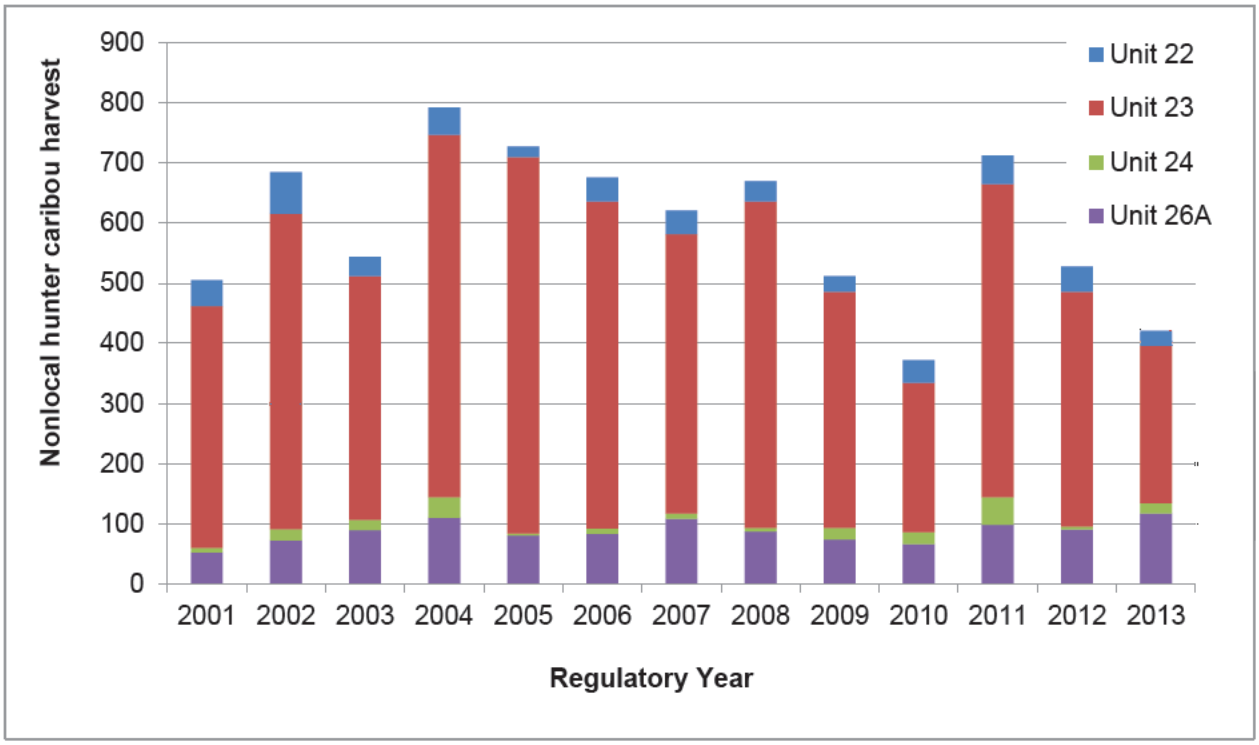


Figure 13. Nonlocal WACH harvest by unit (Dau 2015a, Dau 2013). Unit 21D was not included as only 0-2 caribou have been harvested from this unit each year.

Teshekpuk Caribou Herd

The State also manages the TCH on a sustained yield basis. The current TCH harvestable surplus is 2,500 caribou at a 6% harvest rate. However, if the herd declines below 35,000, the recommended harvest rate will decrease to 4-5% (ADF&G 2017c).

Estimating harvest from the TCH is difficult due to lack of harvest data, annual variation in community harvest survey effort and location, widely varying wintering distribution of the TCH, and overlap between herds within village harvest areas (Parrett 2015c). The recent (1984-2016) hunter registration and reporting system was not effective in estimating TCH harvest by local communities as few local hunters registered with ADF&G (Parrett 2015c). Therefore, local harvest from the TCH is estimated from community harvest surveys and extrapolated from long-term averages of per-capita caribou harvest and community population size (Parrett 2015c, ADF&G 2017d). Some community harvest estimates can be apportioned by herd using community harvest survey and satellite collared caribou data (ADF&G 2017d, 2017e).

Nonlocal resident harvest estimates are derived from harvest ticket reports (Parrett 2015c, ADF&G 2017d). Ten percent of the harvest reported from harvest tickets in Unit 26A is apportioned to the TCH while the remaining 90% is attributed to the WACH (ADF&G 2017d, 2017e). Local and nonlocal residents are considered those hunters living within and outside the range of the TCH, respectively.

TCH harvest primarily occurs in Unit 26A. While some harvest of TCH caribou does occur in Units 23, 24, and 26B, it is considered insignificant due to the small percentage of TCH caribou relative to WACH and CACH caribou in those units (Parrett 2015c, ADF&G 2017d). Local residents account for the vast majority of the TCH harvest. While nonlocal harvest in Unit 26A is low (~100 caribou per year), 90% of that harvest is apportioned to the WACH as it mostly occurs in southern Unit 26A (Parrett 2015c, ADF&G 2017e).

From 2002-2014, the estimated TCH harvest averaged 3,022 caribou (ADF&G 2017e). While there is much uncertainty in this estimate, it exceeds the current harvestable surplus and represents a 7% harvest rate. Harvest by local residents averaged 3,013 caribou, comprising 99.7% of the TCH harvest (**Table 2**). Harvest by nonlocal Alaska residents and nonresidents averaged 4.7 caribou and 4.5 caribou, respectively (ADF&G 2017d, 2017e).

The proportion of caribou harvested from a particular herd varies by community and year depending on village location, weather, terrain, caribou migration routes, fuel costs, etc. (**Table 2**). Most of the caribou harvested by Utqiagvik, Atqasuk, and Nuiqsuit residents is apportioned to the TCH while a lesser proportion of the harvest by Wainwright and Anaktuvuk Pass residents is usually apportioned to the TCH as these communities are on the herd's peripheral range. Harvest of TCH caribou by other communities is considered insignificant due to the overwhelming presence of caribou from other herds (ADF&G 2017d, 2017e).

Local residents primarily hunt caribou from July-Oct. by boat or ATV. Nonlocal hunters are concentrated in August and September and primarily use aircraft to access caribou (Parrett 2015c).

Table 2. Percent of caribou harvest by local communities apportioned to the Teshekpuk Caribou Herd and average annual TCH harvest by community (ADF&G 2017e).

Community	% Harvest from the TCH			Average TCH Harvest (# caribou/year)
	2002-2007	2011-2012	2014	
Atquasuk	84%	98%	86%	186.5
Utqiagvik	66%	97%	93%	2015.8
Nuiqsut	77%	77%	45%	359.0
Wainwright		60%		246.1
Anaktuvuk Pass	20%	30%	38%	205.5
Total				3012.9

Effects of the Proposal

If this proposal is adopted, registration permits will be required to hunt caribou in Units 22, 23, and 26A. This would align Federal and State reporting requirements, which would reduce regulatory complexity and user confusion. The difficulty in obtaining, and the inaccuracy of caribou harvest estimates for Units 22, 23, and 26A have presented continual challenges for herd management and conservation (Georgette 1994, Parrett 2015c, ADF&G 2017d). Registration permits would provide better harvest monitoring and herd management, which is particularly important given the current population declines and dwindling harvestable surpluses.

However, for this regulation to be adopted, concurrence would be needed from the State to allow Federally qualified subsistence users to use a State registration permit while hunting under Federal regulations. Requiring registration permits may burden Federally qualified subsistence users who would have to go into a licensed vendor and register. It is currently unclear whether there would be vendors in every village or whether permits could be obtained on-line as 2017 is the first year permits are required under State regulations. However, many rural residents in the region do not have internet access. If there are no vendors in a village, obtaining a registration permit may be a more substantial burden on residents of that village.

No biological impacts are expected from this proposal and there are no conservation concerns. While compliance with a new reporting system will likely take time, more accurate harvest data provided by registration permits could benefit the caribou resource and subsistence use via more informed herd management and hunting regulations.

OSM PRELIMINARY CONCLUSION

Support Proposal WP18-48; and **Take No Action** on Proposal WP18-49.

Justification

Requiring registration permits would improve harvest data and herd management, which is particularly important during periods of population declines. Additionally, adoption of this proposal would reduce regulatory complexity and user confusion by aligning Federal and State reporting requirements for caribou in Units 22, 23, and 26A. However, concurrence from the State to allow Federally qualified subsistence users to use a State registration permit while hunting under Federal regulations would be needed.

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Appendix 1

Estimated total caribou harvest by community, per capita caribou harvest by community, and data sources for Unit 23: Western Arctic caribou herd (ADF&G 2015).

Unit 23

Community	Year/Period	Est Caribou Harv.	# caribou per capita	Source
Ambler	2003	325	1.12	Georgette et al. 2005, unpublished data
	2009	456	1.75	Braem 2012
	2012	685	2.54	Braem et al. 2015
Buckland	2003	637	1.56	Magdanz et al. 2011
	2009	561	1.30	Braem 2012
Deering	1994	142	0.96	Magdanz et al. 2002
	2007-2008	182	1.37	Braem 2011
	2011-2012	237	1.91	Braem 2011
	2013	393	2.85	ADF&G unpublished data
Kiana	1999	488	1.23	ADF&G unpublished data
	2006	306	0.77	Magdanz et al. 2011
	2009	440	1.18	Braem 2012
Kivalina	1982	346	0.48	CSIS
	1983	564	0.78	CSIS
	1992	351	0.49	CSIS
	2007	268	0.67	Magdanz et al. 2010
	2010-2011	86	0.23	Braem et al. 2014
Kobuk	2004-2005	134	1.06	ADF&G unpublished data
	2009	210	1.72	Braem 2012
	2012	119	0.84	Braem et al. 2015
Kotzebue	1986	1917	0.71	Georgette and Loon 1993
	1991	3782	1.04	CSIS
	2001	2376	0.77	Whiting 2003
	2002	1719	0.56	Whiting 2003
	2003	1915	0.61	Whiting 2003
	2012-2013	1804	0.56	CSIS
	2013-2014	1629	0.51	ADF&G unpublished data
Noatak	1994	615	1.62	Magdanz et al. 2002
	1999	683	1.61	Georgette et al 2000., unpubd data
	2002	410	0.90	Georgette et al. 2004, unpubd data
	2007	441	0.90	Magdanz et al. 2010
	2010	66	0.13	Braem et al. 2014
	2011	360	0.66	Mikow et al. 2014
Noorvik	2002	988	1.46	Georgette et al. 2004, unpubd data
	2008	767	1.19	Braem et al. 2012
	2012	851	1.36	CSIS

-continued-

Unit 23, continued

Community	Year/Period	Est Caribou Harv.	# caribou per capita	Source
Point Hope	1994-1995	355	0.49	Bacon et al. 2009, rev. 2011
	2000-2001	219	0.31	Bacon et al. 2009, rev. 2011
Selawik	1999	1289	1.68	CSIS
	2006	934	1.11	CSIS
	2011	683	0.79	Braem et al. 2013
Shungnak	1998	561	2.17	Georgette 1999, unpubd data
	2002	403	1.62	Magdanz et al. 2004
	2008	416	1.53	Braem 2012
	2012	396	1.47	Braem et al. 2015

WP18–57 Executive Summary	
General Description	Proposal WP18-57 requests that Federal public lands in Units 26A and 26B be closed to caribou hunting by non-Federally qualified users (NFQU). *Submitted by: North Slope Subsistence Regional Advisory Council.*
Proposed Regulation	**Unit 26—Caribou** *Unit 26A—that portion of the Colville River drainage upstream from the Anaktuvuk River, and drainages of the Chukchi Sea south and west of, and including the Utukok River drainage* — *5 caribou per day as follows:* *Calves may not be taken* *Bulls may be harvested;* — *July 1– Oct. 14; Dec. 6 -June 30* *Cows may be harvested; however, cows accompanied by calves may not be taken July 16 -Oct. 15* — *July 16–Mar.15* ***Federal public lands in Unit 26A are closed to caribou hunting except by Federally qualified subsistence users hunting under these regulations.*** *Unit 26A remainder* — *5 caribou per day as follows;* *Calves may not be taken* *Bulls may be harvested;* — *July 1– Oct. 15; Dec. 6 -June 30*

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WP18–57 Executive Summary

	Up to 3 cows per day may be harvested; however cows accompanied by calves may not be taken July 16 -Oct. 15		*July 16–Mar.15*
	Federal public lands in Unit 26A are closed to caribou hunting except by Federally qualified subsistence users hunting under these regulations.		
Unit 26B – that portion south of 69°30' N. lat. and west of the Dalton Highway	*5 caribou per day as follows:*		
	Bulls may be harvested		*July 1 -Oct. 14* *Dec. 10–June. 30*
	Cows may be harvested		*July 1–Apr 30*
	Federal public lands in Unit 26B are closed to caribou hunting except by Federally qualified subsistence users hunting under these regulations.		
Unit 26B remainder	*5 caribou per day as follows:*		
	Bulls may be harvested		*July 1 -June 30*
	Cows may be harvested		*July 1 -May 15*
	Federal public lands in Unit 26B are closed to caribou hunting except by Federally qualified subsistence users hunting under these regulations.		
You may not transport more than 5 caribou per regulatory year from Unit 26 except to the community of Anaktuvuk Pass.			

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WP18–57 Executive Summary	
OSM Preliminary Conclusion	**Oppose**
Southeast Alaska Subsistence Regional Advisory Council Recommendation	
Southcentral Alaska Subsistence Regional Advisory Council Recommendation	
Kodiak/Aleutians Subsistence Regional Advisory Council Recommendation	
Bristol Bay Subsistence Regional Advisory Council Recommendation	
Yukon-Kuskokwim Delta Subsistence Regional Advisory Council Recommendation	
Western Interior Alaska Subsistence	

WP18–57 Executive Summary	
Regional Advisory Council Recommendation	
Seward Peninsula Subsistence Regional Advisory Council Recommendation	
Northwest Arctic Subsistence Regional Advisory Council Recommendation	
Eastern Interior Alaska Subsistence Regional Advisory Council Recommendation	
North Slope Subsistence Regional Advisory Council Recommendation	
Interagency Staff Committee Comments	
ADF&G Comments	
Written Public Comments	**None**

DRAFT STAFF ANALYSIS
WP18-57

ISSUE

Proposal WP18-57, submitted by the North Slope Subsistence Regional Advisory Council, requests that Federal public lands in Units 26A and 26B be closed to caribou hunting by non-Federally qualified users (NFQU).

DISCUSSION

The proponent is concerned about the continued declines of the Western Arctic Caribou Herd (WACH), Teshekpuk Caribou Herd (TCH), and the Central Arctic Caribou Herd (CACH) and the ability of local subsistence users to meet their subsistence needs. The proponent is opposed to State regulations which allow a hunt for bulls from the CACH in Unit 26B through the rut when the population is in decline. The intent of this request is to ensure local people get the caribou they need, to protect the three caribou herds, and to reduce user conflicts. The proponent emphasizes the important traditional, cultural and nutritional value of caribou to local people and that a closure of Units 26A and 26B to NFQU will help local subsistence users harvest more caribou, increase their food security and reduce user conflicts.

Existing Federal Regulation

Unit 26—Caribou

Unit 26A—that portion of the Colville River drainage upstream from the Anaktuvuk River, and drainages of the Chukchi Sea south and west of, and including the Utukok River drainage	*5 caribou per day as follows;*	
	Calves may not be taken	
	Bulls may be harvested;	*July 1– Oct. 14* *Dec. 6 -June 30*
	Cows may be harvested; however, cows accompanied by calves may not be taken July 16 -Oct. 15	*July 16–Mar. 15*

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Unit 26A remainder	*5 caribou per day as follows;*	
	Calves may not be taken	
	Bulls may be harvested;	*July 1– Oct. 15* *Dec. 6 -June 30*
	Up to 3 cows per day may be harvested; however cows accompanied by calves may not be taken July 16 -Oct. 15	*July 16–Mar.15*

Unit 26B – that portion south of 69°30' N. lat. and west of the Dalton Highway	*5 caribou per day as follows:*	
	Bulls may be harvested	*July 1 -Oct. 14* *Dec. 10–June. 30*
	Cows may be harvested	*July 1–Apr 30*
Unit 26B remainder	*5 caribou per day as follows:*	
	Bulls may be harvested	*July 1 -June 30*
	Cows may be harvested	*July 1 -May 15*

You may not transport more than 5 caribou per regulatory year from Unit 26 except to the community of Anaktuvuk Pass.

Proposed Federal Regulation

Unit 26—Caribou

Unit 26A—that portion of the Colville River drainage upstream from the Anaktuvuk River, and drainages of the Chukchi Sea south and west of, and including the Utukok River drainage	*5 caribou per day as follows:*	
	Calves may not be taken	
	Bulls may be harvested;	*July 1– Oct. 14* *Dec. 6 -June 30*
	Cows may be harvested; however, cows accompanied by calves may not be taken July 16 -Oct. 15	*July 16–Mar.15*
	Federal public lands in Unit 26A are closed to caribou hunting except by Federally qualified subsistence users hunting under these regulations.	
Unit 26A remainder	5 caribou per day as follows;	
	Calves may not be taken	
	Bulls may be harvested;	July 1– Oct. 15 Dec. 6 -June 30
	Up to 3 cows per day may be harvested; however cows	July 16–Mar.15

	accompanied by calves may not be taken July 16‑Oct. 15	
	Federal public lands in Unit 26A are closed to caribou hunting except by Federally qualified subsistence users hunting under these regulations.	
Unit 26B – that portion south of 69°30' N. lat. and west of the Dalton Highway	*5 caribou per day as follows:*	
	Bulls may be harvested	*July 1‑Oct. 14* *Dec. 10–June. 30*
	Cows may be harvested	*July 1–Apr 30*
	Federal public lands in Unit 26B are closed to caribou hunting except by Federally qualified subsistence users hunting under these regulations.	
Unit 26B remainder	*5 caribou per day as follows:*	
	Bulls may be harvested	*July 1‑June 30*
	Cows may be harvested	*July 1‑May 15*
	Federal public lands in Unit 26B are closed to caribou hunting except by Federally qualified subsistence users hunting under these regulations.	

You may not transport more than 5 caribou per regulatory year from Unit 26 except to the community of Anaktuvuk Pass.

Existing State Regulation

Unit 26A—Caribou

Unit 26A the Colville River drainage	*Resident Hunters: Five caribou per day, however, calves may not be taken:*

upstream from the Anaktuvuk River, and drainages of the Chukchi Sea south and west of, and including the Utukok River drainage	*Bulls*	*RC907*	*July 1 – Oct. 14* *Feb. 1 – June 30*
	Cows	*RC907*	*July 15 – Apr. 30*
	Nonresident hunters: One bull; however, calves may not be taken	*HT*	*July 15– Sept.30*
Unit 26A remainder	*Resident Hunters: Five bulls per day; however, calves may not be taken*	*RC907*	*July 1 – July 15* *Mar. 16-June 30*
	Five caribou per day three of which may be cows: calves may not be taken, and cows with calves may not be taken	*RC907*	*July 16 – Oct. 15*
	Three cows per day however, calves may not be taken	*RC907*	*Oct. 16 – Dec. 31*
	Five caribou per day three of which may be cows; calves may not be taken	*RC907*	*Jan. 1 – Mar. 15*
	Nonresident Hunters: One bull however, calves may not be taken	*HT*	*July 15 – Sept. 30*
Unit 26B—Caribou			
Unit 26(B), Northwest portion north of the 69° 30' N. lat. and west of the east bank of the Kuparuk River to a point at 70° 10' N. lat., 149° 04' W. long., and	*Resident Hunters: 5 caribou per day*		
	Bulls	*HT*	*No closed season*

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west approximately 22 miles to 70°10' N. lat and 149°56' W. long, then following the east bank of the Kalubik River to the Arctic Ocean	*Cows*	*HT*	*July 1- May 15*
	Nonresident Hunters: 1-bull	*HT*	*Aug. 1-Sept 15*
26B remainder	*Resident Hunters: 2 bulls*	*HT*	*Aug. 1-Apr. 30*
	Nonresident Hunters: 1 bull	*HT*	*Aug. 1-Sept. 15*

Extent of Federal Public Lands

Federal public lands comprise approximately 73% of Unit 26A and consist of 66.9% Bureau of Land Management (BLM) managed lands, 6.6% National Park Service (NPS) managed lands, and 0.1% U.S. Fish and Wildlife Service (USFWS) managed lands. Federal public lands comprise approximately 29% of Unit 26B and consist of 22.8% USFWS managed lands, 3.6% BLM managed lands, and 2.7% NPS managed lands (See **Unit 26 Map**).

Customary and Traditional Use Determinations

Residents of Unit 26, Anaktuvuk Pass, and Point Hope have a customary and traditional use determination for caribou in Unit 26A.

Residents of Unit 26, Anaktuvuk Pass, Point Hope, and Unit 24 within the Dalton Highway Corridor Management Corridor (DHCMA) have a customary and traditional use determination for caribou in Unit 26B.

Regulatory History

In 1995, the Federal Subsistence Board (Board) adopted Proposal P95-64 to increase the harvest limit from 5 caribou per day to 10 caribou per day in Unit 26 to increase opportunity for subsistence hunters (OSM 1995a). The Board also adopted Proposal P95-62 which closed the area east of the Killik River and south of the Colville River to NFQU (OSM 1995b). This closure was enacted to prevent NFQU from harvesting lead animals, which may have caused the migration to move away from the area that local subsistence users hunted in Unit 26A (OSM 1995b).

In 2005, the Alaska Board of Game (BOG) established a Controlled Use Area for the Anaktuvuk River drainage that prohibited the use of aircraft for caribou hunting from Aug. 15–Oct. 15. The intent of this proposal was to limit access by nonlocal hunters, reduce user conflicts, and lessen the impact on caribou

migration.

In 2006, the Board adopted Proposal WP06-65 which opened the area east of the Killik River and south of the Colville River to NFQU (OSM 2006). The 1995 closure was lifted for several reasons. First, due to changes in land status, lands formerly managed by BLM were transferred to Alaska Native corporations or the State pursuant to the Alaska Native Claims Settlement Act or the Statehood Act, respectively. However, only the lands east of Anaktuvuk Pass were affected by the closure, making the closure less effective. Second, the WACH, TCH, and CACH populations, which traverse Unit 26A, were healthy and could support both subsistence and non–subsistence uses.

In 2013, an aerial photo census indicated significant declines in the TCH (Caribou Trails 2014), WACH (Dau 2011), and possibly the CACH (Caribou Trails 2014). In response, the BOG adopted modified Proposal 202 (RC76) in March 2015 to reduce harvest opportunities for both residents and non-residents within the range of the WACH and the TCH. These regulation changes, which included lower bag limits, changes to harvest seasons, modification of hunt areas, restrictions on bull and cow harvest and a prohibition on calf harvest, were adopted to slow or reverse the population decline. These regulatory changes, which were the result of extensive discussion and compromise among a variety of user groups, took effect on July 1, 2015.

In an effort to enact conservation measures, the North Slope Subsistence Regional Advisory Council submitted four temporary wildlife special actions (WSA) for Units 23, 24, 26A, and 26B to change caribou harvest regulations on Federal public lands for the 2015/16 regulatory year. The Board approved Temporary Special Actions WSA15-03/04/05/06, which are similar to the changes made to State regulations in an attempt to reverse or slow the decline of the WACH and TCH. To address two primary factors contributing to the decline, low calf survival and high adult cow mortality, WSA15-03/04/05/06 prohibited the harvest of cows with calves, prohibited the harvest of calves, and reduced the harvest limit to 5 caribou per day, and shortened the cow and bull seasons. Some of the requested hunt areas were not included in the Special Action WSA15-03/04/05/06 because there was not sufficient time for the Councils to review the proposed changes before the start of the regulatory year.

In 2015, three proposals were submitted for the 2016-2018 wildlife regulatory cycle concerning caribou regulations in Unit 26A and 26B, two from the North Slope Subsistence Regional Advisory Council (WP16-63 and WP16-64) and one from Jack Reakoff of Wiseman (WP16-37). The Board adopted WP16-37 with modification and took no action on WP16-63/64 based on action taken on WP16-37 (OSM 2016). Changes to the 2016-2018 Federal regulations in Unit 26A included a reduction from ten to five caribou per day harvest limit, splitting Unit 26A into two hunt areas based on range and migration patterns of the WACH and TCH, selecting the opening date for bulls in the winter season as December 6, a prohibition on the take of calves, and protection of cows with calves from July 16-Oct. 15. Changes to caribou regulations in Unit 26B, where harvest is primarily from the CACH, were: a reduced harvest limit from ten to five caribou per day; splitting Unit 26B into two hunt areas, one south of 69°30’ N. lat. west of the Dalton Highway and 26B remainder; a restricted cow season from July to April/May; and a reduction in the cow and bull seasons. Changes to caribou regulations in 2015 by the BOG and the Federal Subsistence Board represented the first time in over 30 years that harvest restrictions were

implemented for the WACH and TCH. These regulation changes for the WACH were also supported by management recommendations outlined in the Western Arctic Herd Management Plan (WACH Working Group 2011). The intent of these regulations was to reduce the overall harvest and cow mortality to allow the WACH and TCH populations to recover.

In 2015, the Northwest Arctic Subsistence Regional Advisory Council submitted a Temporary Special Action Request (WSA16-01) to close caribou hunting on Federal public lands in Unit 23 to NFQU for the 2016/17 regulatory year. The Northwest Arctic Council stated that its request was necessary for conservation purposes and because nonlocal hunting activities were negatively affecting subsistence harvests. In April 2016, the Board approved Special Action Request WSA16-01, basing its decision on the strong support of the Northwest Arctic and North Slope Councils, public testimony in favor of the request as well as concerns over conservation and continuation of subsistence use (FSB 2016).

In June 2016, the State submitted Temporary Special Action Request WSA16-03 to reopen caribou hunting on Federal public lands in Unit 23 to NFQU, providing new biological information (e.g. calf recruitment, weight, body condition) on the WACH. The State specified that there was no biological reason for the closure and that it could increase user conflicts. In January 2017, the Board rejected WSA16-03 due to the position of all four affected Councils (Northwest Arctic, North Slope, Seward Peninsula, and Western Interior Alaska Subsistence Regional Advisory Councils), public testimony, and Tribal consultation comments opposing the request. Additionally, the Board found the new information provided by the State to be insufficient to rescind the closure (FSB 2017, OSM 2017a).

In January 2017, the BOG adopted Proposal 2, requiring registration permits for residents hunting caribou within the range of the Western Arctic and Teshekpuk herds in Units 21, 23, 24, and 26 (a similar proposal was passed for Unit 22 in 2016). ADF&G submitted the proposal in order to better monitor harvest and improve management flexibility (ADF&G 2017a).

In February 2017, in response to the decline in the CACH, the BOG adopted Proposal 105 (RC22) with amendments to reduce overall caribou harvest from 930 to 680 and the cow harvest from 202 to 75 in Unit 26B (Lenart 2017a).

In March 2017, the Norwest Arctic and North Slope Subsistence Regional Advisory Councils submitted Temporary Special Action Requests WSA17-03,and WSA-04, to close caribou hunting on Federal public lands in Unit 23 and in Units 26A and 26B, respectively to NFQU for the 2017/18 regulatory year. Both Councils stated that the intent of the proposed closures was to ensure continuation of subsistence uses in the 2017/18 regulatory year, to protect declining caribou populations, and to reduce user conflicts. In June 2017, the Board approved Temporary Special Action WSA17-03 with modification to close Federal public lands to caribou hunting within a 10 mile wide corridor (5 miles on either side) along a portion of the Noatak River;within the Squirrel River drainage; and within the northern and southern boundaries of the Eli and Agashasshok River drainages; for the 2017/2018 regulatory year. While these closures may help reduce user conflicts along these high use areas, the Board concluded that closure of all Federal public lands to NFQU was not warranted at that time.

In June 2017, the Board rejected WSA17-04 for a variety of reasons including: 1) the relatively small cow

harvest by NFQU in Unit 26A; 2) the need for adequate time to determine if the recently enacted conservation actions for WACH, TCH, and CACH are effective in reducing the caribou harvest and reversing or slowing down the population declines; 3) the closure of Federal public lands in Unit 26A would likely shift hunters to State lands around Anaktuvuk Pass; 4) closure of Federal public lands in Unit 26B, which makes up only about 30% of the unit, is not likely to have as much effect as recent BOG regulations to protect the CACH; and 5) a reduction in hunting pressure along the Dalton Highway Corridor Management Area (DHCMA), which is thought to affect the migration of the CACH, is unlikely to be effective, as most NFQU will use the DHCMA to access adjacent State lands.

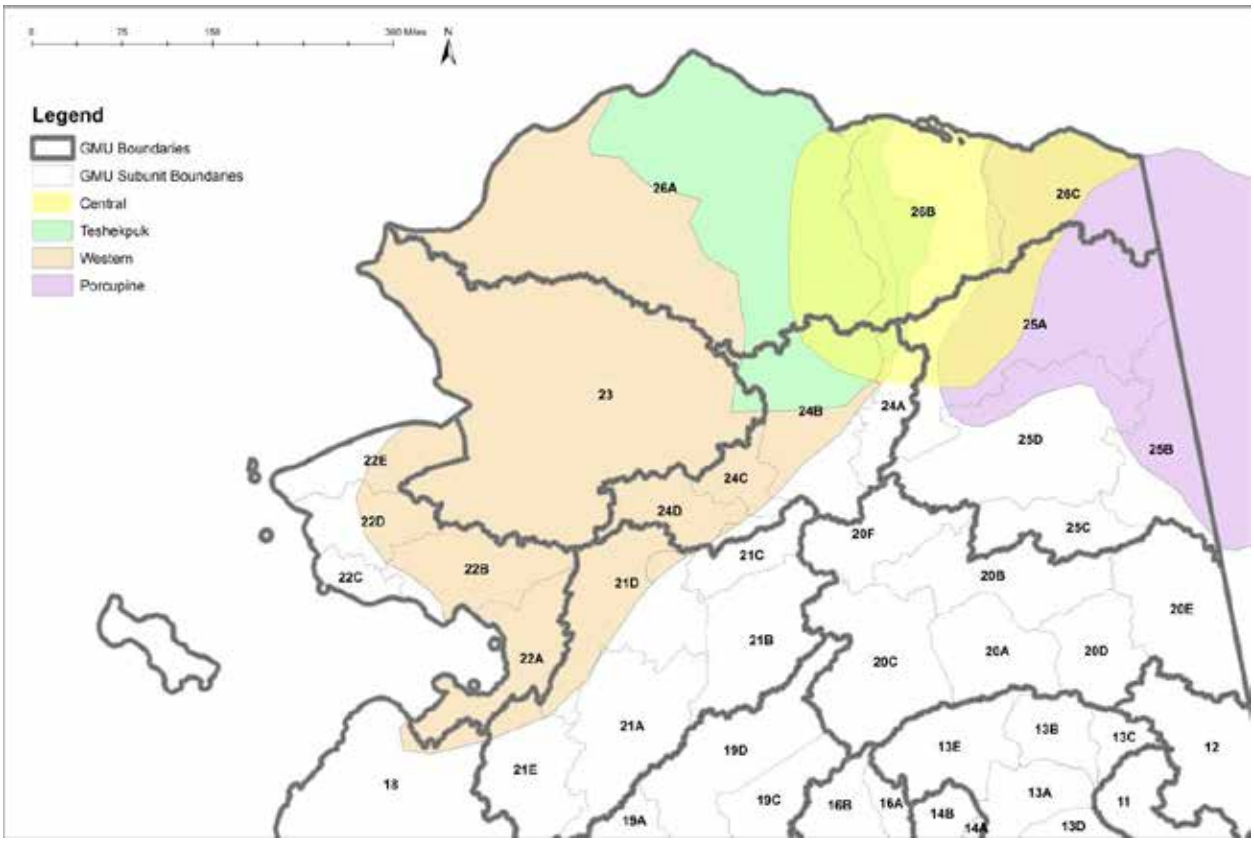
Biological Background

The TCH, WACH, and CACH have ranges that overlap in Unit 26A (**Map 1**) and there can be considerable mixing of herds during the fall and winter (Hemming 1971). During the early 2000s, the number of caribou from the WACH, TCH, CACH, and Porcupine Caribou Herd (PCH) peaked at over 700,000 animals, which may be the highest number since the 1970s (OSM 2017a). After declining slowly during the 1990s and early 2000s, the PCH has been increasing and by 2016 was at 197,000, which is the highest population yet recorded for this herd (OSM 2017b). Caribou abundance naturally fluctuates over decades (Gunn 2001, WACH Working Group 2011). Gunn (2001) reports the mean doubling rate for Alaskan caribou populations as 10 ± 2.3 years. Although the underlying mechanisms causing these fluctuations are uncertain, Gunn (2001) suggests climatic oscillations as the primary factor, exacerbated by predation and density-dependent reduction in forage availability, resulting in poorer body condition. During the 1970s, there was little overlap between these four herds, but the degree of mixing seemed to increase as the herds increased in the early 2000s (Lenart 2011, Dau 2011, Parrett 2011).

Caribou calving generally occurs during late May and early June. Weaning generally occurs in late October and early November before the breeding season (Taillon et al. 2011). Calves stay with their mothers through their first winter, which improves calves' access to food and body condition. Joly (2000) found that calves orphaned later in life have greater chances of surviving. Data from Russell et al. (1991) suggests 50% and 75% of the calves orphaned in September and November, respectively, survived the winter (Joly 2000). Indeed, there is little evidence that calves orphaned after weaning experience strongly reduced overwintering survival rates than non-orphaned calves (Rughetti and Festa-Bianchet 2014, Joly 2000, Holand et al. 2012), although Holand et al. (2012) found orphaned calves to have greater losses of winter body mass than non-orphaned calves.

The WACH, TCH, and CACH migrate between seasonal summer and winter ranges and calving areas. Over many years, traditional migration routes have developed in response to spatial and temporal variability of environmental conditions encountered (Duquette 1988). Migration routes that were successful in previous years are likely learned by young caribou following older, more experienced animals (Pullainen 1974). Maintaining connectivity between the seasonal areas is important because restoring disturbed migration routes can be challenging (Wilcove and Wikelski 2008, Singh and Milner-Gulland 2011). Long-term climate changes may affect seasonal ranges and migratory patterns through changes in forage abundance, quality, and weather. In addition, increased development along migration routes could increase energy costs, impede movements, or deflect caribou to less optimal areas.

Understanding the importance of spatial and temporal variation of the seasonal habitat use and the migration routes are important considerations for management of caribou herds.



Map 1. Herd overlap and ranges of the Western Arctic, Teshekpuk, Central Arctic and Porcupine Caribou herds (Caribou Trails 2014).

Central Arctic Caribou Herd

The CACH range includes the area from the eastern portion of the Arctic coastal plain of the North Slope to the Canadian border, the north side of the Brooks Range from the Itkillik River to the Canadian border, the south side of the Brooks Range from the North Fork of the Koyukuk River to the East Fork of the Chandalar River, and as far south as the Chandalar River valley (Lenart 2015). The traditional calving grounds of the CACH are between the Colville and Kuparuk rivers on the west side of the Sagavanirktok River and between the Sagavanirktok and Canning rivers on the east side. In response to oil and gas development and infrastructure in the 1990s caribou that calved in the western Unit 26B shifted their calving grounds to the southwest (Arthur and Del Vecchio 2009). The CACH summer range extends east from Fish Creek, just west of the Colville River, along the coast and inland about 30 miles to the Canadian border. Typically the CACH summer range extends from the Colville River to just east of the Katakturuk River and from the coast inland to the foothills of the Brooks Range. The winter range of the CACH occurs in the northern and southern foothills of the Brooks Range. In most years the CACH begin migrating toward the foothills of the Brooks Range in August and by September most of the caribou are

in the foothills around Toolik Lake, Galbraith Lake, Accomplishment Creek, Ivishak River and the upper Sagavanirktok River. Depending on the year, the rut, which typically occurs in mid-October, can occur on the north or south side of the Brooks Range (Lenart 2015). The range of the CACH often overlaps with the PCH on the summer and winter ranges to the east and with the WACH and TCH herds on the summer and winter ranges to the west (**Map 1**) (Lenart 2015).

The seasonal movements and migratory patterns of CACH have been studied using radiotelemetry for the past 30 years (Cameron et al. 1979, Whiten and Cameron 1983, Cameron et al. 1986, Carruthers et al. 1987, Cameron et al. 1995, Cameron et al. 2005). Migratory patterns of the CACH are oriented principally north-south, from the summer range and calving areas on the tundra- dominated Arctic coastal plain to the winter range in the foothills and mountains of the Brooks Range (Cameron et al. 1979, Carruthers et al. 1987, Fancy et al. 1989, Cameron et al. 2002, Nicholson et al. 2016). Spring migration to the calving areas, which is led by pregnant females, occurs during April and May (Duquette and Klein 1987). After calving, males and non-pregnant females form large groups in mid-June (Cameron and Whitten 1979). Similar to the TCH, CACH often move to windy areas along the Beaufort Sea coast or to areas with persistent patches of snow to avoid harassment by flies and mosquitoes during the middle of the summer (White et al. 1979). During August, when the insect activity lessens, the caribou begin a slow and irregular movement toward the foothills of the Brooks Range. The fall migration to the wintering areas starts in September and continues through November (Cameron et al. 1986, Lenart 2015).

From 2003-2007, movements of 54 caribou from the CACH were monitored (Nicholson et al. 2016). The annual summer and winter home ranges of the CACH, using a 90% fixed kernel utilization distribution, were similar between summer (mean = 27,929 km^2) and winter (mean = 26,585 km^2). Overlap between consecutive summer ranges was 62.4% and consecutive winter ranges 42.8% (Nicholson et al. 2016). The CACH typically cross the Dalton Highway from the northwest to the southeast during the fall migration, which is away from Anaktuvuk Pass (Nicholson et al. 2016). The CACH used multiple migration routes, or a network of corridors versus a single migration route. Although the caribou migratory patterns varied each year some areas were consistently used each year. The migration paths that consistently had high caribou concentrations during spring and fall migrations each year were along the Dalton Highway between Galbraith Lake and the Ribdon River (Nicholson et al. 2016).

The State manages the CACH to provide for subsistence and other hunting opportunities on a sustained yield basis. State management objectives for the CACH are as follows (Lenart 2015):

- Maintain a population of at least 28,000-32,000 caribou
- Maintain accessibility of seasonal ranges for CACH caribou
- Maintain a harvest of at least 1,400 caribou if the population is ≥ 28,000 caribou
- Maintain a ratio of at least 40 bulls: 100 cows
- Reduce conflicts between consumptive and nonconsumptive uses of caribou along the Dalton Highway

When the CACH was recognized as a distinct herd in 1975, the population was estimated to be 5,000 caribou (Cameron and Whitten 1979). The population increased to approximately 23,000 in 1992 (Valkenburg 1993), decreased to 18,000 in 1995, and then increased rapidly from 27,000 in 2000 to 70,034 in 2010 (Lenart 2015). Low cow mortality, high parturition rates, and high calf survival and recruitment contributed to the population increase of approximately 12% per year from 1998-2008 (Lenart 2015). In 2013, the population dropped to approximately 50,000 and by 2016 the population decreased to 22,360 caribou, which is below State management objectives (Lenart 2011, 2013, 2017a, b). The recent decline from 2010 to 2016 represented a decline of approximately 17% per year. The late spring of 2013, which killed many adult and yearling females, likely contributed to the population decline from 2010 to 2013. Two major factors influencing the population decline from 2013 to 2016 were the high mortality of adult females and emigration (Lenart 2017b). From 2013-2016 54% of the collared females (n = 54 in 2013) died and 19% switched from the CACH to other caribou herds (Lenart 2017b). Previous research indicates that predation has not played a major role in calf mortality and it is not thought to be a major factor in the decline (Lenart 2017b). Disease is also not implicated as a major factor for the decline of the CACH (Lenart 2017b). The State attributes the decline between 2013 and 2016 censuses to a large proportion of older females that died of old age, the late spring of 2013, and the CACH that switched herds (Lenart 2017a).

Composition surveys are usually conducted during the fall near the peak of the rut to take advantage of the mixing of the bulls, cows, and calves. Composition counts were conducted in 2009-2012, 2014, and 2016 (Lenart 2015, 2017a). Composition surveys were not done in 2013 because the CACH was mixed with the PCH (**Table 1**) (Lenart 2015). The calf:cow ratio did not decline until after 2012 (**Table 1**). From 2009-2012 calf:cow ratios averaged 49 calves: 100 cows (**Table 1**) (Lenart 2015). The calf:cow ratio was 48 calves: 100 cows when the population dropped to 22,360 caribou in 2016 (Lenart 2017a). Calf: cow ratios for calves ≤ 4 years old, was above 70 calves: 100 cows during the period when the herd was growing between 2000 and 2010 (Lenart 2017a). From 2010-2016, when the herd was declining, the calf:cow ratio for the older calves dropped below the 70 calves:100 cows. Although the bull:cow ratio had declined to 39 bulls: 100 cows in 2016 it was still close to the State recommended objective of 40 (Lenart 2015, 2017b).

Table 1. Central Arctic caribou sex and age composition information collected during fall composition surveys, 2009-2014 (Lenart 2015)[a].

Date	Bulls:100 cows	Calves:100 cows	Percent Calves (n)	Percent Cows (n)	Percent Bulls (n)	Sample Size	Groups
13-14 Oct. 2009	50	33	18 (1,193)	55 (3,641)	27 (1,814)	6,648	19
23 Oct. 2010	50	46	23 (889)	51 (1,930)	26 (968)	3,787	12
13 Oct. 2011	69	56	25 (1303)	44 (2,306)	31 (1,590)	5,199	22
14 Oct. 2012	56	61	23 (1,132)	55 (1,845)	22 (1,039)	4,016	15
13-14 Oct. 2014[b]	41	42	23 (462)	55 (1,097)	22 (445)	2,004	18
2016	39	48					

[a] 2016 data is incomplete (Lenart 2017b)

[b] Data may not be comparable with previous years due to small sample size.

Teshekpuk Caribou Herd

The TCH calving and summering areas overlap with the eastern portion of the National Petroleum Reserve–Alaska (NPR–A). Most of the TCH moves toward Teshekpuk Lake in May to calve in early June. The primary calving grounds of the TCH (approximately 1.8 million acres) occur to the east, southeast and northeast of Teshekpuk Lake (Person et al. 2007, Wilson et al. 2012). From late June through July cows and bulls move to the Beaufort Sea coast from Dease Inlet to the mouth of the Kogru River (Utqiagvik to the Colville Delta), around the north and south side of the Teshekpuk Lake, and the sand dunes along the Ikpikpuk River to seek relief from insects (Carroll 2007, Parrett 2007). The narrow corridors of land to the east and northwest of the Teshekpuk Lake are important migratory corridors to insect relief areas as well (Yokel et al. 2009). River corridors are also used more during periods of insect harassment. Fall and winter movements are more variable, although most of the TCH winters on the coastal plain around Atqasuk, south of Teshekpuk Lake. However, the TCH has wintered as far south as the Seward Peninsula, as far east as the Arctic NWR, and in the foothills and mountains of the Brooks Range (Carroll 2007). In 2008/2009, the TCH used many of these widely disparate areas in a single year (Parrett 2011, 2015a). From 2007-2011, the TCH wintered in four relatively distinct areas: the coastal plain between Atqasuk and Wainwright; the coastal plain west of Nuiqsut; the central Brooks Range; and the shared winter ranges with the WACH in the Noatak, Kobuk, and Selawik drainages. During the winters of 2012-2013 and 2013-2014, the TCH wintered primarily near Atqasuk and Wainwright and east of Anaktuvuk Pass (Parrett 2015a)

The State manages the TCH to provide for subsistence and other hunting opportunities on a sustained yield basis, ensure that adequate habitat exists, and provide for viewing and other uses of caribou (Parrett 2011). Specific State management objectives for the TCH are as follows (Parrett 2011):

- Attempt to maintain a minimum population of 15,000 caribou, recognizing that caribou numbers naturally fluctuate.
- Maintain a harvest level of 900–2,800 caribou using strategies adapted to population levels and trends.
- Maintain a population composed of least 30 bulls per 100 cows.
- Monitor herd characteristics and population parameters (on an annual or regular basis).
- Develop a better understanding of the relationships and interactions among North Slope caribou herds.
- Encourage cooperative management of the herd and its habitat among State, Federal, and local entities and all users of the herd.
- Seek to minimize conflicts between resource development and the TCH.

Since 1984, the minimum population of the TCH has been estimated from aerial photo censuses and radio-telemetry data. Population estimates are determined by methods described by Rivest et al. (1998) which account for caribou in groups that do not have a collared animal and for missing collars. Based on these methods the TCH population increased from an estimated 18,292 caribou (minimum estimate 11,822) in 1982 to 68,932 caribou (minimum estimate 64,106) in 2008. From 2008 to 2014 the population declined by almost half to 39,000 caribou (**Figure 1**) (Parrett 2015a). Interpretation of population estimates is difficult due to movements and range overlap among caribou herds which results in both temporary and permanent immigration (Person et al. 2007). For example, following the 2013 census ADF&G made the decision to manage the TCH based on the minimum count because the bulk of the animals that were estimated rather than counted were with the WACH at the time of the photo census (Parrett 2015b, pers. comm.). In 2015, the minimum count was 35,181 with a population estimate of 41,542 (SE = 3,486) (Parrett 2017a, pers. comm.).

In 2013 and 2016 the number of bulls:100 cows was39 bulls:100 cows and 28 bulls:100 cows in 2016, respectively (**Figure 2**) (Parrett 2011, 2013, 2015a, Parrett 2017a, pers. comm.). Comparison of bull:cow and calf:cow ratios from 1991-2000 and later years is not possible due to dramatic changes in methodology. From 2009-2013 the calf:cow ratio increased from 18 calves:100 cows to 48 calves: 100 cows in 2016 (Parrett 2013, 2015a, Parrett 2017a, pers. comm.). In addition, the number of short–yearlings:adults based on spring composition surveys, which is a measure of recruitment, declined from an average of 20 short–yearlings:100 adults between 1999 and 2008 to an average of 14 short–yearlings :100 adults from 2009-2014 (**Figure 3**) (Parrett 2013) and increased in 2016 to 29 short-yearlings: 100 adults (Parrett 2017a, pers. comm.).

The annual mortality of adult radio collared females from the TCH has remained close to the long term (1991-2012) average of 14.5% (range 8–25%) (Parrett 2011, Caribou Trails 2014, Parrett 2015a). As the TCH has declined, calf weights declined indicating that poor nutrition may be having a significant effect on this herd (Carroll 2015, pers. comm., Parrett 2015b, pers. comm.). In 2016 increased calf weights,

high adult female survival (92%), high yearling recruitment (29 yearlings / 100 adults), and high calf production (81%), and a high calf:cow ratio (48 calves:100 cows) suggest that the population may be stable or declining at a slower rate (Parrett 2017a, pers. comm.) In contrast, the body condition of individuals from the WACH, which also declined dramatically, has remained relatively good, indicating that caribou are still finding enough food within their range (Caribou Trails 2014, Dau 2014). A recent study found that calf production was low, calf survival on calving grounds was high, 40% of the concentrated wintering range was on NPS land, and that starvation was a significant mortality factor on non-NPS lands (Parrett 2017a, pers. comm.). The late spring in 2013 likely contributed to the decline in winter survival in 2014.

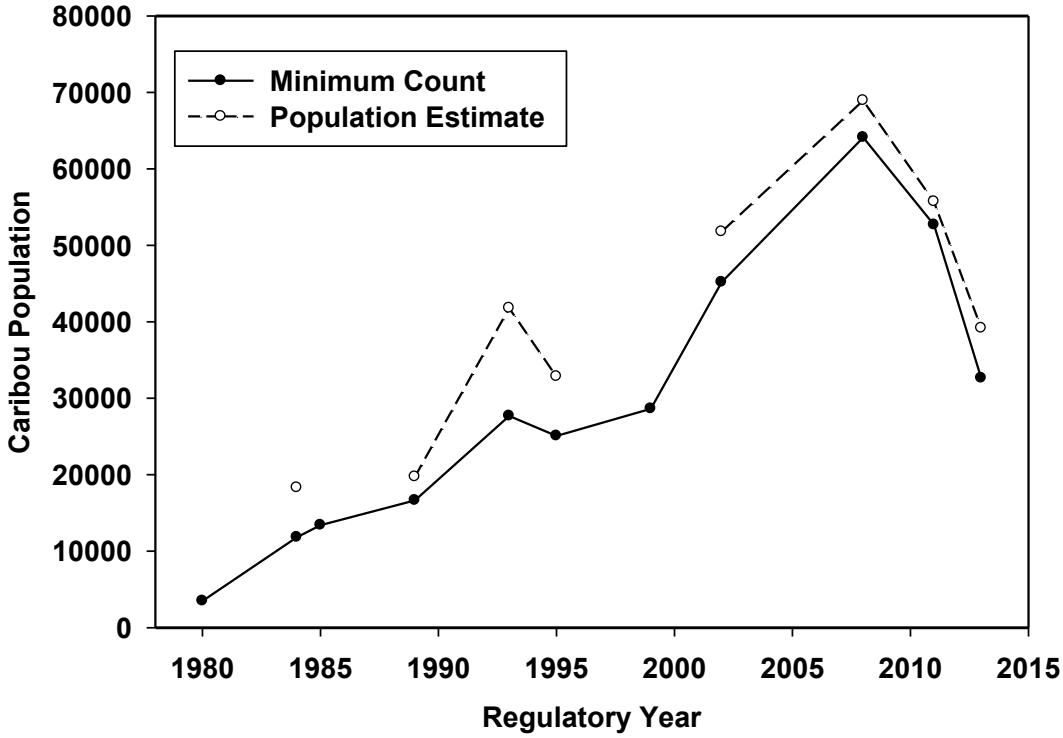


Figure 1. Minimum counts and population estimates of the Teshekpuk Caribou Herd from 1980-2014. Population estimates from 1984-2013 are based on aerial photographs of groups of caribou that contained radio–collared animals (Parrett 2011, 2013, Parrett 2015a).

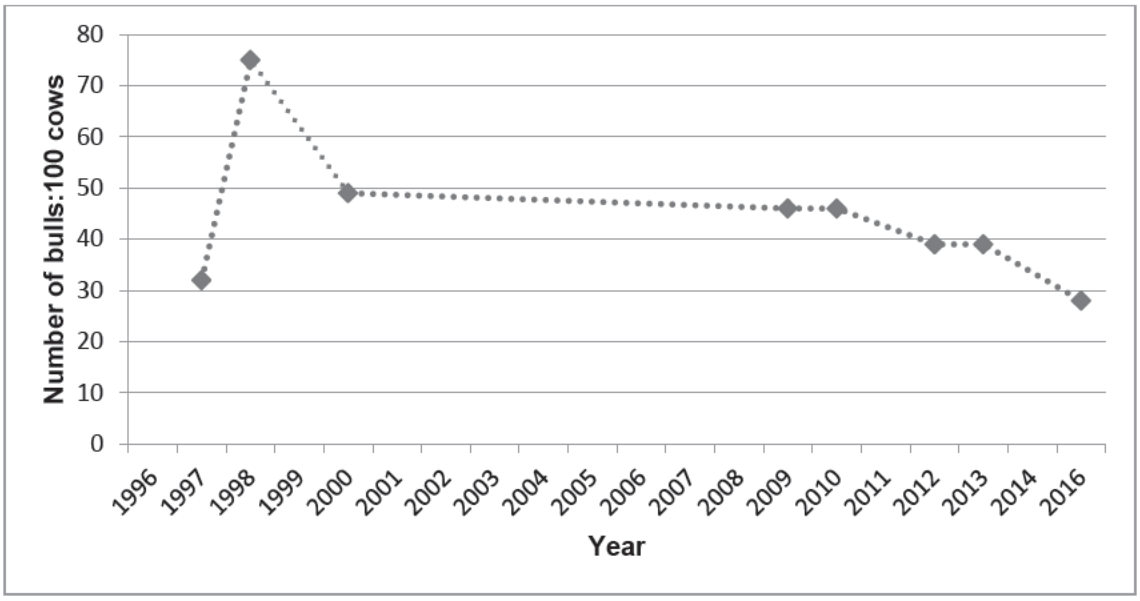


Figure 2. Bull:cow ratios of the Teshekpuk Caribou Herd (Parrett 2013).

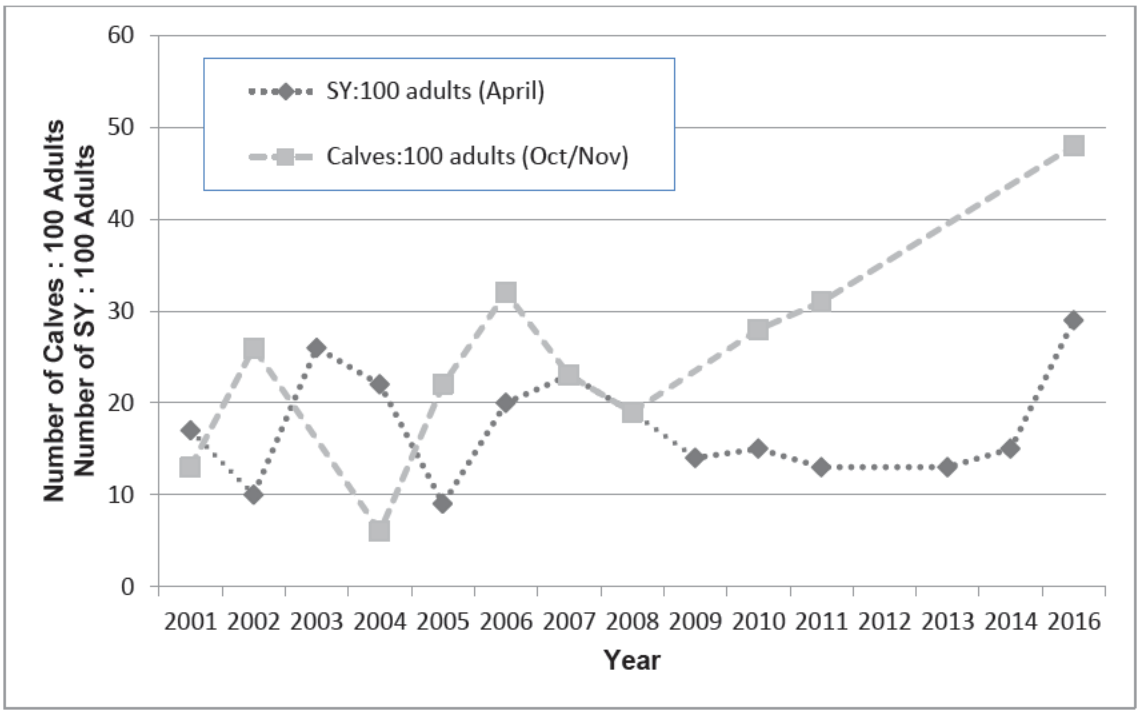
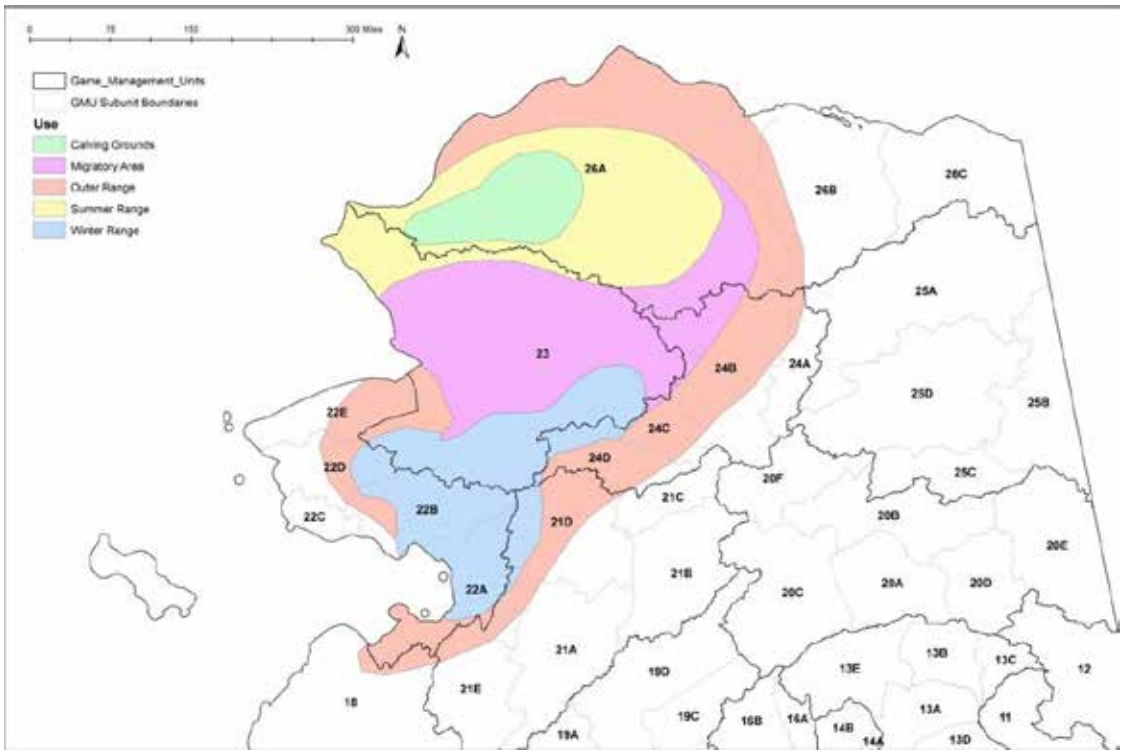


Figure 3. Calf:adult and short yearling (SY):adult ratios for the Teshekpuk Caribou Herd (Parrett 2015a). Short yearlings are 10-11 months old caribou.

Western Arctic Caribou Herd

The WACH, the largest herd in Alaska, has a home range of approximately 157,000 mi^2 in northwestern Alaska (**Map 2**). In the spring, most mature cows move north to calving grounds in the Utukok Hills, while bulls and immature cows lag behind and move toward summer range in the Wulik Peaks and Lisburne Hills (Dau 2011, WACH Working Group 2011). Dau (2013) determined the calving dates for the WACH to be June 9–13. This is based upon long-term movement and distribution data obtained from radio-collared caribou (these are the dates cows ceased movements and were assumed to be calving). After calving, cows and calves move west toward the Lisburne Hills where they mix with the remaining bulls and non-maternal cows. During the summer the herd moves rapidly to the Brooks Range.

In the fall the herd moves south toward their wintering grounds in the northern portion of the Nulato Hills. Rut occurs during fall migration (Dau 2011, WACH Working Group 2011). Dau (2013) determined the WACH rut dates to be October 22–26. This is based on back-calculations from calving dates using a 230-day gestation period. Since about 2000, the timing of fall migration has been less predictable, often occurring later than in previous decades (Dau 2015a). The proportion of caribou using certain migration paths varies each year (Joly and Cameron 2017). In recent years (2012-2014), the path of fall migration has shifted east (Dau 2015a).



Map 2. Calving grounds, wintering range, summering range, migratory areas, and home range extent of the Western Arctic Caribou Herd (WACH Working Group 2011)

In part, due to the collapse of the WACH in the 1970s, the WACH Working Group was formed. In 2003 it developed a WACH Cooperative Management Plan, and revised it in 2011 (WACH Working Group 2011). The WACH Management Plan identifies seven plan elements: cooperation, population management, habitat, regulations, reindeer, scientific and traditional ecological knowledge, and education as well as associated goals, strategies, and management actions. As part of the population management element, the WACH Working Group developed a guide to herd management determined by population size, population trend, and harvest rate. Revisions to recommended harvest levels under liberal and conservative management (2,850 caribou +/- 100) were made in December 2015 (WACH Working Group 2015, **Table 2**). Potential management actions and harvest recommendations for each management level can be found in Appendix 2 of the Western Arctic Caribou herd Cooperative Management Plan (WACH Working Group 2011).

The State manages the WACH to protect the population and its habitat, provide for subsistence and other hunting opportunities on a sustained yield basis, and provide for viewing and other uses of caribou (Dau 2011). State management objectives for the WACH are listed in the 2011 Western Arctic Caribou Cooperative Management Plan (WACH Working Group 2011, Dau 2011) and include:

- Encourage cooperative management of the WACH among State, Federal, local entities, and all users of the herd.
- Manage for healthy populations using management strategies adapted to fluctuating population levels and trends.
- Assess and protect important habitats.
- Promote consistent and effective State and Federal regulations for the conservation of the WACH.
- Seek to minimize conflict between reindeer herders and the WACH.
- Integrate scientific information, traditional ecological knowledge of Alaska Native users, and knowledge of all users into management of the herd.
- Increase understanding and appreciation of the WACH through the use of scientific information, traditional ecological knowledge of the Alaska Native users, and knowledge of all other users.

The WACH population declined rapidly in the early 1970s bottoming out at about 75,000 animals in 1976. Aerial photo censuses have been used since 1986 to estimate population size. The WACH declined at an average annual rate of 7.1% from approximately 490,000 in 2003 to 235,000 in 2013 (Dau 2011, 2013, 2014, 2015a, Caribou Trails 2014) (**Figure 4**).

Between 1982 and 2011, the WACH was within the liberal management level prescribed by the WACH Working Group (**Table2**). In 2013, the WACH population estimate fell below the threshold for liberal management of a decreasing population (265,000), slipping into the conservative management level. In July 2015, ADF&G attempted an aerial photo census of the herd. However, the photos taken could not be used due to poor light conditions that obscured unknown portions of the herd (Dau 2015b). ADF&G conducted a successful photo census of the WACH on July 1, 2016. This census resulted in a minimum count of 194,863 caribou with a point estimate of 200,928 (Standard Error = 4,295), suggesting the

WACH is still within the conservative management level, although close to the threshold for preservative management (**Figure 4, Table 2**)(Parrett 2016a). Results of this census indicate an average annual decline of 5% per year since 2013, representing a much lower rate than the 15% annual decline between 2011 and 2013. The large cohorts of 2015 and 2016, which currently comprise a substantial proportion of the herd, contributed to the recent decreased rate of decline (Parrett 2016a). The data from the 2017 photo census is currently being analyzed by ADF&G (Parrett 2017b, pers. comm.).

Table 2. Western Arctic Caribou Herd management levels using herd size, population trend, and harvest rate (WACH Working Group 2011, 2015).

Management and Harvest Level	Population Trend			Harvest Recommendations May Include:
	Declining Low: 6%	**Stable Med: 7%**	**Increasing High: 8%**	
Liberal	Pop: 265,000+	Pop: 230,000+	Pop: 200,000+	• Reduce harvest of bulls by nonresidents to maintain at least 40 bulls: 100 cows • No restriction of bull harvest by resident hunters unless bull:cow ratios fall below 40 bulls:100 cows
	Harvest: 16,000-22,000	Harvest: 16,000-22,000	Harvest: 16,000-22,000	
Conservative	Pop: 200,000-265,000	Pop: 170,000-230,000	Pop: 150,000-200,000	• No harvest of calves • No cow harvest by nonresidents • Restriction of bull harvest by nonresidents • Limit the subsistence harvest of bulls only when necessary to maintain a minimum 40:100 bull:cow ratio
	Harvest: 12,000-16,000	Harvest: 12,000-16,000	Harvest: 12,000-16,000	
Preservative	Pop: 130,000-200,000	Pop: 115,000-170,000	Pop: 100,000-150,000	• No harvest of calves • Limit harvest of cows by resident hunters through permit hunts and/or village quotas • Limit the subsistence harvest of bulls to maintain at least 40 bulls:100 cows • Harvest restricted to residents only, according to state and federal law. Closure of some federal public lands to nonqualified users may be necessary
	Harvest: 8,000-12,000	Harvest: 8,000-12,000	Harvest: 8,000-12,000	
Critical Keep Bull:Cow ratio ≥ 40 Bulls:100 Cows	Pop: < 130,000	Pop: < 115,000	Pop: < 100,000	• No harvest of calves • Highly restrict the harvest of cows through permit hunts and/or village quotas • Limit the subsistence harvest of bulls to maintain at least 40 bulls:100 cows • Harvest restricted to residents only, according to state and federal law. Closure of some federal public lands to nonqualified users may be necessary
	Harvest: 6,000-8,000	Harvest: 6,000-8,000	Harvest: 6,000-8,000	

Between 1970 and 2016, the bull:cow ratio exceeded critical management levels in all years except 1975, 2001, and 2014 (**Table 3**). Reduced sampling intensity in 2001 likely biased the 2001 bull:cow ratio low (Dau 2013). Since 1992, the bull:cow ratio has trended downward (Dau 2015a). The average annual number of bulls:100 cows was greater during the period of population growth (54:100 between 1976–2001) than during the recent period of decline (44:100 between 2004–2016). Additionally, Dau (2015a) states that while trends in bull:cow ratios are accurate, actual values should be interpreted with caution due to sexual segregation during sampling and the inability to sample the entire population, which likely account for more annual variability than actual changes in composition.

Although factors contributing to the decline are not known with certainty, increased adult cow mortality and decreased calf recruitment and survival played a role (Dau 2011). Since the mid-1980s, adult mortality has slowly increased while recruitment has slowly decreased (Dau 2013). In a population model developed specifically for the WACH, Prichard (2009) found adult survival to have the largest impact on population size.

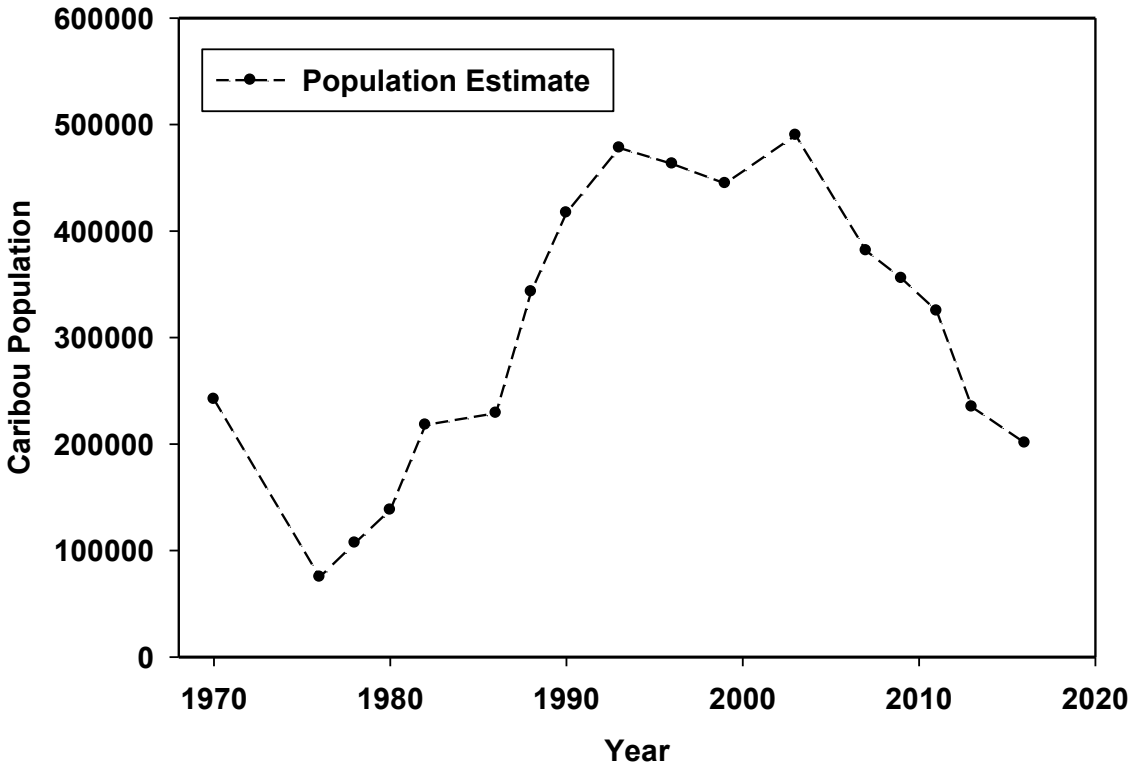


Figure 4. Maximum estimated population estimates of the Western Arctic Caribou Herd from 1970-2016. Population estimates from 1986-2016 are based on aerial photographs of groups of caribou that contained radio–collared animals (Dau 2011, 2013, 2014, 2015a, Parrett 2017a, pers. comm.).

Calf production has likely had little influence on the population trajectory (Dau 2013, 2015a). Between 1990 and 2003, the June calf:cow ratio averaged 66 calves:100 cows/year. Between 2004 and 2016, the June calf:cow ratio averaged 71 calves:100 cows/year (**Table 3, Figure 5**). In June 2016, 85 calves:100 cows were observed, which approximates the highest parturition level ever recorded for the herd (86 calves:100 cows in 1992) (Dau 2016a).

Decreased calf survival through summer and fall and recruitment into the herd are likely contributing to the current population decline (Dau 2013, 2015a). Fall calf:cow ratios indicate calf survival over summer. Between 1976 and 2016, the fall calf:cow ratio ranged from 35 to 59 calves:100 cows/year, averaging 46 calves:100 cows/year (**Figure 5**). Fall calf:cow ratios declined from an average of 46 calves:100 cows/year between 1990-2003 to an average of 42 calves:100 cows/year between 2004-2016 (Dau 2015a, **Figure 5**). Since 2008, ADF&G has recorded calf weights at Onion Portage as an index of herd nutritional status. In September 2015, calf weights averaged 100 lbs., the highest average ever recorded (Parrett 2015c).

Table 3. Western Arctic Caribou Herd fall composition 1976 – 2014 (Dau 2011, 2013, 2014, 2015a, 2016b).

Regulatory Year	Total bulls: 100 cows[a]	Calves: 100 cows	Calves: 100 adults	Bulls	Cows	Calves	Total
1976/1977	63	52	32	273	431	222	926
1980/1981	53	53	34	715	1,354	711	2,780
1982/1983	58	59	37	1,896	3,285	1,923	7,104
1992/1993	64	52	32	1,600	2,498	1,299	5,397
1995/1996	58	52	33	1,176	2,029	1,057	4,262
1996/1997	51	49	33	2,621	5,119	2,525	10,265
1997/1998	49	43	29	2,588	5,229	2,255	10,072
1998/1999	54	45	29	2,298	4,231	1,909	8,438
1999/2000	49	47	31	2,059	4,191	1,960	8,210
2001/2002	38	37	27	1,117	2,943	1,095	5,155
2004/2005	48	35	24	2,916	6,087	2,154	11,157
2006/2007	42	40	28	1,900	4,501	1,811	8,212
2008/2009	45	48	33	2,981	6,618	3,156	12,755
2010/2011	49	35	23	2,419	4,973	1,735	9,127
2012/2013	42	38	27	2,119	5,082	1,919	9,120
2014/2015	39	[b]	[b]	[b]	[b]	[b]	[b]
2015/2016	41[c]	54	[b]	[b]	[b]	[b]	[b]

[a] 40 bulls:100 cows is the minimum level recommended in the WACH Cooperative Management Plan (WACH Working Group 2011)

[b] Data not available

[c] Estimated from power point presentation presented at the WACH Working Group Meeting December 13, 2016 (Parrett 2016b)

Similarly, the ratio of short yearlings (SY, 10-11 months old caribou) to adults provides a measure of overwintering calf survival and recruitment. Between 1990 and 2003, SY:adult ratios averaged 20 SY:100 adults/year. Since the decline began in 2003, SY:adult ratios have averaged 16 SY:100 adults/year (2004-2016, **Figure 5**). However, 23 SY:100 adults were observed during spring 2016 surveys, the highest ratio recorded since 2007 (Dau 2016b). The overwinter calf survival for the 2015 cohort (Oct. 2015-June 2016) was 84% (Parrett 2016b). While 2016 measures suggest improvements in recruitment, the overall trend since the early 1980s has been downward (Dau 2015a).

Increased cow mortality is likely affecting the trajectory of the herd (Dau 2011, 2013). The annual mortality rate of radio-collared adult cows increased, from an average of 15% between 1987 and 2003, to 23% from 2004–2014 (Dau 2011, 2013, 2014, 2015a). Estimated mortality includes all causes of death including hunting (Dau 2011). Dau (2015a) states that cow mortality estimates are conservative due to exclusion of unhealthy (i.e. diseased) and yearling cows. Dau (2009, 2013) reported that rain–on–snow events, deep snow and winter thaws may have contributed to the relatively high estimated mortality rates of 23% during 2008-2009, 27% during 2009-2010 and 33% in 2011-2012. Prior to 2004, estimated adult cow mortality only exceeded 20% twice, but has exceeded 20% in 7 out of 9 regulatory years between 2004 and 2012. The annual mortality rate was 8% as of April 2016 (Dau 2016b). This may fluctuate substantially throughout the year based on changing local conditions and harvest levels. Dau (2015a) indicates that mortality rates may also change in subsequent management reports as the fate of collared animals is determined, and that these inconsistencies are most pronounced for the previous 1–3 years.

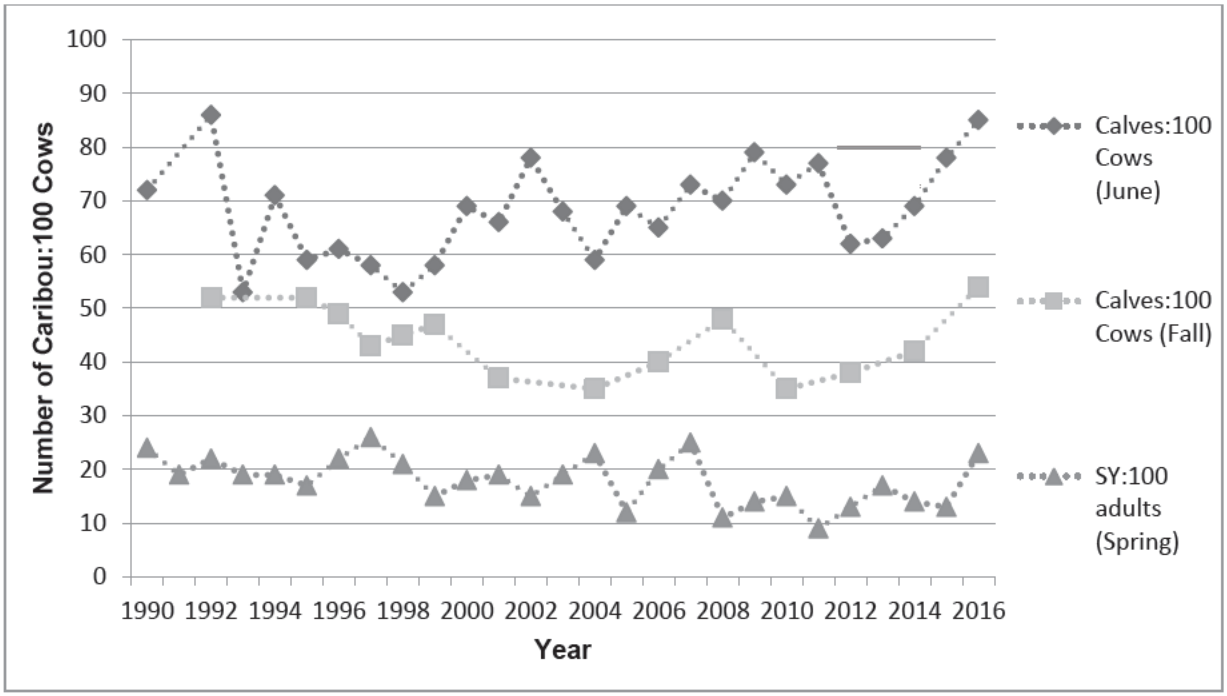


Figure 5. Calf:cow and short yearling (SY):adult ratios for the WACH (Dau 2013, 2015a, 2016a, ADF&G 2017c). Short yearlings are 10-11 months old caribou.

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Far more caribou died from natural causes than from hunting between 1992 and 2012. Cow mortality remained constant throughout the year. However, natural and harvest mortality for bulls spiked during the fall. Predation, particularly by wolves, accounted for the majority of the natural mortality (Dau 2013). However as the WACH has declined and estimated harvest has remained relatively stable, the percentage of mortality due to hunting has increased relative to natural mortality. For example, during the period October 1, 2013 to September 30, 2014, estimated hunting mortality was approximately 42% and estimated natural mortality about 56% (Dau 2014). In previous years (1983–2013), the estimated hunting mortality exceeded 30% only once in 1997-1998 (Dau 2013). Additionally, Prichard (2009) and Dau (2015a) suggest that harvest levels and rates of cow harvest can greatly impact population trajectory. If bull:cow ratios continue to decline, harvest of cows may increase, exacerbating the current population decline.

Dau (2015a) cites fall and winter icing events as the primary factor initiating the population decline in 2003. Increased predation, hunting pressure, deteriorating range condition (including habitat loss and fragmentation), climate change, and disease may also be contributing factors (Gunn 2001, Dau 2013, 2014, 2015a). Changing climatic conditions can affect snow depth, icing, forage quality and growth, frequency, location, and intensity of wildfires, insect abundance, and predation which can affect migration and have long-term population level effects (Joly et al. 2011). Joly et al. (2007) documented a decline in lichen cover in portions of the wintering areas of the WACH. Dau (2011, 2014) reported that degradation in range condition is not thought to be a primary factor in the decline of the WACH because animals in the WACH, unlike the TCH, have generally maintained good body condition since the decline began. Body condition is assessed on a subjective scale from 1-5. The body condition of adult females in 2015 were characterized as "fat" (mean = 3.9/5) with no caribou being rated as skinny or very skinny (Parrett 2015c). However, the body condition of the WACH in spring may be a better indicator of the effects of winter range condition versus the fall when the body condition of the WACH is routinely assessed and when caribou are in prime condition, and weights may be more reflective of summer range conditions (Joly 2015, pers. comm.). Fall condition is also the best indicator of whether or not caribou are likely to become pregnant (Parrett 2017a, pers. comm.).

Habitat

Caribou feed on a wide variety of plants including lichens, fungi, sedges, grasses, forbs, and twigs of woody plants. Arctic caribou depend primarily on lichens during the fall and winter but, during summer they feed on leaves, grasses and sedges (Miller 2003). The importance of high use areas for the TCH at Teshekpuk Lake during the summer has been well documented (Person et al. 2007, Carroll 2007, Parrett 2011, Wilson 2012, Smith et al. 2015). Presumably the importance of areas to the north, south, and east of Teshekpuk Lake during calving is due to the high concentration of sedge-grass meadows (Wilson et al. 2012) and extremely low predator densities (Parrett 2017a, pers. comm.). In 2013 BLM closed 3.1 million acres around Teshekpuk Lake in the NPR–A to oil and gas development in recognition of the importance of these areas for caribou, waterfowl and shorebirds (BLM 1998, 2008, 2013; Cameron et al. 2005, Arthur and Del Vecchio 2009).

Harvest History

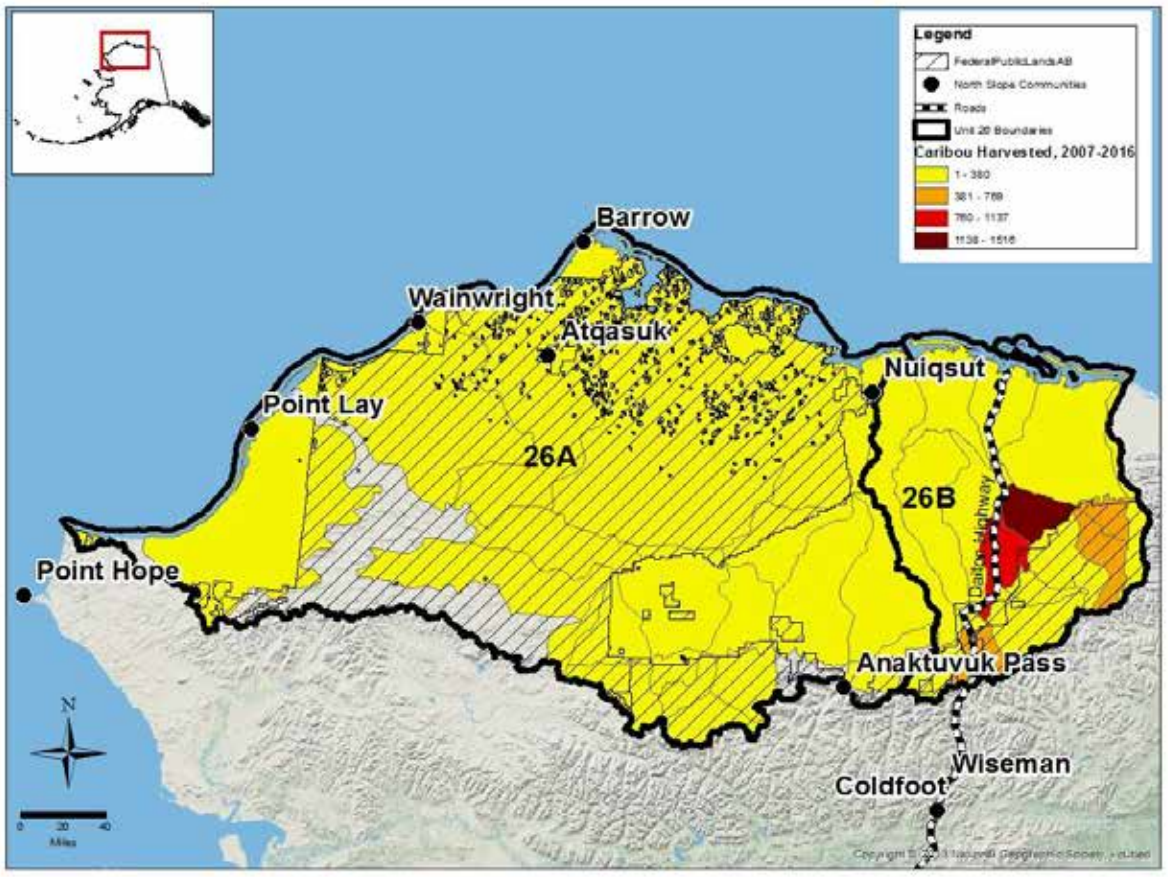
Reliance on caribou from a particular herd varies by community. Weather, distance of caribou from the community, terrain, and high fuel costs are some of the factors that can affect the availability and accessibility of caribou (Parrett 2015a). Local residents for Units 23, 26A and 26B are defined as those having customary and traditional use in these units. Point Hope, which is located in Unit 23, and Anaktuvuk Pass, which is located in Unit 24B near the border with Unit 26A, are included in this analysis because they have a Customary and Traditional Use for caribou in Units 26A and 26B. Documentation of harvest for Alaska residents has varied depending on whether they live north or south of the Yukon River. Prior to 2017/2018, Alaska residents who lived north of the Yukon River were not required to obtain harvest tickets although they were required to register with ADF&G or an authorized vendor. Compliance with registration requirement was low and not enforced (Braem 2017a, pers. comm.). Harvest by Alaska residents who live south of the Yukon River and nonresidents was monitored using harvest reports (Lenart 2015, Dau 2015a).

Understanding the overlap between caribou hunting by local users and nonlocal users is complicated by the lack of annual information on the exact location, harvest numbers, and caribou herd used by local hunters. Recently-enacted State regulations requiring registration permits for residents hunting caribou within the range of the Western Arctic and Teshekpuk herds in Units 21, 23, 24, and 26 seek to improve harvest monitoring and allow for more detailed analysis of harvest trends and distribution.

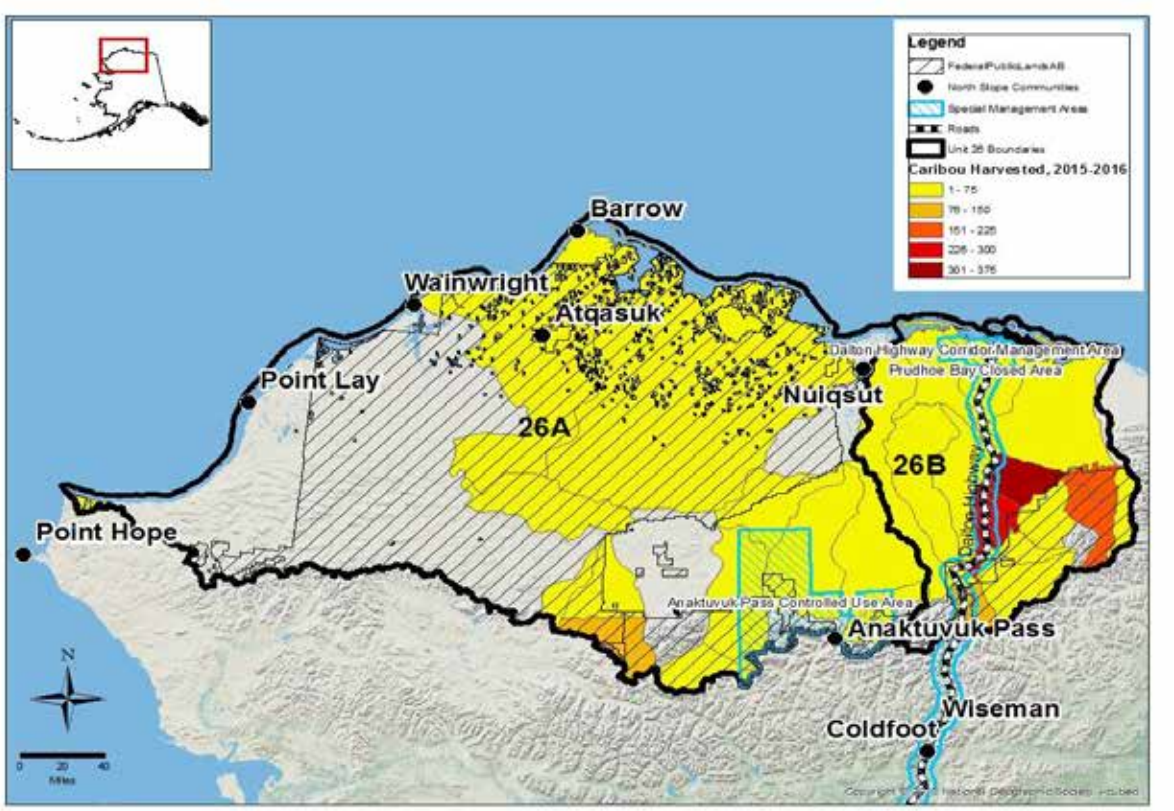
Generalized caribou harvest patterns by NFQU in Units 26A and 26B, which are based on specific areas within the Units (Uniform Coding Unit –UCU) includes nonresidents and nonlocal residents of Alaska from 2007-2016, are shown in **Map 3**. It should be noted that the displayed spatial data is reflective of reported harvest records with locational data at fine scales; records lacking spatial specificity are not represented. Assuming unreported data is proportional to available data, **Maps 3-6 and 8-10** represent general spatial harvest patterns. Between 2007 and 2016, a total of 9,429 caribou were harvested by NFQU in Units 26A and 26B. Among those, 6,405 (66%) were from nonlocal Alaska residents and 3,024 (34.0%) from nonresidents (ADF&G 2017a). All the hunting in the Unit that extends from the Arctic Coast south along the western boundary of Unit 26B occurs in the Toolik Lake area which is very near the Dalton Highway at the southern end of the UCU. Hunter success was greater in the DHCMA north of the area where the Echooka River crosses the road, on State land adjacent to the Ivishak and Echooka Rivers, and in an area farther east in the Arctic NWR which is typically accessed by airboats using the Ivishak and Echooka Rivers (WIRAC 2016:100-101).

Harvest patterns by NFQU from 2015-2016, the period when the more restrictive Federal and State caribou regulations were in place, are shown in **Map 4**. Between 2015 and 2016, a total of 2,392 caribou were harvested by NFQU in Units 26A and 26B. Among those, 1,265 (53%) were from nonlocal Alaska residents and 1,126 (47.0%) from nonresidents (ADF&G 2017a). The core areas used during the 10 year assessment were essentially the same following the new more restrictive caribou regulations. In 2015-2016, NFQU harvested fewer caribou in the northwest corner of the Arctic NWR and harvested more caribou in the State areas adjacent to the Arctic NWR and southern portion of the DHCMA than in 2013-2014. Between 2013 and 2014, a total of 1,976 caribou were harvested by NFQU in Units 26A and 26B. Among those, 1,152 (58%) were from nonlocal Alaska residents and 824 (42%) and from nonresidents

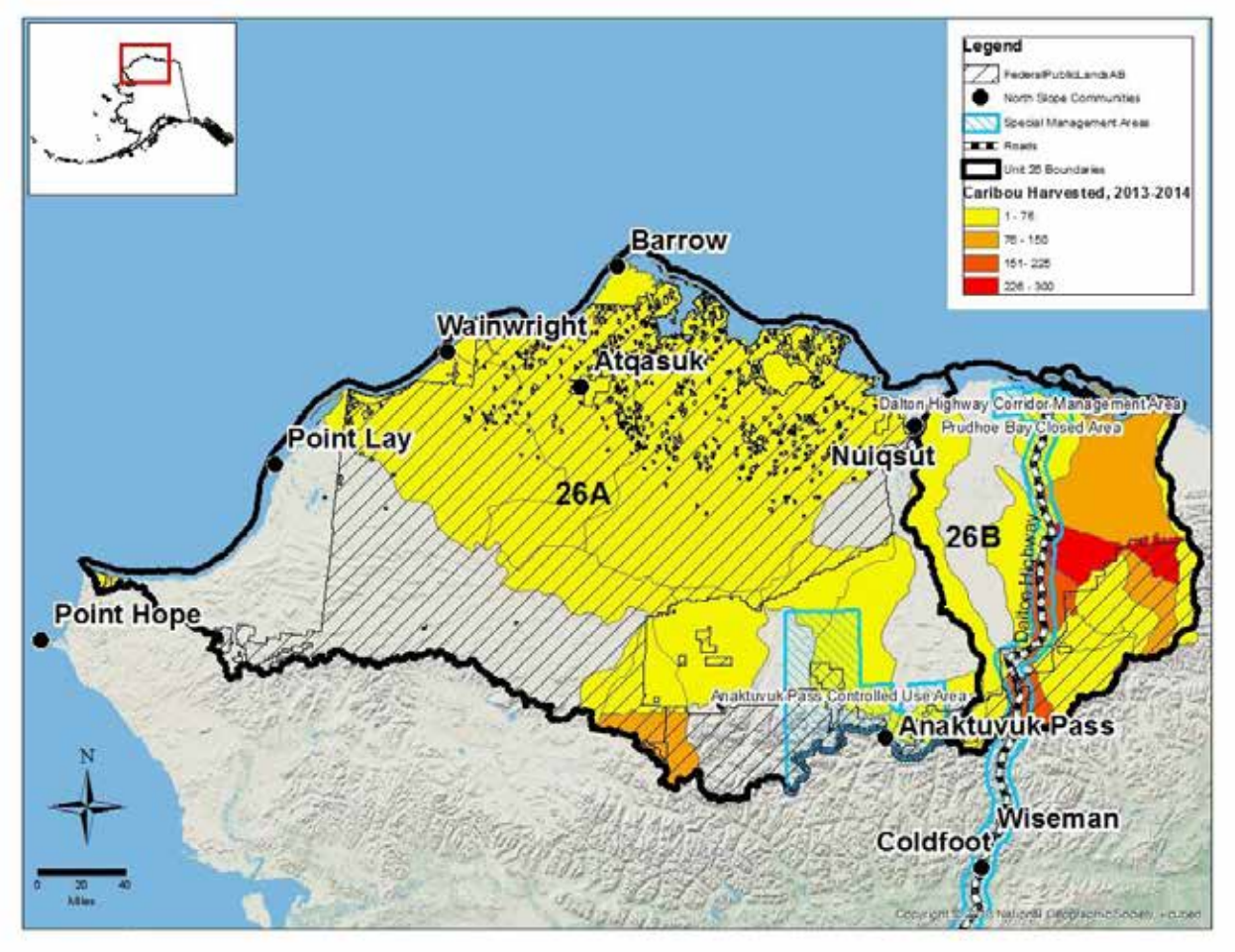
(ADF&G 2017a). Comparison of the two year period from 2013-2014 (**Map 5**) with 2015-2016 (**Map 4**) shows an increase in 2015-2016 of the harvest within the vicinity of Anaktuvuk Pass in Unit 26A. These changes in harvest patterns may be due in part to hunters shifting hunting areas and intensity to areas within Unit 26A and 26B in response to changes in the movement of the caribou herds as a result of the closure of Federal public lands to caribou hunting by NFQU in Unit 23 in 2016/2017.



Map 3. Reported caribou harvest in Units 26A and 26B from the WACH, TCH, and CACH by NFQU, 2007-2016 (WinfoNet 2017).



Map 4. Reported caribou harvest in Units 26A and 26B from the WACH, TCH, and CACH by NFQU , 2015-2016 (WinfoNet 2017).



Map 5. Reported caribou harvest in Units 26A and 26B from the WACH, TCH, and CACH by NFQU , 2013-2014 (WinfoNet 2017).

Central Arctic Caribou Herd

Although most of the harvest from the CACH comes from Unit 26B some occurs in Units 24A, 24B, 25A, 26A, and 26C. Harvests in summer and early fall that occur in Units 24A, 24B, 25A, and 26C are be primarily from other herds such as the PCH, TCH, or WACH. Additional harvest from the CACH may occur when it is near Kaktovik (Unit 26C) in the summer, near Wiseman and Coldfoot (Unit 24A) in the fall and winter, and near Arctic Village (Unit 25A) in the fall and winter (**Figure 6**). During the fall and winter some caribou from the TCH and WACH occasionally mix with the CACH. For the purposes of documenting the annual harvest from the CACH from community harvest surveys by local residents outside of Unit 26B, Lenart (2017a) used an estimate of 100 caribou (Lenart 2017b) (**Table 4**). Harvest information presented for the CACH will refer to Unit 26B unless noted otherwise.

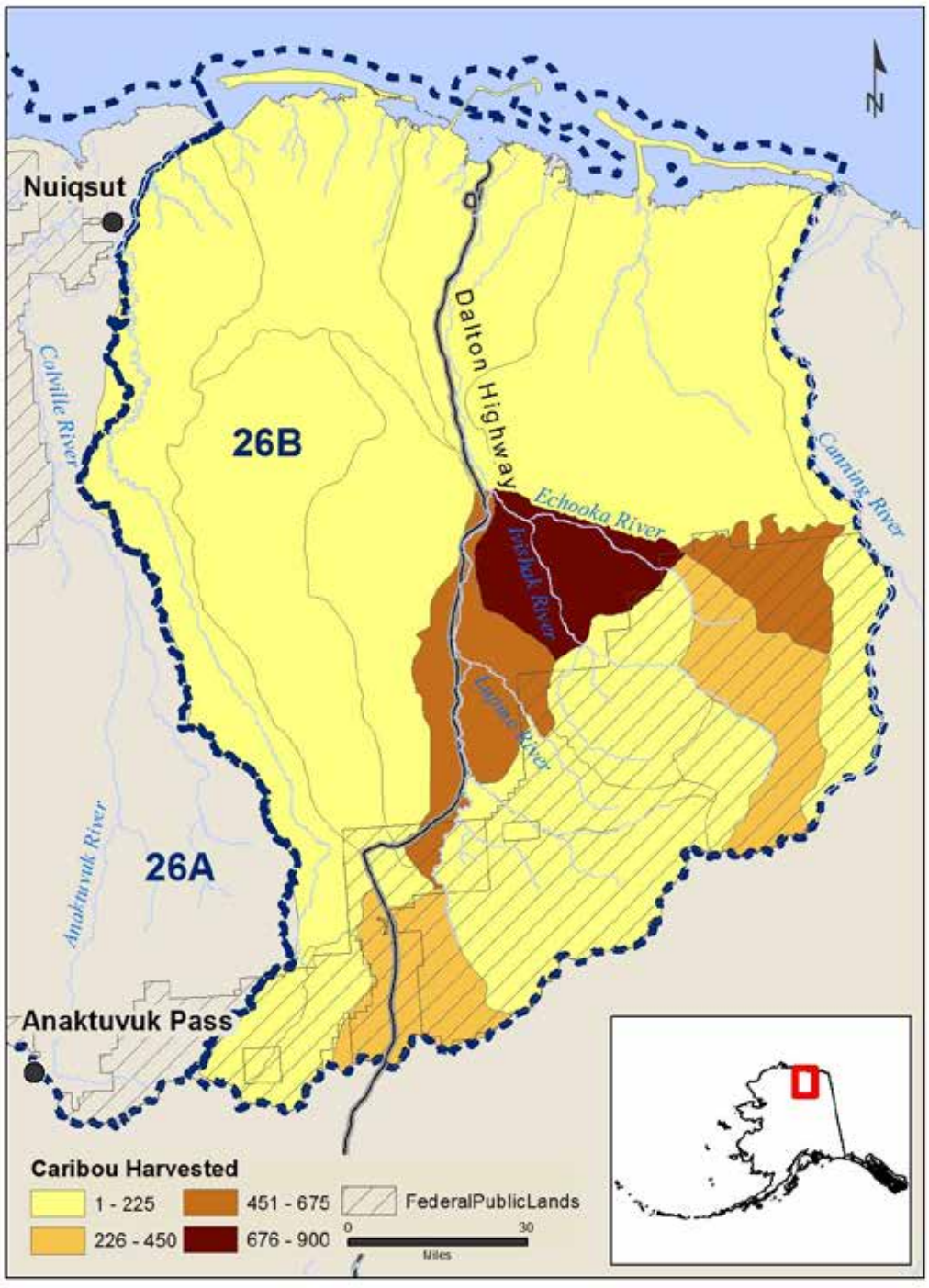
Harvest by local hunters from Nuiqsut occurs in the summer and fall, from July through September, and during the spring, from March through April (Braem et al. 2011, Brown et al. 2016). A little more than 50% of the caribou harvest taken by Nuiqsut hunters occurs in the summer and fall and is from both the

TCH and CACH (Lenart 2015). Nuiqsut hunters, who usually hunt west of the community, represent most of the local harvest from the CACH. Based on the distribution of caribou and the timing and location, Braem et al. (2011) estimated that 13% of the total harvest between 2002 and 2007 by Nuiqsut residents was in Unit 26B, just west across the border with Unit 26A where the community is located. Braem et al. (2011) estimated that Nuiqsut hunters averaged approximately 61 caribou from the CACH annually from 2002 and 2007. The average total annual caribou harvest by Nuiqsut hunters, which includes TCH and CACH, from 2000-2006 was 474 caribou. In 2014, 774 caribou were estimated to have been harvested by Nuiqsut residents (Braem 2015). Harvest by local hunters as documented by community surveys, Nuiqsut residents harvested approximately 317 caribou (41%) from the CACH in 2014 (Braem 2017b). In 2014, Nuiqsut residents harvested caribou in all months except May. The most productive months were June (114), July (189), and August (215). Harvest declined sharply after August, only 73 caribou were harvested in September. The fewest caribou were taken in April (2) and November (4). There were 43 caribou harvested for which the date of harvest was not known. Of the caribou harvested in 2014, 72% were bulls. An estimated 166 cows were harvested in 2014 with 45% being harvested in January and February (Brown et al. 2016).

The average annual CACH harvest from 2013/14 to 2015/16 in Unit 26B was approximately 937 caribou. (**Table 4**) (Lenart 2017a, WinfoNet 2017). Bow hunters took approximately 21% of the total harvest during this time. The average number of bulls harvested annually from the CACH from 2012-2015 was 699 and the average number of cows harvested was 234 (**Table 4**). A majority of the reported caribou harvest from the CACH occurs in August and September (Lenart 2015).

The proportion of resident and nonresident harvest has fluctuated with CACH population trends (**Figure 6, Table 5**). In general resident harvest has decreased with the recent population decline and the nonresident harvest has increased slightly (**Figure 6, Table 5).** Nonlocal residents accounted for 89% of the total caribou harvest from 2013-2015, which is approximately 827 caribou annually (Lenart 2017a). The location and total caribou harvest by NFQU hunters from the CACH during the population decline from 2011-2016 is shown in **Map 6**. Between 2011 and 2016, a total of 5,049 caribou were harvested by NFQU in Unit 26B. Among those, 3,433 (68%) were from nonlocal Alaska residents and 1,616 (32%) and from nonresidents (WinfoNet 2017). The annual cow harvest by NFQU in Unit 26B increased from 47 in 2006-2009 to 234 in 2010-2016 (**Figure 7**). This increase coincided with the change in the harvest limits from two to five caribou and harvest season for cows from Oct.1-Apr. 30 to July 1-Apr. 30 in the 2010 State regulations.

Although a harvest rate of 5% of the population has been used as a guideline by ADF&G since 1991 to determine the allowable harvest, the reported harvest has been well below the harvestable surplus, averaging less than 2% since 2000/01 (Lenart 2015). However, with the recent population decline, Lenart (2017a) recommended a harvest level of 3% of the population. ADF&G adopted new caribou regulations for Unit 26B in 2017/2018 with the intended goal of reducing the annual harvest from an average of 937 caribou from 2013-2015 to 680 (3% of 22,360) and reduce the cow harvest from approximately 200 to 75 (Lenart 2017a).



Map 6. _Reported caribou harvest in Unit 26B from the CACH by NFQU during the population decline 2011-2016 (WinfoNet 2017).

Table 4. Reported harvest from the Central Arctic Caribou Herd by sex and method of take in Alaska, 2006-2015 (Braem et al. 2011, Braem 2015; Lenart 2013, 2015, 2017a; ADF&G 2017b).

[a] Estimated yearly average from Unit 26A residents from community harvest surveys, Kaktovik and

Regulatory Year[a]	Male	Female	Unit 26A Residents[a]	Total Harvest (# harvested by bow)[b]	Total Hunters
2006/07	795	32	100	927 (301)	1,331
2007/08	596	65	100	761 (183)	1.380
2008/09	658	47	100	805 (180)	1,362
2009/10	750	45	100	895 (224)	1,317
2010/11	976	234	100	1,310 (296)	1,622
2011/12	808	344	100	1,252 (330)	1,401
2012/13	727	276	100	1,103 (285)	1,430
2013/14	721	134	100	955 (190)	1,423
2014/15	717	195	100	1,012 (198)	na[c]
2015/16	522	222	100	844 (92)	na[c]
Mean	699	234	100	1,033 (219)	–

Nuiqsut

[b] Total includes bow harvest and harvest from Unit 26A residents

[c] Not available

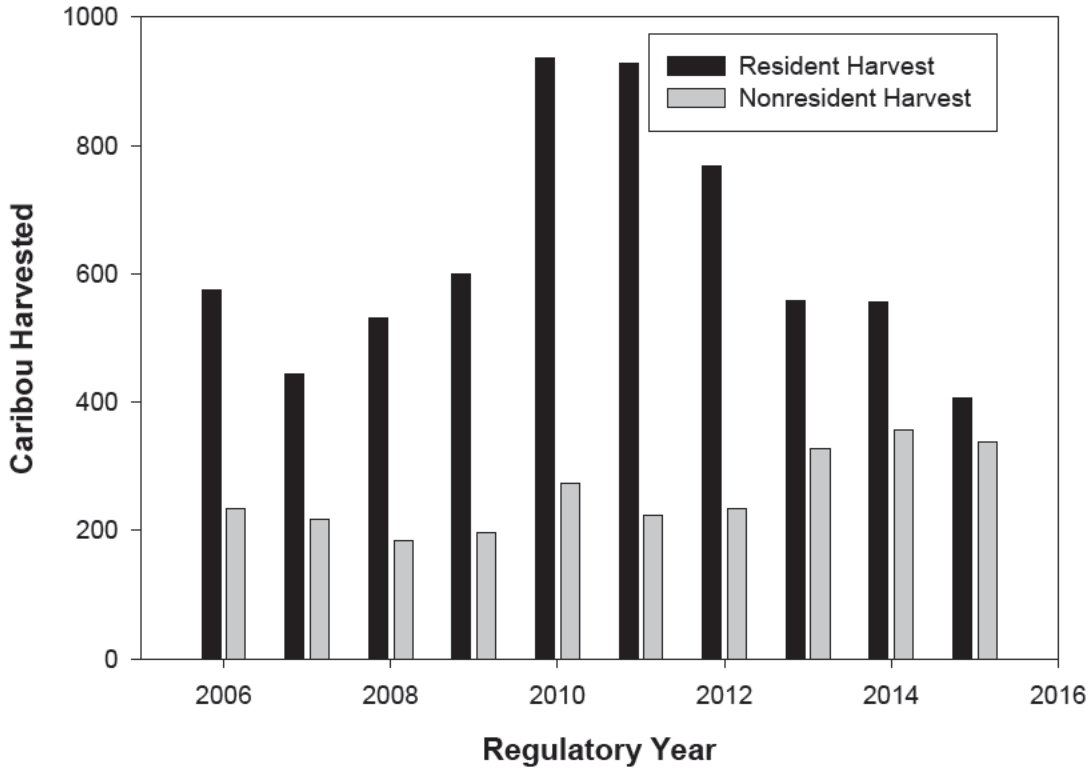


Figure 6. Reported CACH harvest by residency, 2006-2015.

Table 5. Characteristics of the Central Arctic Caribou Herd average annual harvest in Unit 26B by residency, 2013-2015. The proportion of the total Unit 26B caribou harvest by residency for 2006-2015 is included for comparison (Lenart 2017a).

Residency	Total CACH Harvest	Female CACH Harvest	Proportion of the Harvest (%) 2013-2015	Proportion of the Harvest (%) 2006-2015	Hunters	Success Rate (%)
Unit 26A Residents	100	20	11%	10%	na	na
Other Alaskan Residents	490	158	53%	64%	910	38%
Nonresident	340	24	36%	26%	430	62%
Total	930	202	-	-	-	-

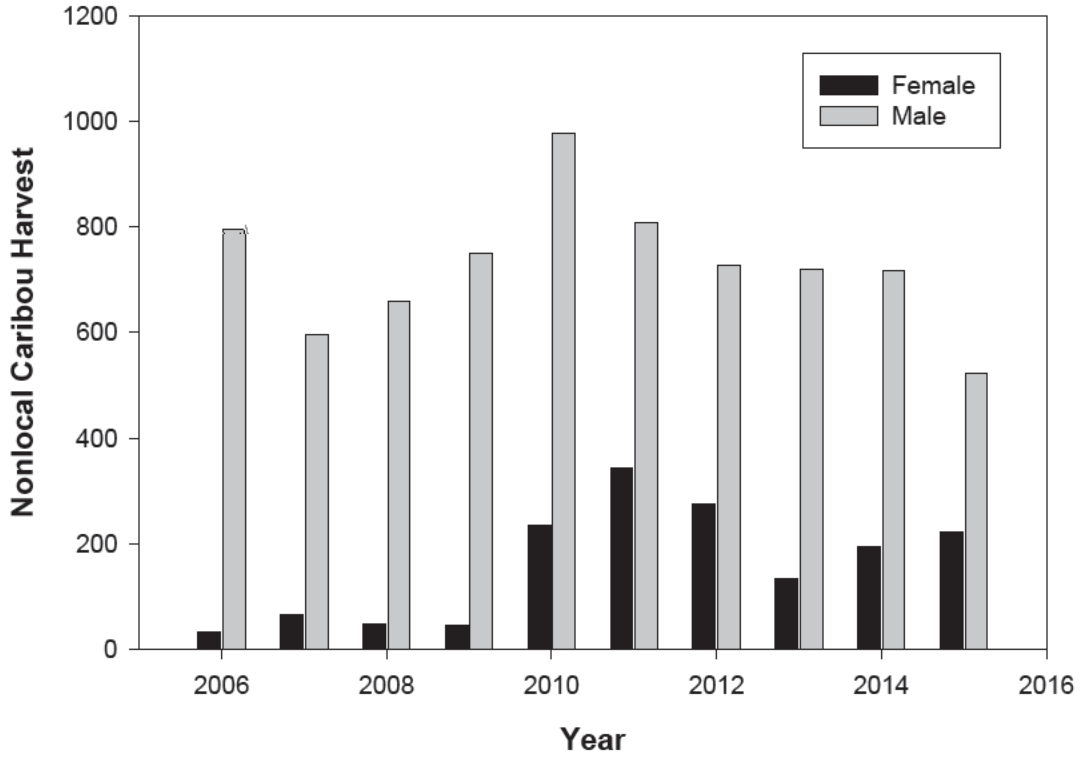
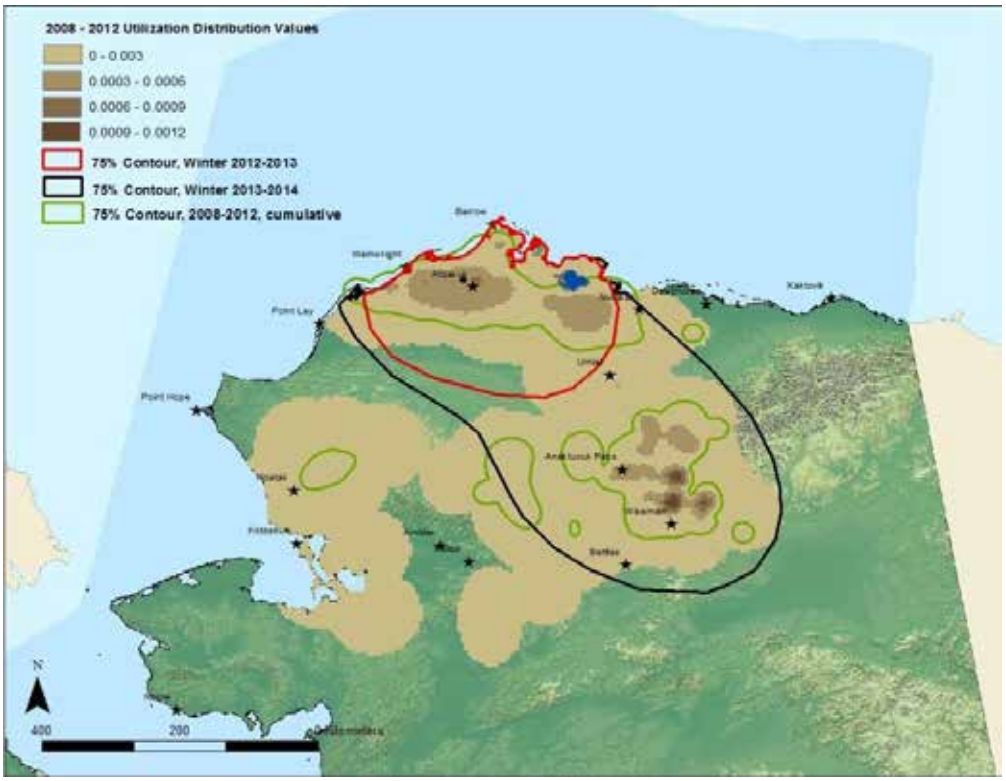


Figure 7. Central Arctic caribou herd harvest by sex by Nonlocals in Unit 26B, 2006-2016

Teshekpuk Caribou Herd

The TCH annual caribou harvest is 4,000-5,000 year (Parrett 2015a). Most of the harvest is by local Federally qualified subsistence users (FQSU). Less than 1% of the TCH harvest is by nonlocal residents in Alaska and nonresidents (Parrett 2011, Parrett 2015a). Residents of Atqasuk, Utqiagvik, Nuiqsut, and Wainwright harvest caribou primarily from the TCH while residents from Anaktuvuk Pass, Point Lay, and Point Hope harvest caribou primarily from the WACH (**Table 6**) (Dau 2011, Parrett 2011). For example the TCH winter range did not overlap Anaktuvuk Pass in 2012/2013 but did in 2013/2014 (**Map 7**). Residents of Nuiqsut, which is on the northeast corner of Unit 26A, harvested approximately 77% and 86% of their caribou from the TCH between 2002 and 2007 and 2010 and 2011, respectively (Parrett 2013). A little more than 50% of the caribou harvest taken by Nuiqsut hunters occurs in the summer and fall and is from both the TCH and CACH (Lenart 2015). Although some harvest from the TCH occurs outside of Unit 26A in Units 23, 24, and 26B, it is unlikely that the overall harvest is significant when the TCH is mixed with other caribou herds (Parrett 2013, 2015a).



Map 7. Cumulative Teshekpuk caribou herd winter range, Alaska, 2008-2012, with utilization distribution values depicted in shades of brown, 75% kernel contour from the 2008-2012 in green. The 75% contours from the two individual winters from 2012-2014 are depicted by the red and black outlines (Parrett 2015a).

Range overlap between the three caribou herds, frequent changes in the wintering distribution of the TCH and WACH, and annual variation in the community harvest survey effort and location make it difficult to determine the proportion of the TCH, WACH and CACH in the harvest. Knowledge of caribou distribution at the time of the reported harvest is often used to estimate the proportion of the harvest from each herd. Community harvest surveys continue to be the preferred method to estimate harvest by FQSU, since previous attempts to conduct registration hunts were not effective (Georgette 1994, Parrett 2015a).

The use of harvest tickets required by nonlocal hunters provides time and location of the harvest and, together with knowledge of the caribou distribution and allows for a more accurate assessment of the proportion of caribou harvested from each herd. For harvests by FQSU, analysis of the proportional harvest from different herds has been difficult due to poor or non-existent reporting, variation in the timing and effort of community harvest surveys, changes in the distribution and timing of TCH migration, and overlapping distribution with adjacent herds. However, previous efforts from 2002-2007 determined that Utqiagvik residents harvest primarily from the TCH (Parrett 2013, Braem 2017b). If used throughout the range harvest tickets would allow for better tracking of the FQSU harvests with respect to the overlapping caribou herds.

For communities where harvest surveys have not been conducted or the estimates are unreliable, the Division of Wildlife Conservation estimated annual harvests based on the current community population, previous per capita harvest estimates,and yearly caribou availability. A general overview of the relative utilization of caribou herds by community from 2008/09 to 2009/10 is presented in **Table 6** (Parrett 2011, Dau 2011, and Lenart 2011). These years were chosen because there was good separation between the herds during this period. The total estimated annual harvest from the TCH during 2008/09 (3,219 caribou) (Parrett 2011) was similar to 2012/13 and 2013/14 (3387 caribou) (Parrett 2015a) **(Table 6**). Most of the caribou harvest in 2012/2013 and 2013/2014 occurred in August and September (Parrett 2015a). The estimated annual harvest during 2012/13 and 2013/14 using this method was approximately 3,387 (Parrett 2015a).

Table 6. Estimated caribou harvest of the Teshekpuk, Western Arctic and Central Arctic caribou herds during the 2008/2009 regulatory years by FQSU in Unit 26A (Parrett 2011, Dau 2011, Lenart 2011, Sutherland 2005). Note: Due to the mixing of the herds, annual variation in the community harvest surveys and missing data, the percentages for each community do not add up to 100%.

Community	Human population[a]	Per capita caribou harvest[bc]	Approximate total community harvest	Estimated annual TCH harvest (%)[d]	Estimated annual WACH harvest (%)[d]	Estimated annual CACH harvest (%)[d]
Anaktuvuk Pass	298	1.8	524	157 (30)	431 (82)	
Atqasuk	218	0.9	201	197 (98)	6 (2)	
Barrow (Utqiagvik)	4,127	0.5	2,063	2,002 (97)	62 (3)	
Nuiqsut	396	1.1	451	388 (86)	3 (1)	58 (13)
Point Lay	226	1.3	292	58 (20)	210 (40)	
Point Hope	689	0.3	220	0	220 (100)	
Wainwright	547	1.3	695	417 (60)	48 (15)	
Total Harvest				3,219	980	58

[a] Community population size based on 2007 census estimates
[b] Citations associated with per-capita caribou harvest assessment by community can be found in **Table 5** (Parrett 2011).
[c] Sutherland (2005)
[d] Percent of the total community harvest

The harvest estimate for Utqiagvik, from household surveys conducted by ADF&G in 2014/15 was 4,231 caribou (Braem 2015). Based on data collected by the North Slope Borough Wildlife Department the average annual harvest estimate for Utqiagvik from 1992-2003 was 2096 caribou (Braem 2015). Currently the harvestable surplus for the TCH is estimated to be approximately 2,500 at a 6% harvest rate. A conservative estimated harvest rate for the period between 2012/13 to 2013/14 is approximately 10% of the 2013 (3,917 caribou) population estimate of 39,172 (range 32,000-45,000) (Parrett 2015a). However, due to the mixing of TCH with the WACH and CACH, lack of annual harvest data for FQSU and lack of spatial data it is difficult to determine the actual TCH harvest. The conservative TCH harvest rate of

10% is almost double the harvest rate estimates for the WACH and CACH (Parrett 2015a) and a conservation concern. If the TCH population declines to below 35,000 the harvest rate may be reduced to 4-5%, assuming that the harvest composition remains consistent at approximately 15% bulls and 2% cows (Parrett 2017a, pers. comm.).

Due to the remoteness and inaccessibility of much of the area most of the TCH harvest is by local hunters (Parrett 2015a). TCH harvest by local hunters in recent years occurs primarily from July to October (Braem et al. 2011, Parrett 2011, Braem 2015) whereas nonresidents and nonlocal residents typically harvest most of their caribou from the WACH, along the Colville River drainage, in August and September (Parrett 2015a). For example, greater than 95% of the caribou harvested by nonresidents and nonlocal residents in 2012/13 and 2013/14 occurred in August and September (Parrett 2015a). The nonresident and nonlocal resident harvest from the TCH, which averages about 100 caribou a year or 3% of the total TCH harvest, is split evenly between the nonlocal and nonresidents (Parrett 2013).

Western Arctic Caribou Herd

Annual caribou harvest by local residents is estimated from community harvest surveys, when available. In 2015 the linear model (Sutherland 2005) used to estimate caribou harvests by hunters who live within the range of the WACH was replaced by a new analysis of covariance developed by Adam Craig, a biometrician with ADF&G's Division of Wildlife Conservation Region V (Arctic and Western Alaska). These models incorporate factors such as community size and availability of caribou (Dau 2015a). Craig's models replaced models developed by Sutherland (2005) in 2015, resulting in changes to local caribou harvest estimates from past years. While Craig's model accurately reflects long-term trends in annual local harvests, it is too insensitive to detect short-term changes in harvest levels useful to real time management decisions to regulate harvests and does not accurately reflect actual harvest levels or harvest levels by Unit (Dau 2015a). This analysis only considers the updated harvest estimates using the new model from Dau (2015a). The accuracy of harvest reporting by locals may improve with the requirement for harvest tickets for those that live north of the Yukon River. Caribou harvest by NFQU is based on harvest ticket reports (Dau 2015a).

From 2000–2014, the estimated harvest from the WACH averaged 11,984 caribou/year, ranging from 10,666-13,537 caribou/year (**Figure 8**) (Dau 2015a). The total harvest during 2012/13 and 2013/14 was 13,352 and 12,713 caribou, respectively. These harvest estimates assumed that 95% of all caribou harvested by nonlocal hunters in Unit 26A were from the WACH and the remainder from the TCH. Using the 2011 and 2013 population estimates the total annual harvest during 2012/13 and 2013/14 was approximately 4-5% of the population (Dau 2015a). These harvest levels are within or below the conservative harvest level specified in the WACH Management Plan (**Table 2**). However, harvest estimates do not include wounding loss or caribou killed but not salvaged, which may be hundreds of caribou (Dau 2015a). Local residents, as defined as living within the range of the WACH, account for approximately 95% of the WACH harvest, with residents of Unit 23 accounting for the approximately 58% (**Figure 9**) (Parrett 2017a, pers. comm.). Approximately 37% of the annual WACH harvest is taken by the local residents in Unit 26A, 26B, and 24B (**Figure 9**).

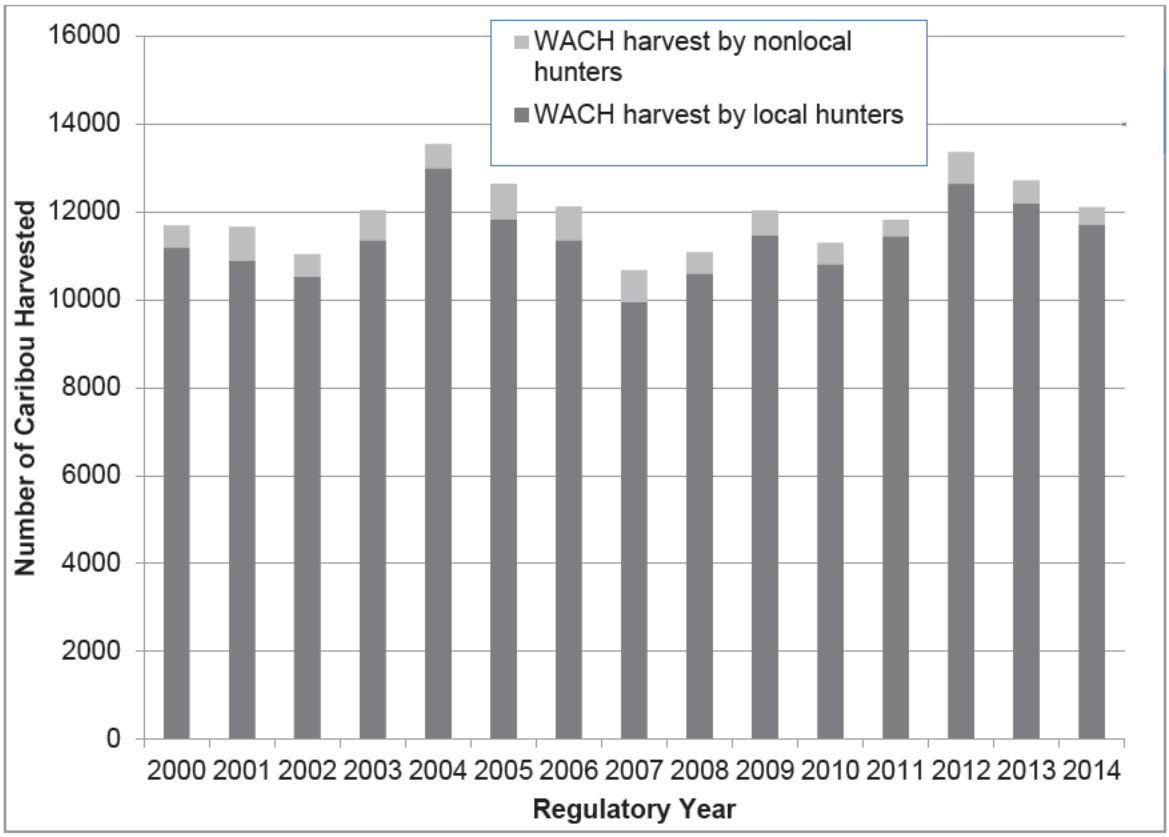


Figure 8. Estimated number of caribou harvested from the WACH by residency (Dau 2015a).

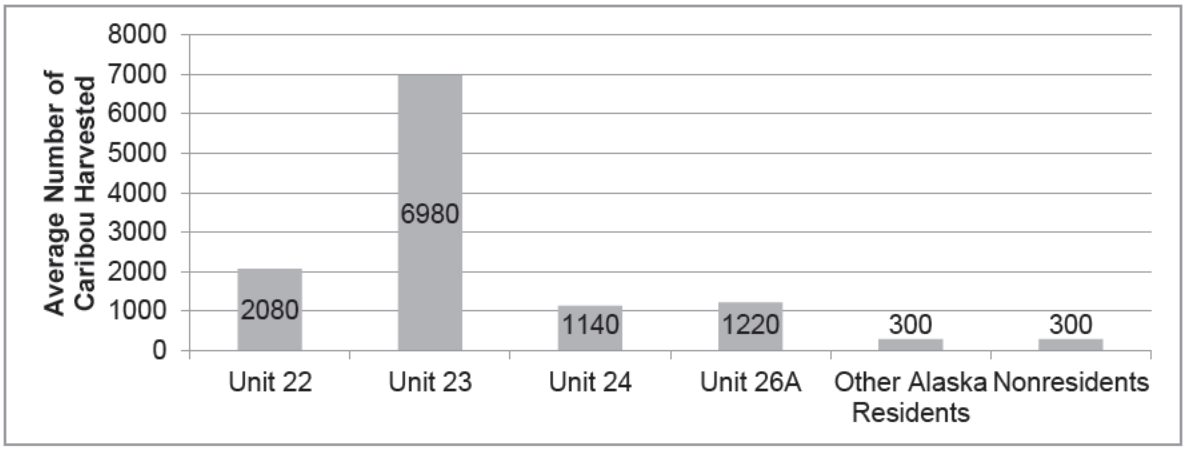


Figure 9. Average WACH annual caribou harvest by unit and residency from 1998-2015 (Parrett 2017a, pers. comm.).

From 2001-2013, total average annual nonlocal WACH harvest was 598 caribou (range 421-793) (**Figure 10**). Over the same time period, nonlocal WACH harvest from Units 26A, 26B, and 24B averaged 102 caribou/year (range 60-144) (**Figure 10**). Nonlocal WACH harvest from Unit 23 and Units 26A, 26B, and 24B combined accounts for 76% and 14% of the total nonlocal WACH harvest on average, respectively.

Between 1998 and 2014, the number of NFQU hunting caribou and the number of caribou harvested by NFQU in Unit 23 averaged 487 hunters (range: 404-662) and 511 caribou (range: 248-669), respectively (**Figure 11,** USFWS 2017). In 2015, after the BOG enacted restrictions, the number of NFQU and caribou harvested by NFQU decreased appreciably (340 hunters and 230 caribou). In 2016, during the closure of Federal lands to NFQU, the number of NFQU and caribou harvested by NFQU decreased even further (149 hunters and 111 caribou), although there may still be some outstanding 2016 harvest reports from nonlocal residents (**Figure 11,** WinfoNet 2017). Based on patterns in submission rates and timing of harvest reports, the State estimates a 50% reduction in the number of and harvest by nonlocal caribou hunters in Unit 23 during 2016/17 as a result of the closure (Parrett 2016b, ADF&G 2017c).

Based on those hunters that provided harvest ticket reports for Unit 26A, the number of nonresidents compared to Alaska residents outside the WACH range that harvested caribou from the WACH increased from 2011-2015 (**Figure 12**). Approximately 95% of the total Unit 26A caribou harvest was from the WACH and by residents within the WACH range (Dau 2013). The annual harvest by NFQU is a very small percentage (≈1%) of the total WACH harvest (**Figures 10 and 13)**. Female harvest by NFQU in Unit 26A averaged 10% (range 2-19) from 2006-2016.

Harvestable surplus for the WACH is calculated as 6% of the total population (Braem 2017a, pers. comm.) and when evaluated separately by sex is approximately 15% bulls and 2% cows (Dau 2015a). In recent years, as the WACH population has declined, the total harvestable surplus has also declined (Dau 2011, Parrett 2015a). In 2015/16, the combined TCH/WACH harvestable surplus declined from an estimated 13,250 caribou in 2014/15 to an estimated 12,400 caribou. While there is substantial uncertainty in the harvestable surplus estimates, the overall trend is decreasing and it is likely that sustainable harvest will soon be exceeded if the decline continues (Parrett 2015a, Dau 2015a). Of particular concern is the overharvest of cows, which has probably occurred since 2010/11 (Dau 2015a). Dau (2015a) states, "even modest increases in the cow harvest above sustainable levels could have a significant effect on the population trajectory of the WACH (14-29). Harvest from the WACH, which has remained fairly consistent, is one of the factors that prompted the BOG to enact restrictions to WACH and TCH caribou harvest in March 2015.

Using the percentage of harvest reported by community from the WACH in 2008/09 (**Table 6**) and the 2014 community harvest estimates for Utqiagvik, Anaktuvuk Pass, Nuiqsut, and Point Hope (Braem 2015) and the 2014 total nonlocal harvest (117 caribou) (ADFG 2017a), the total WACH caribou harvest for Unit 26A in 2014 was approximately 1,185 caribou. Adding another 120 caribou from Point Lay and Atqasuk (Parrett 2011) would bring the total to approximately 1,305 caribou harvested from the WACH in 2014 in Unit 26A. This year (2014) was chosen because this was the most recent community harvest records for the North Slope communities (Braem 2015).

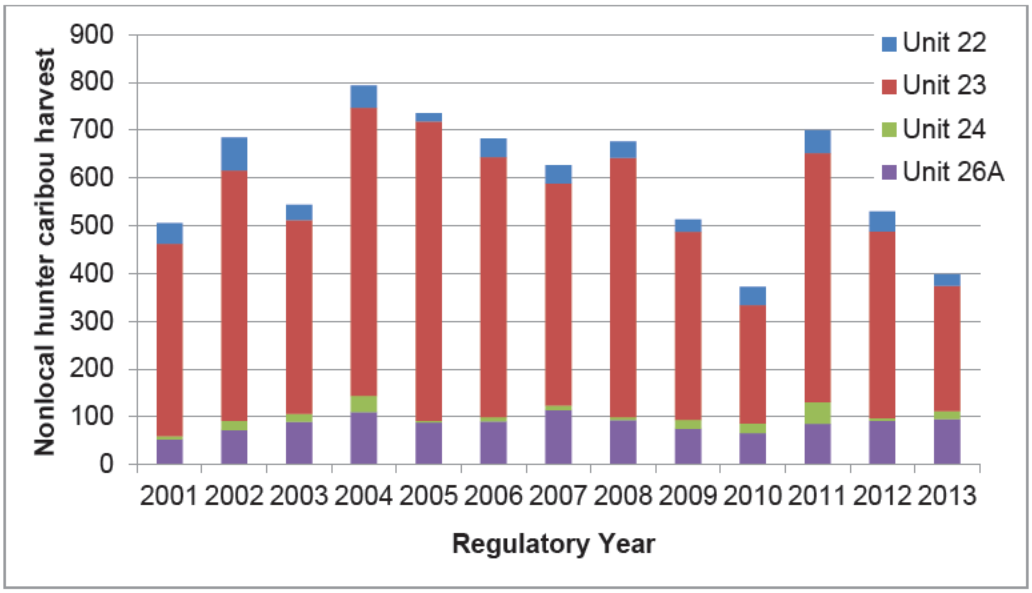
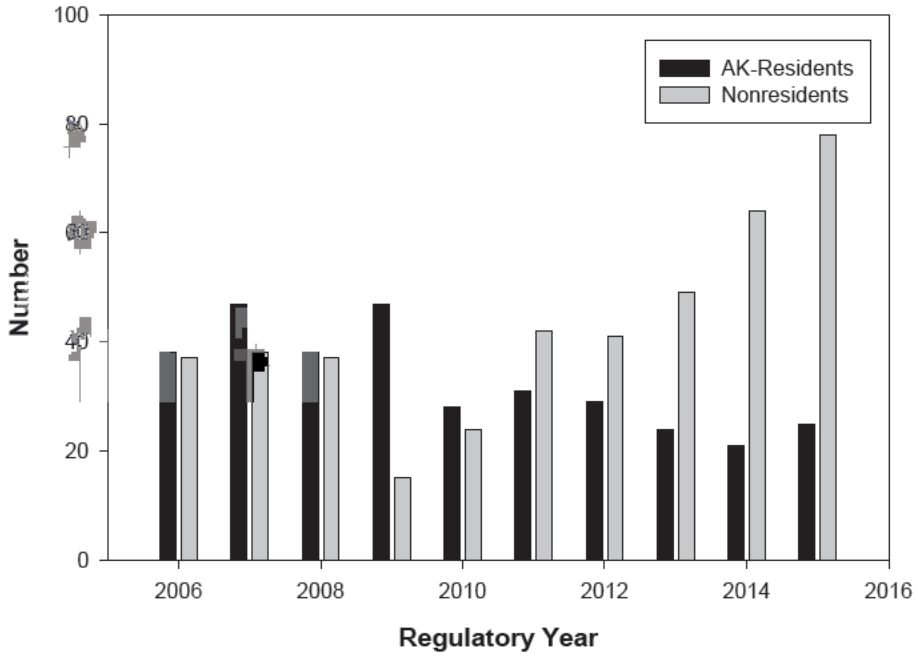


Figure 10. Nonlocal WACH harvest by unit (Dau 2015a, Dau 2013). Unit 21D was not included as only 0-2 caribou have been harvested from this unit each year.



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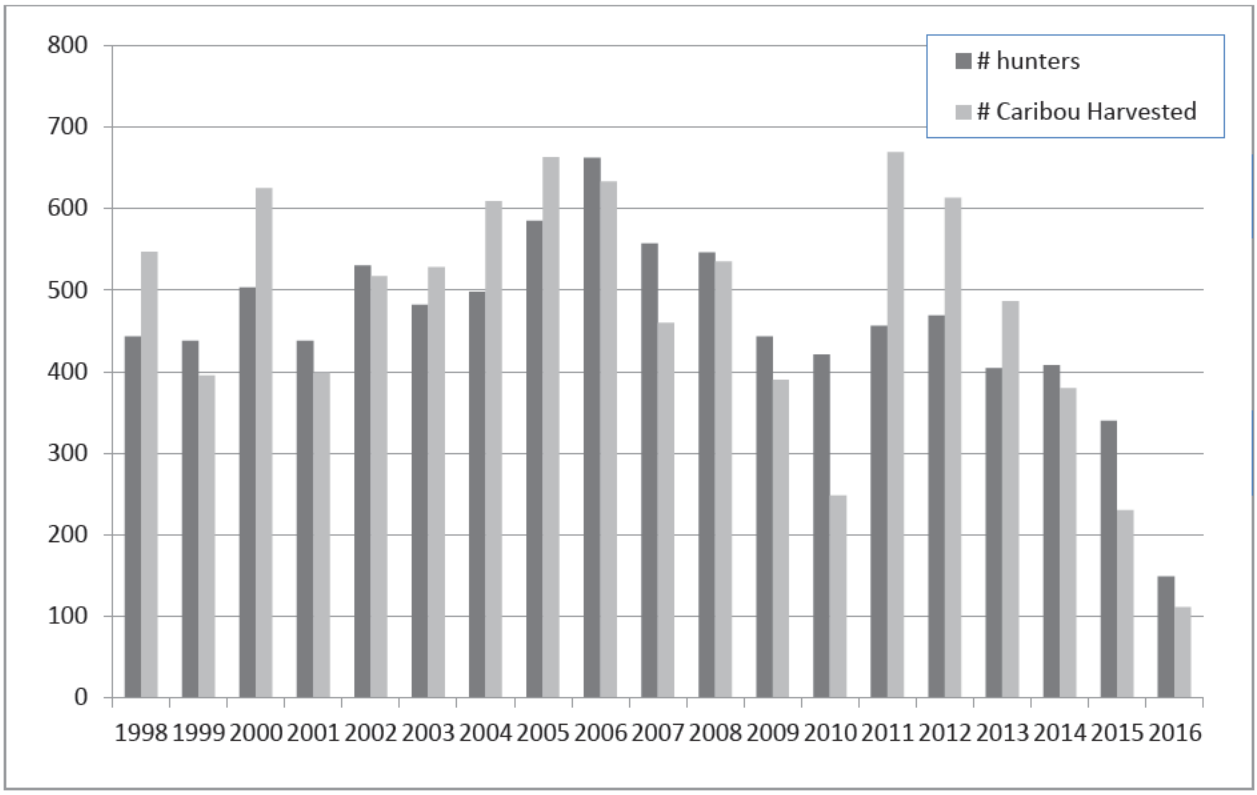

Figure 11. Number of non-Federally qualified users (NFQU) and number of caribou harvested by NFQU in Unit 23 (ADF&G 2016, FWS 2016, WinfoNet 2017).

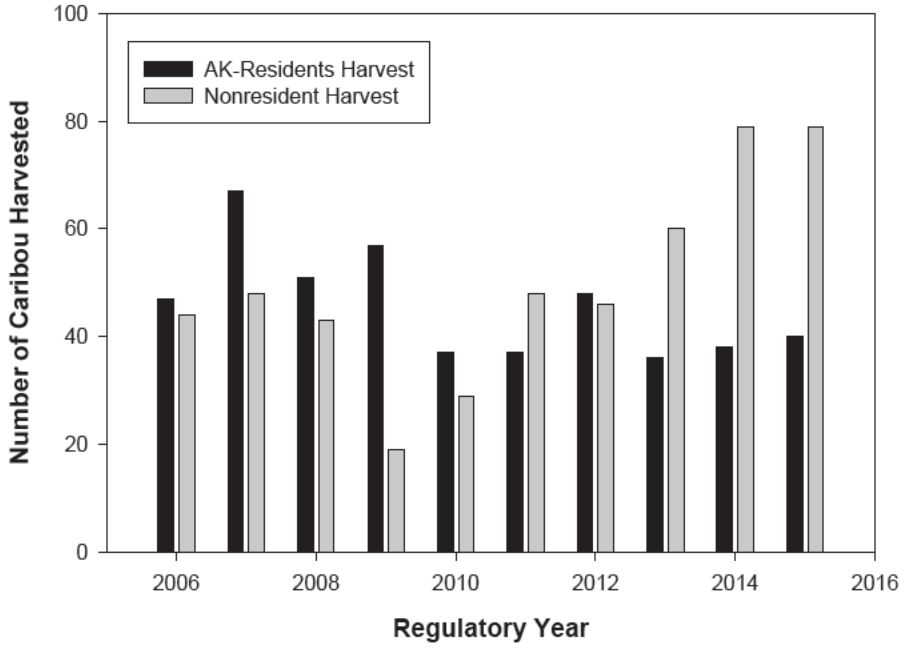

Figure 12. Residency of successful nonlocal caribou hunters from the WACH in Unit 26A, 2006-2015 (Dau 2013, 2015a).

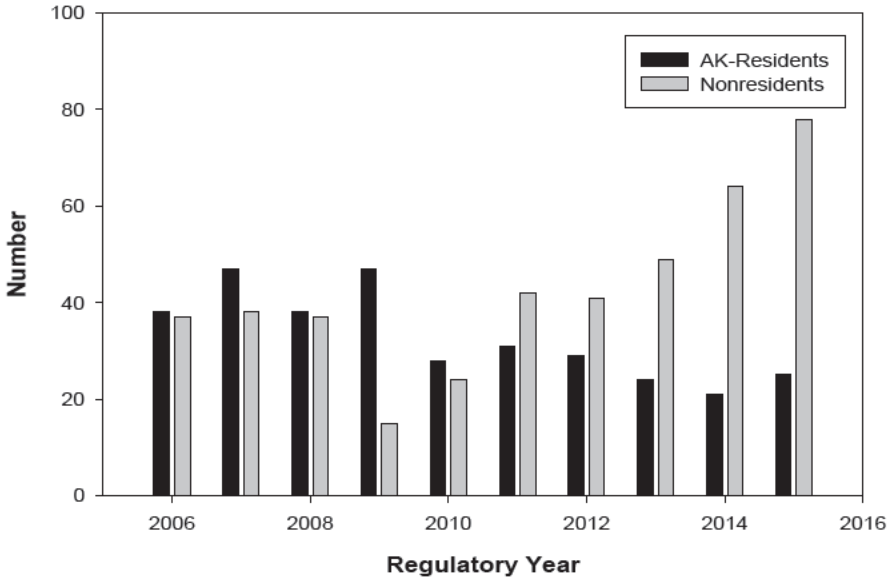

Figure 13. Nonlocal WACH harvest in Unit 26A, 2006-2015 (Dau 2013, ADF&G 2017b).

Cultural Knowledge and Traditional Practices

The archaeological record of the region extends 8,000 to 10,000 years before present and sites are scattered across the Brooks Range and the North Slope (Anderson 1984, Dumond 1984). Prior to 1840, the Inupiat people of the region were loosely organized in six groups or nations of small kin-based settlements (Burch 1980). These groupings largely disappeared by 1900 but communities still use the territories that preceded modern villages (Braem 2013).

Caribou are an important subsistence resource for the Inupiaq people of northern Alaska (Burch 1998, Spencer 1984). This is particularly true for inland communities such as Atqasuk and Anaktuvuk Pass where marine mammals are not available. While whaling communities tended to be more permanent, inland peoples traditionally tended toward annual and seasonal movements to reflect caribou migrations (Spencer 1984). The abandonment of this more mobile lifestyle has probably had significant consequences for the adaptability of hunters and their ability to meet subsistence needs. The two predominant modes of subsistence were intertwined by trading relationships between inland and coastal communities that sometimes helped to supplement dietary needs (Spencer 1984).

Historically the North Slope Inupiat hunted caribou year-round (Braem 2013). This continues today, with heavier harvests in certain months and seasons depending on the community (Braem 2013). A variety of methods were used to harvest caribou historically including spearing swimming animals, driving caribou into natural and manmade barriers, snaring, bow and arrow, and deadfalls (Braem 2013). Caribou drives

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allowed a large number of caribou to be harvested in a short time (Burch 2012, Spencer 1959, Murdoch 1988). These methods were replaced with firearms in the 19th century.

Burch (1988) described the importance of caribou for the people of Northwest. Caribou were used for sustenance but also for material to make parkas, underwear, socks, boots, mittens, and gloves (Braem 2013). Burch (1998) documented a unanimous preference for the late summer coats of caribou cow and calf hides, seen as providing both the softness and quality needed for high quality clothing, after the summer shedding and before acquiring a shaggy winter coat. While bulls were targeted for their fat stores and meat, cows and calves were targeted for their hides, considered prime during the early part of August (Burch 1998). The main objective for summer hunting was the acquisition of hides, "It reportedly took two calf skins to make one parka, and every hunter tried to get at least twenty of them" (Burch 1998:163).

Traditionally, coastal groups tended to store caribou frozen in ice cellars while inland groups more commonly stripped and dried the meat (Braem 2013). Today, caribou is frozen, dried, and eaten fresh (Braem 2013). As a food resource, caribou remain important to meeting the subsistence needs of Inupiaq families on the North Slope. In 1989 the coastal community of Wainwright harvested approximately 83,187 lb. of caribou (178 lb. per capita), representing 24% of the community's harvest in that year (ADF&G 2017c). Comparatively, Wainwright harvested approximately 243,594 lbs. of marine mammals (521 lb. per capita), representing 69% of the community's harvest (ADF&G 2017c).

In 2014, the inland community of Anaktuvuk Pass harvested approximately 104,664 lb. of caribou (330 lb. per capita), representing 84% of the community harvest in that year (Brown et al. 2016). Among the harvested animals, 51% were bulls, 39% were cows, and 10% were of unknown sex (Brown et al. 2016). Cows were primarily harvested between November and April while bulls were primarily harvested throughout the rest of the year (Braem 2015). Approximately 89% of Anaktuvuk Pass households reported using caribou in 2014, with 47% of households giving caribou away and 68% of households receiving caribou (ADF&G 2017c); use and sharing of caribou in this community remains high and has led to food security concerns in recent years when caribou migration patterns shifted away from the community.

In addition to Anaktuvuk Pass, ADF&G conducted surveys in Point Hope, Nuiqsut, and Utqiagvik in 2015 for the 2014 harvest year (Brown et al. 2016). Anaktuvuk Pass' per capita harvest was highest (2.4 caribou; 315 lb. edible weight per capita) but the total number of harvested caribou was modest (770 caribou). Point Hope represented the lowest caribou harvest by number of animals (185) and by per capita edible weight (34 lb.). Utqiagvik, the largest community in the region, harvested 4,231 caribou in 2014, representing 103 lb. per capita of edible weight.

Residents from communities along the DHCMA have documented use of caribou from CACH, TCH and WACH. Holen et al. (2012) and Brown et al. (2016) documented that the 2011 caribou hunting areas followed the DHCMA north from Wiseman up to Galbraith and Toolik lakes in Unit 26. In addition there were two small caribou hunting areas near Wiseman and Nolan (**Appendix A**). Some of the respondents interviewed from Wiseman during the community harvest surveys in 2011 noted that hunting pressure on caribou and Dall Sheep from nonlocal hunters had increased substantially making it harder

for local residents to meet their harvest goals (Holen et al. 2012, p 376-378). Residents from Coldfoot also mentioned that overharvesting was depleting the CACH, TCH, and WACH that utilize the area (Holen et al. 2012)

Meeting the nutritional and caloric needs of arctic communities is important and is the foundation of subsistence activities. Still, the meaning of subsistence extends far beyond human nutrition for Alaska's native peoples. Holthaus (2012) describes subsistence as the base on which Alaska Native culture establishes its identity though "philosophy, ethics, religious belief and practice, art, ritual, ceremony, and celebration." Fienup-Riordan (1990) also describes subsistence in terms of the cultural cycles of birth and death representing the close human relationship and reciprocity between humans and the natural world. Concerning caribou specifically, Ms. Esther Hugo – a lifelong resident of Anaktuvuk Pass, describes the human-caribou relationship as a "way of life." The holistic view of subsistence was embodied in the special action request motion for WSA17-04 by the North Slope Council to, among other things, provide for a "reasonable traditional subsistence experience" (NSRAC 2017:248).

User Conflicts

While the percentage of diets comprised by caribou varies from community to community, this resource clearly remains a staple of subsistence in Alaska's arctic. Recent declines in caribou herds and shifts in caribou migration patterns have led to food security concerns, especially for inland communities that lack access to more abundant coastal resources such as marine mammals. Because commercial goods are both limited and expensive in rural Alaska, they often do not represent an adequate replacement to meet the traditional nutritional needs of residents.

Caribou populations naturally fluctuate over decades (Gunn 2001, WACH Working Group 2011) and this may result in proportional constrictions and expansions of migratory pathways that shift caribou near or away from communities. Other factors may influence migratory patterns such as anthropogenic disturbance, industrial development, habitat suitability, and climactic conditions. The influence of NFQU hunting activities, especially the use of aircraft and motorized vehicles as well as the harvest of lead caribou adjacent to what are considered important migratory corridors, has been an ongoing and contentious topic in the northwestern Arctic, since at least the 1980s (Georgette and Loon 1988, Jacobson 2008, Harrington and Fix 2009 *in* Fix and Ackerman 2015, Halas 2015, NWARAC 2015, Braem et al. 2015). In the Northwest Arctic, the Unit 23 Working Group was established to assist with some of these concerns among various user groups. These user conflicts were, in part, the impetus for the closure of Federal public lands to NFQU in Unit 23 for the 2016/2017 regulatory year.

Similar user conflict concerns have been voiced in the North Slope region over time (NWARAC and NSRAC 2016, WIRAC 2016, NSRAC 2015 2016, 2017). In 1995 the Board adopted a proposal from the City of Anaktuvuk Pass to close Federal public lands in Unit 26A, south of the Colville River, upstream from and including the Anaktuvuk River drainage, to NFQU from August 1st through September 30th. The justification was to allow for caribou migrations to take their normal route into Anaktuvuk Pass. While concerns for caribou migration through Anaktuvuk Pass continue to be voiced, many of the recent concerns expressed for Unit 26 have pertained to the DHCMA and NFQU hunter access via this road;

some have also expressed concern for disturbance activities facilitated by guides and transporters north of Anaktuvuk Pass (NWARAC AND NSRAC 2016, WIRAC 2016). NFQU caribou harvest in Unit 26 is highest in the vicinity of the Dalton Highway and along river corridors east of this road (see **Maps 8, 9, 10**). The chair of the Western Interior Alaska Regional Advisory Council, Jack Reakoff, expressed his concerns as follows (WIRAC 2016:100-101):

> I live over there by the pipeline and we had zero caribou in our valley this year, mainly because of the increased harvest of cow caribou into July 1 on the Haul Road (Dalton Highway). That basically lets those hunters kill all those lead cows and stop the migration… they have jet boats, air boats, they put those in the rivers on the North Slope, they pound those caribou… It's the high power boat traffic that can get into the upper drainages that affect those caribou migrations. The other is the aspect of air taxis dumping off hunters in the middle of, in the front of migrations… There's hundreds and hundreds of hunters that go on the Dalton Highway. They're deflecting the Central Arctic Herd off to the east.

The Council chair later explained that state regulations enacted in 2010 that increased harvest limits, caused cows that had not been previously exposed to hunting during the fall migration to be hunted extensively, especially by hunters accessing the Ivishak and Ribdon rivers by boat and by air (Reakoff 2017, pers. comm.). He said that if caribou approached the road, cows were frequently killed by many bow hunters in the area. He also stated that after several seasons, many cows learned to stay north and circumvent the Dalton Highway, thus travelling in a semi-circle fashion to reach the area of Itkillik and Toolik. The BOG closed the caribou season west of the Dalton Highway in 2014 to protect the Teshekpuk herd, and the Council chair indicated that CAH caribou are learning to stay to the west to avoid being hunted in the winter (Reakoff 2017, pers. comm.).

The Council chair also elaborated on his concerns regarding the use of airboats and jetboats (Reakoff 2017, pers. comm.). He said that while boats themselves can scare caribou, it is really about the concentration of hunters that can deter herd migration. He used an example of a voluntary hunter check station operated by ADF&G in the late 1990s at the Yukon River Bridge. According to Reakoff there was an average of 2000 hunters tabulated annually and that this only included those that stopped voluntarily and while the station was open on the weekends (Reakoff 2017, pers. comm.). He believes that the recent BOG implemented season changes will address the problems in Unit 26B.

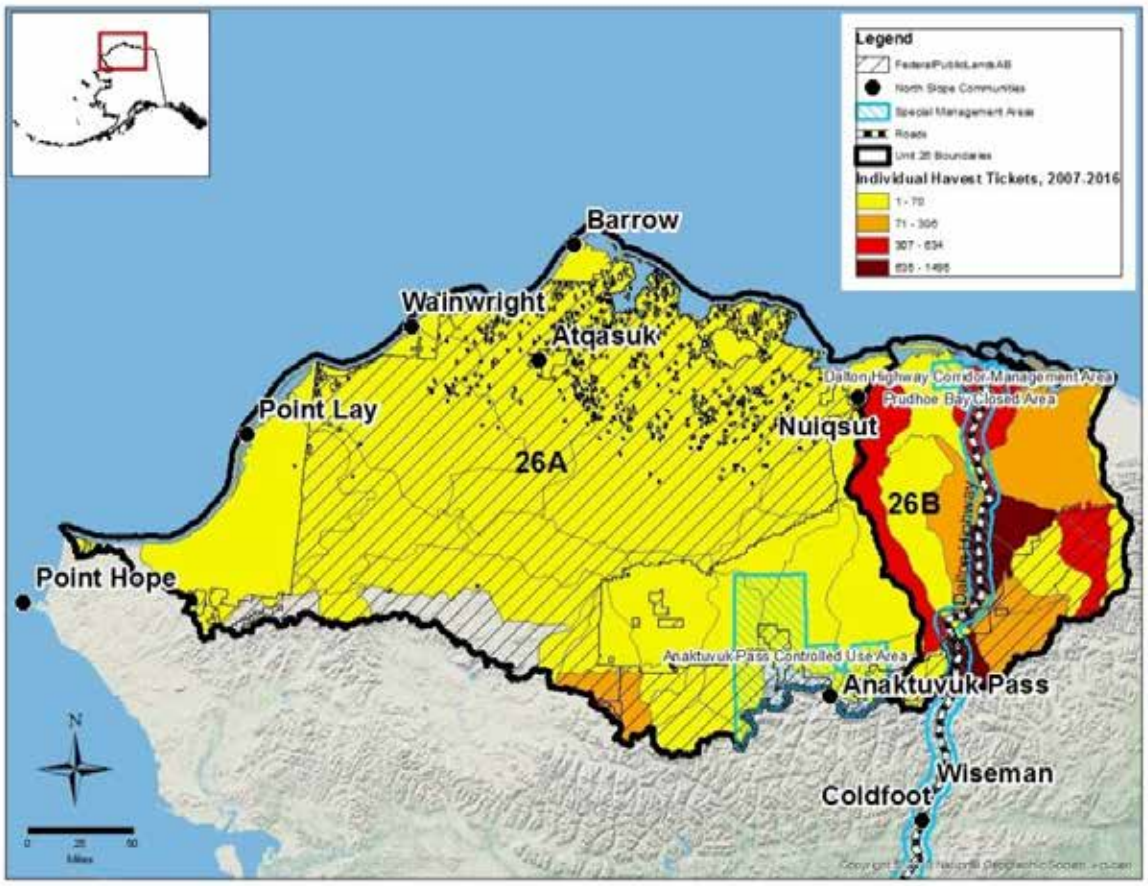
Maps 8, 9, and **10** project relative hunting intensity by minor river drainage over a ten year period (2007-2016) in two recent years (2015 and 2016), and in two prior years (2013 and 2014), respectively. Relative hunting intensity is spatially calculated using unique individual ticket numbers for all hunters indicating that they hunted and either killed (successful) or did not kill (unsuccessful) a caribou. For each time scale hunting intensity is relatively low and dispersed throughout Unit 26A and intensity is substantially greater and more variable in Unit 26B. In Unit 26A, the only area exhibiting slightly greater relative hunting intensity between 2013/2014 and 2015/2016 was in the vicinity of the Nigu River, to the north and west of Gates of the Arctic National Park and Preserve. In 2013/2014 there were 59 individual harvest tickets indicating hunting activity in this drainage; in 2015/2016 there were 71. This slight increase isn't visible in the graduated symbology scales used in **Map 9** and **Map 10**. It is possible that

the slightly higher relative hunting intensity in this area is a result of a 2016 closure to NFQU hunting caribou on Federal public lands in adjacent Unit 23. This was corroborated by a representative of the Arctic Slope Regional Corporation who also attributed the increased hunting activity to increased guide and transporter use of the area (see Current Events).

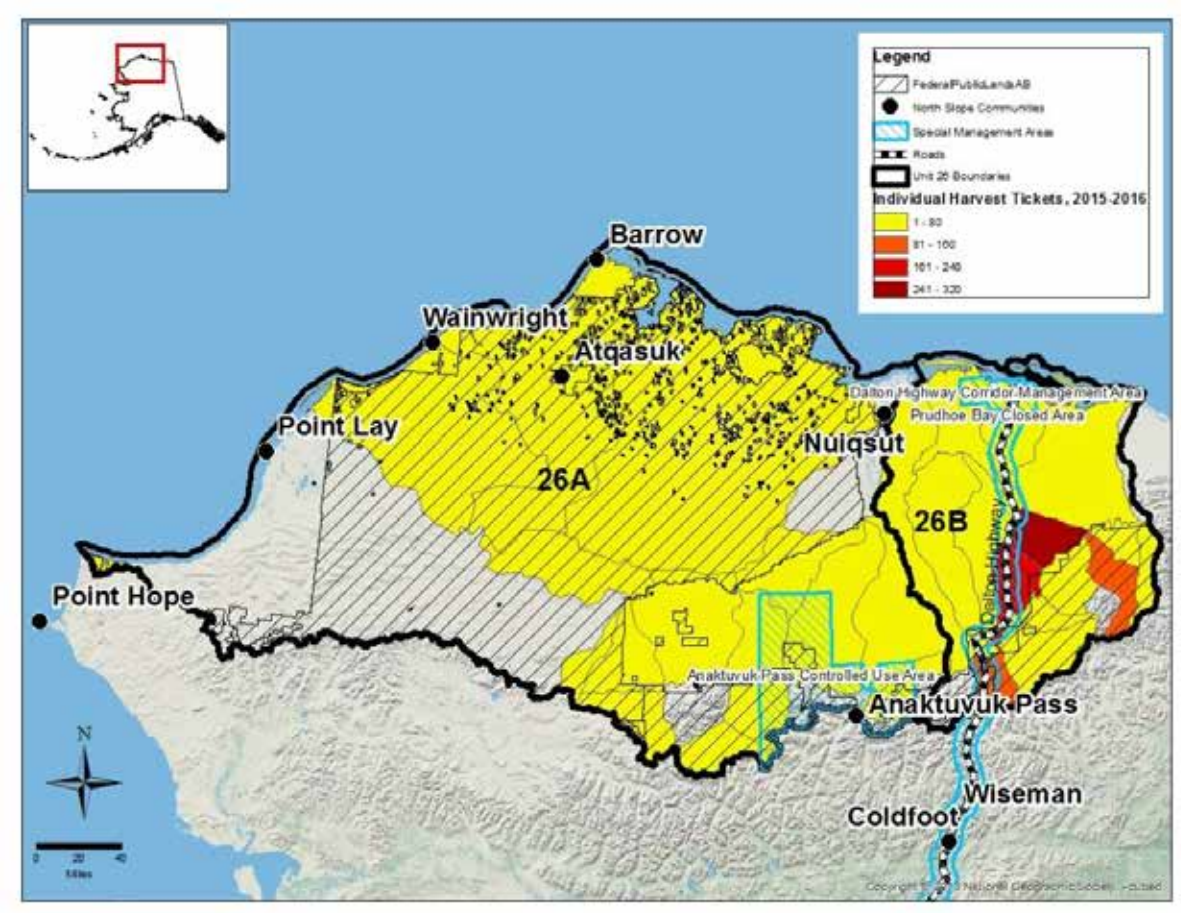
There have been shifts in relative hunting intensity in drainages in Unit 26B over time (**Maps 8, 9, 10**). In recent years, hunting intensity has lessened for many drainages in the subunit except for those that already exhibited relatively little hunting intensity and along and to the east of the Dalton Highway in the central portion of the subunit. These recent reductions in relative harvest intensity may reflect recent regulatory changes. The minor drainage represented along the western boundary of the subunit does not accurately depict harvest as the majority of records here are from the Toolik Lake area in the southeastern most portion of the minor drainage, an area more easily accessible from the Dalton Highway.

Despite relative hunting intensity reductions in many drainages of Unit 26B, the DHCMA remains the most intensely hunted area within the subunit, particularly from the southern border of Unit 26 north to where the Sagavanirktok River diverges from the road. Areas to the east of this region also exhibit higher hunting intensity which may be the result of motorized boat access along river corridors. Boats can be used to access the lower and middle sections of the Ivishak and Echooka Rivers within the Arctic NWR. Rafts can be used in the shallower headwaters of the Ivishak and Echooka Rivers (**Map 6**). Much of the highest hunting intensity along the Dalton Highway occurs on State land, though the southernmost stretch of road within the unit is surrounded by BLM managed land. This BLM managed land surrounds popular NFQU hunting areas in proximity to Toolik Lake and Galbraith Lake. The Western Interior Council chair indicated however that hunting activity has decreased in these areas due to an absence of nearby caribou (Reakoff 2017, pers. comm.). Another popular hunting area in this vicinity is in Atigun Gorge and along the confluence of the Sagavanirktok and Atigun Rivers, both of which fall largely within the Arctic NWR to the east of the BLM managed lands described previously. The Western Interior Council chair suggested that it has been several seasons since large numbers of caribou have been present in "Atigun country" in the fall (Reakoff 2017, pers. comm.).

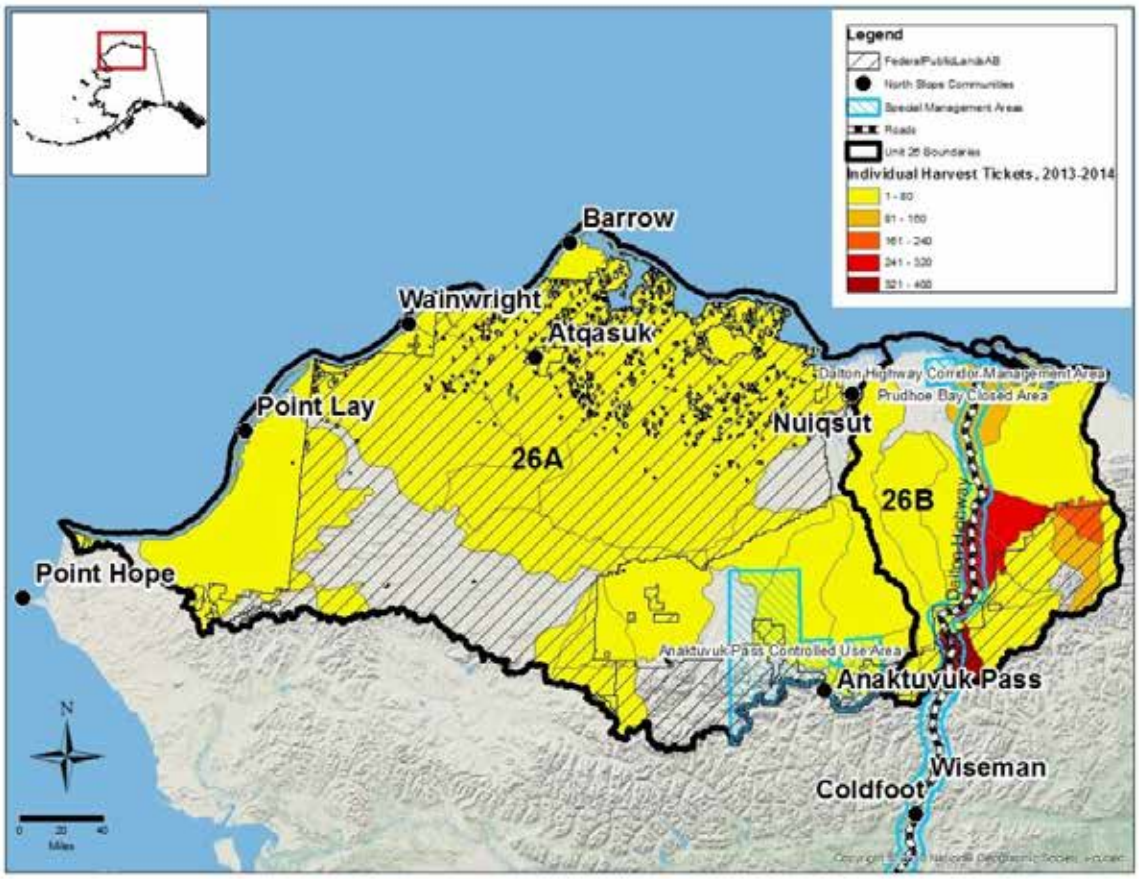
Members of the North Slope Council have expressed concern for an expanded harvest season that allows the taking of cow caribou from the vicinity of the Dalton Highway during their migration (NSRAC 2016), though state regulations for the 2017/2018 regulatory year have eliminated cow caribou harvest in Unit 26B remainder. Given that cow caribou can no longer be legally harvested in 26B remainder, concerns over the use of jetboats and airboats in accessing mountain corridors and the associated killing of lead caribou may be somewhat lessened. Relative hunting intensity and harvest data in subsequent years may elucidate the spatial effects of the cow closure.



Map 8. Cumulative caribou hunting intensity (number of hunters) by NFQU by minor river drainages from 2007-2016 (WinfoNet 2017). Includes both successful and non-successful hunters.



Map 9. Cumulative caribou hunting intensity (number of hunters) by NFQU by minor river drainages from 2015-2016 (WinfoNet 2017). Includes both successful and non-successful hunters.



Map 10. Cumulative caribou hunting intensity (number of hunters) by NFQU by minor river drainages from 2013-2014 (WinfoNet 2017). Includes both successful and non-successful hunters.

The North Slope Council has also expressed concern regarding observations of animals injured as a result of bow hunting (NSRAC 2016). Despite documented concerns through repeated public testimony, information is lacking on the degree of impact that these hunting activities have on both short and long-term caribou migration patterns. A member of the WACH Working Group indicated that she perceived the closure in Unit 23 in 2016 to have facilitated improved migration to the vicinity of Anaktuvuk Pass (NSRAC 2016), though it is unclear how this would have affected the migration of WACH animals. The Northwest Arctic Subsistence Regional Advisory Council stated that closure of Federal public lands in Unit 23 to caribou hunting by NFQU in 2016 helped local people harvest more caribou, increasing their food security and reducing user conflicts (NWARAC 2016, 2017).

Whether the effects of NFQU hunting activity on the North Slope are perceived or realized, the reality is that three of the four caribou herds in the region (WACH, TCH, and CACH) have experienced recent declines. User conflicts are likely to intensify when resources are scarce and when food security is threatened (Homer-Dixon 1994, Cohen and Pinstrup-Andersen 1999, Pomeroy et al. 2016). An Anaktuvuk Pass resident expressed her concerns as follows (NSRAC2015:45-46):

> We're talking about lives here. Food for our stomach, food for our health, food that our parents and our grandparents had passed on. Just tears because we did not catch what we needed again and again… It's just the pain and the hurt and I don't have [any] caribou to eat like it used to be.

Other Alternatives Considered

The first alternative considered was to reduce hunter conflicts by closing both the BLM lands occurring on either side of the Dalton Highway in the southern portion of the unit and the portion of the Arctic NWR falling within Unit 26B. Given then intensity of use along the Dalton Highway and within several Arctic NWR drainages, this option may decrease competition and user conflict between NFQU and FQSU. While NFQU harvest may shift northward along the Dalton Highway, this option may provide Federally qualified users with an area of substantially reduced competition.

Given that this alternative would close lands with boundaries that largely include the northern edge of the Brooks Range, including small mountain corridors from the interior to the North Slope, it may reduce barriers to caribou migrating through the mountain passes, river corridors, and across the DHCMA on Federal public lands. While NFQU may still use jetboats and airboats to access the Lupine, Echooka and Ivishak Rivers and Juniper Creek within Arctic NWR, hunting of caribou would be restricted to the gravel bars. Additionally, closure of Federal public lands along the DHCMA may reduce hunting pressure, thus allowing for more unrestricted movement of caribou across the DHCMA.

This alternative could increase competition with other hunters on State lands which are adjacent to the DHCMA especially in southern portions of Unit 26B. The relatively small area under Federal jurisdiction, the relatively short amount of time to determine the effects of recent changes to State and Federal caribou hunting regulations implemented in 2015/2016, and the newly enacted State regulations for the CACH for 2017/2018, which limit NFQU to 1 bull caribou and eliminate cow harvest in Unit 26B remainder, suggest that restrictions on these Federal public lands to caribou hunting by NFQU are not warranted at this time. It is unlikely that closing Federal public lands to NFQU in Unit 26B would reduce the harvest because hunters may shift locations to the adjacent State lands.

Effects

If this proposal is adopted, caribou hunting on Federal public lands in Unit 26A and Unit 26B would be limited to FQSU with a customary and traditional use determination for caribou in Unit 26A and 26B. This would reduce competition between FQSU and NFQU on Federal public lands in Units 26A and 26B and may increase hunting pressure on State or private lands.

While the sustainable harvest of WACH caribou may soon be exceeded, the overharvest of cows is of particular concern (Dau 2015a). As nonresidents may only harvest one bull, their impact on the herd's population trajectory is likely negligible. Total NFQU harvest from Unit 26A accounts for only about 9% of the total WACH in Unit 26A and about 1% of the total estimated harvest from the WACH (117 caribou out of an estimated total harvest of 11,984 caribou on average). The nonresident and nonlocal resident harvest from the TCH is minimal although from the TCH (Parrett 2015a). Parrett (2015a) estimated that approximately 100 caribou, which represents approximately 3% of the total annual TCH harvest, are

harvested annually by nonlocal users. From a biological perspective, eliminating the nonlocal harvest, which accounts for less than 1% in Unit 26A, will not have a meaningful impact on WACH or TCH conservation or population recovery. It may, however, alleviate some FQSU concerns regarding the possible deflection of caribou in critical migratory corridors or in areas of increasing harvest activity.

Closing caribou hunting to NFQU on all Federal public lands in Unit 26B would have the greatest impact to NFQU that hunt in Unit 26B from the CACH population. Nonlocal residents accounted for 89% of the total caribou harvest from the CACH between 2013 and 2015, which is approximately 827 caribou annually. The proportion of nonresidents has been increasing in recent years whereas hunting by nonlocal residents has decreased (Table 5, Figure 6). Most of the CACH harvest in Unit 26B occurs on State lands so closing the relatively small amount of Federal land in Unit 26B to NFQU will shift hunters to State land with a little reduction in the overall harvest (Arthur 2017 pers. comm). New State regulations, which take effect July 1, 2017, eliminate cow harvest, except in the northwest corner of Unit 26B, and reduce the nonresident harvest to one bull. These new regulations should reduce the overall caribou harvest from the CACH to sustainable levels (Lenart 2017b).

It is unclear to what extent hunting pressure in the DHCMA and in the headwaters of various river drainages influences the migratory patterns of the CACH caribou and to a lesser extent caribou from the TCH and WACH. The northwest-southeast direction of the fall CACH migration across the Dalton Highway and the variability of the migration patterns suggest that disturbance within the area of greatest caribou concentration that occurs between Galbraith Lake and Ribdon River is not likely to reduce the availability of caribou to local residents living west of the highway.

OSM PRELIMINARY CONCLUSION

Oppose Proposal WP18-57.

Justification

In total, the TCH, WACH, and CACH caribou populations in northern and western Alaska have declined approximately 50%. The declines have not been uniform among the herds. Low calf survival and recruitment, high adult cow mortality, and human harvest, coupled with deteriorating range conditions, climate change, predation and disease, are all contributing factors to the overall decline of caribou. The State's estimated harvestable surplus for both the TCH and the CACH is declining and is currently fully allocated among users based on the most recent Federal and State harvest rates. The WACH is approaching a similar situation.

Beginning in 2015, State and Federal regulations have been adopted to reduce the cow harvest by FQSU and NFQU, and to slow and/or reverse the overall caribou population declines. Cow harvest by NFQU is relatively small in the WACH and TCH, but has increased in recent years. In response to the recent decline in the CACH population, the BOG adopted new caribou hunting regulations which eliminated the cow harvest, reduced the harvest from 5 caribou per day to 2 bull caribou for residents, and 1 bull caribou for nonresidents in Unit 26B remainder for 2017/2018. Recently enacted conservation actions for the WACH, TCH, and CACH need to be given time to determine if they are effective in reducing the caribou

harvest, and in slowing down or reversing the population declines in these caribou herds before additional closures are enacted.

It is likely that closing the relatively small amount of Federal public lands in Unit 26B would shift the hunters onto State land. Anaktuvuk Pass hunters are the most impacted by NFQU hunting nearby, many of whom hunt on State land north, northeast, and northwest of the community. Closing Federal land further north (in NPR-A) risks further concentrating NFQU onto State lands adjacent to Anaktuvuk Pass, thereby increasing impacts to that community. Additionally, closure of Federal public lands to NFQU in Unit 26B will not have as much of an effect as the recent BOG action to protect cows and reduce the overall caribou harvest since much of the harvest occurs on State lands.

In addition to closing Federal public lands to NFQU, local users, particularly those from communities along the DHCMA (which includes areas in Units 26A and B), would not see much reduction in competition as most NFQU would likely continue to hunt caribou from the CACH or Porcupine Herd on State lands in Unit 26B. Subsequently, the effects of hunting intensity and motorized vehicle use along the highway would likely not alleviate FQSU concerns that these activities alter caribou migration in the area. The closure is unlikely to deter non-local hunters from hunting within and adjacent to the DHCMA, thus the proponent's goal of "reducing non-local take" would not be achieved.

Under ANILCA §815.3 and the Board's Closure Policy, the Board may adopt closures to hunting by non-Federally qualified users if it is necessary for the conservation of healthy wildlife populations or continuation of subsistence uses of wildlife populations by Federally qualified subsistence users. The number of caribou harvested by NFQU is not biologically significant for the WACH and TCH in Unit 26A. However, caribou harvest by NFQU in Unit 26B from the CACH was considered to potentially have more significant consequences for that herd, which have now been addressed with newly enacted State regulations for 2017/2018. The goals of these new State regulations for the CACH are to reduce the overall caribou harvest from 930 to 680 and reduce the cow harvest from 202 to no more than 75. ADF&G harvest and population objectives are very specific, and they expect to meet the newly proposed harvest objectives this year. We recommend that these changes take effect in lieu of enacting additional regulations.

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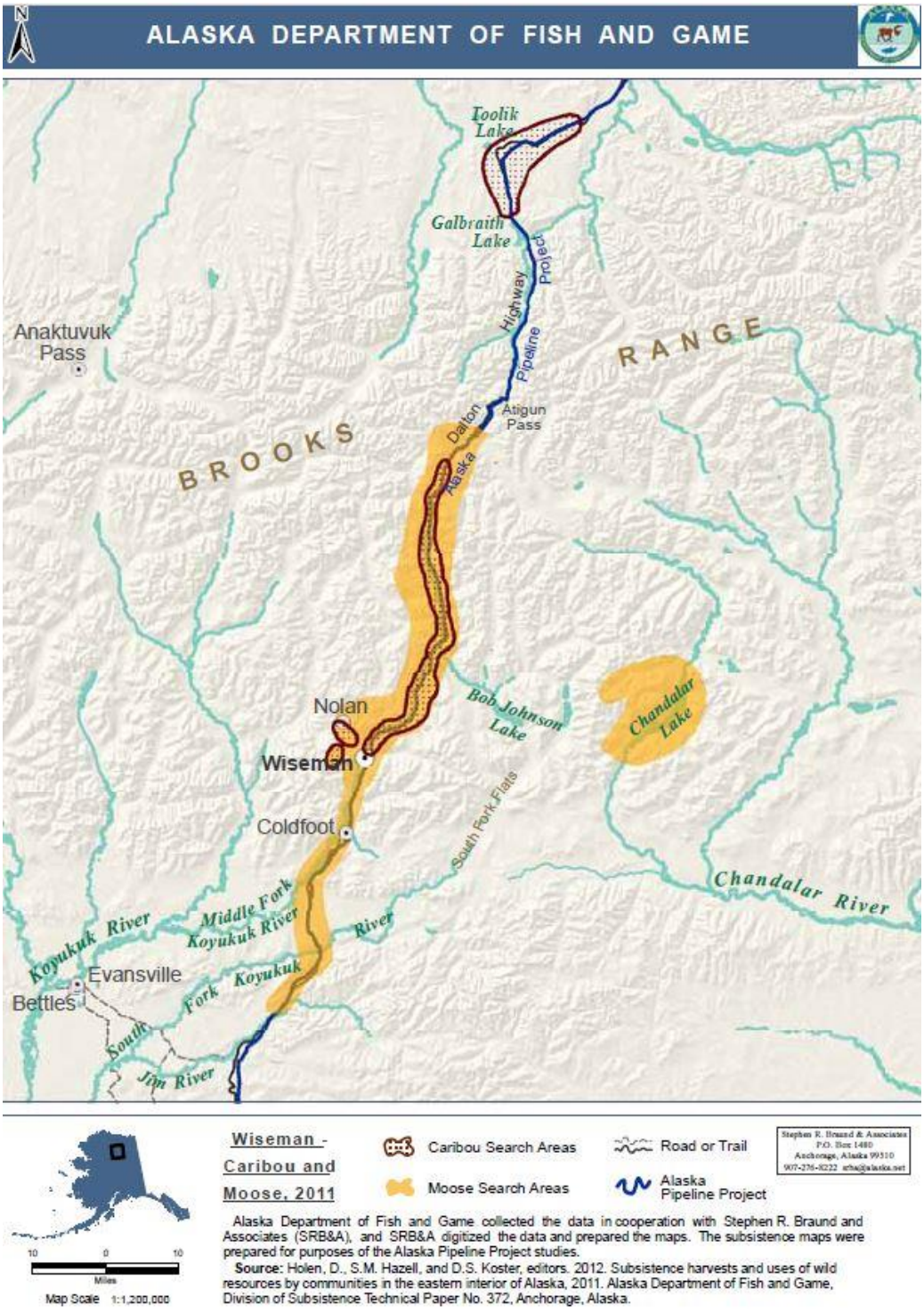
Appendix A



Map 11. Location of two small caribou hunting areas near Wiseman and Nolan

WP18–41/42 Executive Summary	
General Description	Proposal WP18–41 requests that moose seasons be modified throughout Unit 23 to a two month cow season of Nov. 1-Dec. 31, a shortening of the bull season from July 1-Mar. 31 to July 1 – Dec. 31, and alignment of Federal and State hunt areas. *Submitted by: Northwest Arctic Subsistence Regional Advisory Council* Proposal WP18–42 requests that moose seasons be modified throughout Unit 23 to include a winter any moose Federal registration permit hunt with a harvest quota aimed at reducing total cow harvest by 20%, and that the harvest limit be modified from one moose to one bull moose during the rest of the season. *Submitted by: Louis Cusack of Chugiak*
Proposed Regulation	WP18-41 **Unit 23—Moose** *Unit 23—that portion north and west of and including the Singoalik River drainage, and all lands draining into the Kukpuk and Ipewik Rivers—1 moose* ***Bulls may be harvested*** — *July 1~~-Mar.~~**Dec. 31*** ***Cows may be harvested*** — ***Nov. 1 – Dec. 31*** *No person may take a calf or a cow accompanied by a calf* ~~*Unit 23—that portion lying within the Noatak River drainage—1 moose; however, antlerless moose may be taken only from Nov. 1-Mar. 31; no person may take a calf or a cow accompanied by a calf*~~ — ~~*Aug. 1-Mar. 31*~~ *Unit 23, remainder—1 moose* ***Bulls may be harvested*** — *Aug. 1~~-Mar.~~**Dec. 31***

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WP18–41/42 Executive Summary	
	Cows may be harvested ***Nov. 1 – Dec. 31*** *No person may take a calf or a cow accompanied by a calf* WP18-42 **Unit 23—Moose** *Unit 23—that portion north and west of and including the Singoalik River drainage, and all lands draining into the Kukpuk and Ipewik Rivers* ***1 bull may be harvested*** *July 1-Mar. 31* Or ***1 moose may be harvested by Federal registration permit*** ***Nov. 1 – Mar. 31*** *No person may take a calf or a cow accompanied by a calf* *Unit 23—that portion lying within the Noatak River drainage* ***1 bull may be harvested*** *Aug. 1-Mar. 31.* ***Or*** ***1 moose may be harvested by Federal registration permit*** ***Nov. 1 – Mar. 31.*** *No person may take a calf or a cow accompanied by a calf* *Unit 23, remainder* ***1 bull may be harvested*** *Aug. 1-Mar. 31.* ***Or***

WP18–41/42 Executive Summary	
	1 moose may be harvested by Federal registration permit ***Nov. 1 – Mar. 31.*** *No person may take a calf or a cow accompanied by a calf*
OSM Preliminary Conclusion	**Support** Proposal WP18-41 **with modification** to change the harvest limit to one antlered bull July 1 (Aug. 1) – Dec. 31 and create a Nov. 1-Dec. 31 antlerless season by Federal registration permit and delegate authority to the Federal land manager to determine quotas and to close the season via a delegation of authority letter; and **Take no action** on Proposal WP18-42.
Southeast Alaska Subsistence Regional Advisory Council Recommendation	
Southcentral Alaska Subsistence Regional Advisory Council Recommendation	
Kodiak/Aleutians Subsistence Regional Advisory Council Recommendation	
Bristol Bay Subsistence Regional Advisory Council Recommendation	
Yukon-Kuskokwim Delta Subsistence Regional Advisory Council Recommendation	
Western Interior Alaska Subsistence Regional Advisory Council Recommendation	

WP18–41/42 Executive Summary	
Seward Peninsula Subsistence Regional Advisory Council Recommendation	
Northwest Arctic Subsistence Regional Advisory Council Recommendation	
Eastern Interior Alaska Subsistence Regional Advisory Council Recommendation	
North Slope Subsistence Regional Advisory Council Recommendation	
Interagency Staff Committee Comments	
ADF&G Comments	
Written Public Comments	**None**

DRAFT STAFF ANALYSIS
WP18-41/42

ISSUES

Proposal WP18-41, submitted by the Northwest Arctic Subsistence Regional Advisory Council, requests that moose seasons be modified throughout Unit 23 to a two month cow season of Nov. 1-Dec. 31, a shortening of the bull season from July 1-Mar. 31 to July 1 – Dec. 31, and alignment of Federal and State hunt areas.

Proposal WP18-42, submitted by Louis Cusack of Chugiak, Alaska, requests that moose seasons be modified throughout Unit 23 to include a winter any moose Federal registration permit hunt with a harvest quota aimed at reducing total cow harvest by 20%, and that the harvest limit be modified from one moose to one bull moose during the rest of the season.

DISCUSSION

The Northwest Arctic Subsistence Regional Advisory Council (Council) voted to submit WP18-41 at its March 2017 meeting. The proponent stated that they would like to align the Federal and State moose seasons and hunt areas in Unit 23 in order to address a declining moose population in the unit. The proponent also noted that Alaska Department of Fish and Game (ADF&G) reports have shown a decline in the moose population throughout a majority of Unit 23 and the State has taken steps to reduce harvest by adopting more restrictive regulations for both resident and nonresident hunters. Council members stated that local users typically harvest cow moose during the winter months. Due to the need to conserve cows in the unit, the proponent is requesting that the Jan. 1-Mar. 31 portion of the Unit 23 moose season be eliminated to align with State regulations, but that they would also like to maintain a two month cow moose harvest season from Nov. 1 - Dec. 31 in order to provide for subsistence needs in local communities. The proponent stated that as caribou populations decline in Unit 23, some subsistence users are relying more heavily on moose to meet their needs. It was expressed by the proponent that this two month cow season would provide much needed food resources for subsistence users who were not able to harvest caribou for the year, while also limiting overall cow harvest during the season in order to allow for reproductive growth in the population.

Similarly, Louis Cusack of Chugiak submitted WP18-42 to address a declining moose population so that more aggressive measures do not need to be taken in the future. The proponent stated that ADF&G and National Park Service (NPS) reports have shown a decline in the moose population throughout a majority of Unit 23 and the State has taken steps to reduce harvest by adopting more restrictive regulations for both resident and nonresident hunters. The proponent also stated that all users have a stake in this moose resource and that all users need to work together to improve the health of the moose population in the unit.

Existing Federal Regulation

Unit 23—Moose

Unit 23—that portion north and west of and including the Singoalik River drainage, and all lands draining into the Kukpuk and Ipewik Rivers—1 moose; no person may take a calf or a cow accompanied by a calf	*July 1-Mar. 31*
Unit 23—that portion lying within the Noatak River drainage—1 moose; however, antlerless moose may be taken only from Nov. 1-Mar. 31; no person may take a calf or a cow accompanied by a calf	*Aug. 1-Mar. 31*
Unit 23, remainder—1 moose; no person may take a calf or a cow accompanied by a calf	*Aug. 1-Mar. 31*

Proposed Federal Regulations

WP18-41

Unit 23—Moose

Unit 23—that portion north and west of and including the Singoalik River drainage, and all lands draining into the Kukpuk and Ipewik Rivers—1 moose	
Bulls may be harvested	*July 1~~-Mar.~~**Dec.** 31*
Cows may be harvested	***Nov. 1 – Dec. 31***
No person may take a calf or a cow accompanied by a calf	
~~Unit 23—that portion lying within the Noatak River drainage—1 moose; however, antlerless moose may be taken only from Nov. 1-Mar. 31; no person may take a calf or a cow accompanied by a calf~~	*~~Aug. 1-Mar. 31~~*
Unit 23, remainder—1 moose	
Bulls may be harvested	*Aug. 1~~-Mar.~~**Dec.** 31*
Cows may be harvested	***Nov. 1 – Dec. 31***

No person may take a calf or a cow accompanied by a calf

WP18-42

Unit 23—Moose

Unit 23—that portion north and west of and including the Singoalik River drainage, and all lands draining into the Kukpuk and Ipewik Rivers

1 bull may be harvested *July 1-Mar. 31*

Or

1 moose may be harvested by Federal registration permit ***Nov. 1 – Mar. 31***

No person may take a calf or a cow accompanied by a calf

Unit 23—that portion lying within the Noatak River drainage

1 bull may be harvested *Aug. 1-Mar. 31.*

Or

1 moose may be harvested by Federal registration permit ***Nov. 1 – Mar. 31.***

No person may take a calf or a cow accompanied by a calf

Unit 23, remainder

1 bull may be harvested *Aug. 1-Mar. 31.*

Or

1 moose may be harvested by Federal registration permit ***Nov. 1 – Mar. 31.***

No person may take a calf or a cow accompanied by a calf

Existing State Regulation

Unit 23—Moose

Unit 23, north of	*Residents—One antlered bull by permit available*	*July 1-Dec 31*

and including Singoalik River drainage	*in person at license vendors within Unit 23 villages June 1-July 15* *or*	
	Residents—One bull with 50-inch antlers or antlers with 4 or more brow tines on at least one side	*Sept 1-Sept 20*
	Nonresidents—One bull with 50-inch antlers or antlers with 4 or more brow tines on at least one side by permit	*Sept 1-Sept 20*
Unit 23, remainder	*Residents—One antlered bull by permit available in person at license vendors within Unit 23 villages June 1-July 15* *or*	*Aug 1-Dec 31*
	Residents—One bull with 50-inch antlers or antlers with 4 or more brow tines on at least one side	*Sept 1-Sept 20*
	Nonresidents—One bull with 50-inch antlers or antlers with 4 or more brow tines on at least one side by permit	*Sept 1-Sept 20*

Extent of Federal Public Lands

Federal public lands comprise approximately 71% of Unit 23 and consist of 40% National Park Service (NPS) managed lands, 22% Bureau of Land Management (BLM) managed lands, and 9% U.S. Fish and Wildlife Service (USFWS) managed lands (**Figure 1**).

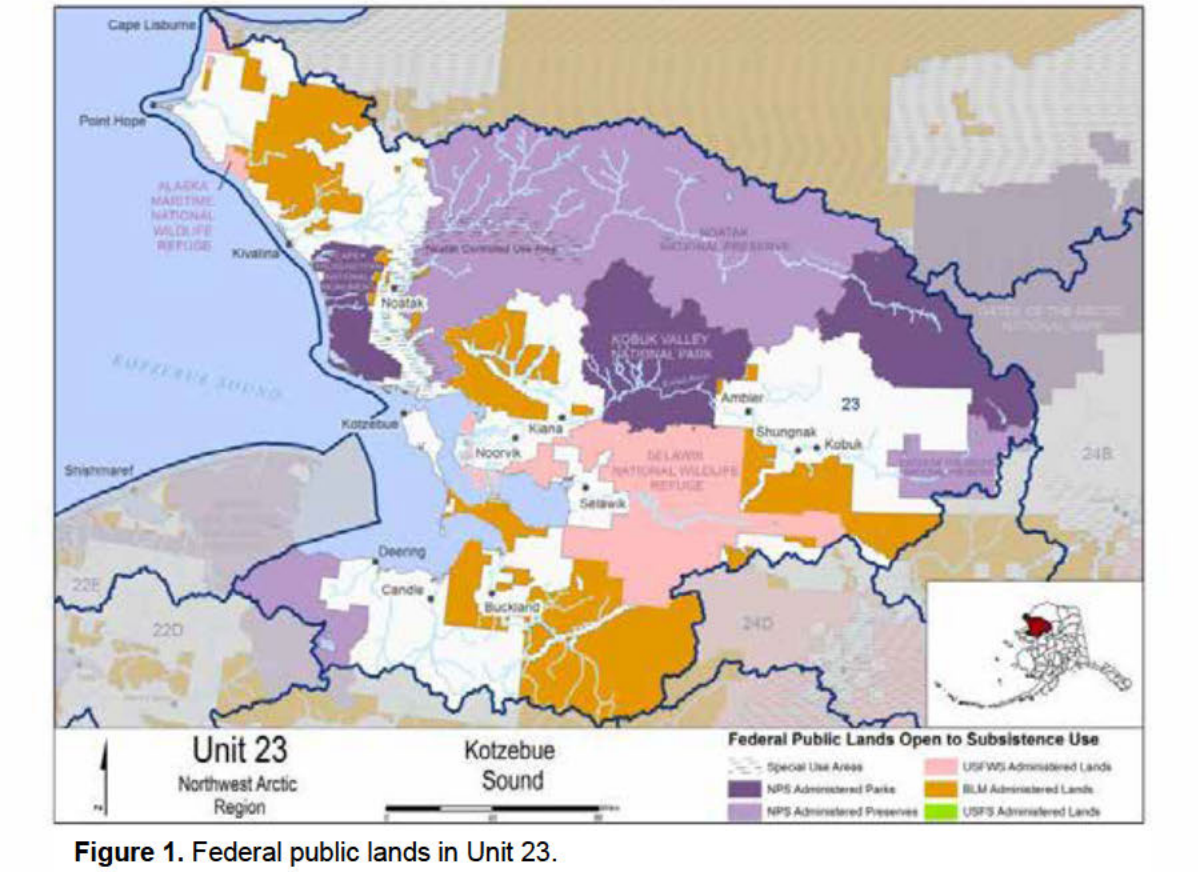

Figure 1. Federal public lands in Unit 23.

Customary and Traditional Use Determinations

Residents of Unit 23 have a customary and traditional use determination for moose in Unit 23.

Regulatory History

In March of 1988, the Native Village of Noatak submitted a proposal to the Alaska Board of Game (BOG) to establish the Noatak Controlled Use Area. This area was originally adopted, in part, "to help reduce harvests on a declining moose population" (ADF&G 1988:47, Alaska Board of Game 1995: 1). The BOG modified the request to include approximately one third of the land area requested by the Native Village of Noatak and unanimously approved the Noatak Controlled Use Area in 1988 (Fall 1990: 87), which was expanded in 1994 to maintain opportunities for hunters using boats without overly restricting aircraft

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(Alaska Board of Game 1995: 1). From 1994-2016, the Noatak Controlled Use Area consisted of a 10-mile-wide corridor along the Noatak River from its mouth to Sapun Creek, encompassing more than 160 river miles, which is closed from Aug. 15-Sept. 30 to the use of aircraft for big game hunting (Betchkal 2015). These regulations apply on State, private, and Federal public lands.

State moose regulations became more restrictive in 2003 when BOG approved amended Proposal 15 (effective starting with the 2004/05 regulatory year), making it more difficult for nonlocal residents to hunt moose, creating four registration hunts in the unit with permits (RM880) only available in person at licensed vendors in Unit 23 villages from June 1-July 15. This early availability of permits occurred before most of the seasons opened, requiring nonlocal hunters to make a special trip to a Unit 23 village in order to receive a permit. These permits also allowed better tracking of harvest.

In 2005, Proposal WP05-18, submitted by the Northwest Arctic Subsistence Regional Advisory Council, requested prohibiting the harvest of calves in addition to shortening the season for moose in most of Unit 23 from July 1 (or Aug. 1)-Mar. 31 to Aug. 1-Dec. 31 (a 5 month season), combining the Noatak drainage with the remainder hunt area, and allowing antlerless moose to be harvested only in November and December. The Board chose to table this proposal in response to a Northwest Arctic Regional Advisory Council recommendation to give local villages time to review the proposal and provide their input due to differing viewpoints related to the moose population and local subsistence needs (FSB 2005). In 2006, Proposal WP06-54 was submitted by the Northwest Arctic Subsistence Regional Advisory Council to replace WP05-18, requesting the harvest of moose calves be prohibited and that the two week seasonal closure (Sept. 16-30) in the Noatak River drainage be removed. The Board adopted WP06-54 as a consensus agenda item.

Proposals requesting modifications to aircraft restrictions and/or closures of portions of Unit 23 to the taking of moose except by Federally qualified subsistence users have been submitted multiple times throughout the years. Proposal WP99-049 requested a closure to non-Federally qualified subsistence users in the Noatak and Squirrel River drainages and WP02-40 requested a Controlled Use Area on the Selawik National Wildlife Refuge. The latter of these proposals would only have impacted Federally qualified subsistence users, which was not the initial intent of the proponent. Both WP08-50 and WP08-51 requested that the time period for aircraft restrictions in the Noatak Controlled Use Area be changed to cover more of the fall season. Many of these proposals cited user conflict issues as the justification. Most of these proposals were withdrawn by the proponent, or deferred by the Board, due to the lack of any effect on non-Federally qualified users since the Board only has authority over Federal regulations. In 2007, the State endorsed the creation of a Unit 23 User Conflict Working Group (Working Group) to do an in-depth study documenting and quantifying the extent of observed problems between local subsistence hunters, nonlocal hunters, and commercial enterprises, such as transporters and guides.

In 2010, Proposals WP10-82, WP10-83, and WP10-85, requested modifications to the time period during which aircraft were restricted in the Noatak Controlled Use Area. These proposals were analyzed together with no action taken on WP10-82 and -83. The Board adopted WP10-85 with modification to use current Federal regulatory language and adjust the dates as requested (Aug. 15-Sept. 30) which aligned with recent

actions taken (the passing of Proposal 22 in 2009) by the BOG to change the effective dates of the Noatak Controlled Use Area from Aug. 25-Sept. 15 to Aug. 15-Sept. 30.

At the January 2017 BOG meeting in Bethel, amended Proposal 36 was adopted to change the antlerless moose season in Unit 23 to one antlered bull (ADF&G 2017a) due to conservation concerns. During the discussion of this change, it was stated that nonresident drawing permits have been reduced 25% the last two years and that the number of these permits has declined since the creation of the hunt in 2004. According to the Alaska Draw Supplement document produced by ADF&G (2017b) for the 2016/17 season, 50 permits were available across drawing permit hunts in Unit 23 (DM871, 872, 874, 875, 876, 877, and 885). Amended Proposal 44, which shifted the area of the Noatak Controlled Use Area to extend from the Agashashok River to the Nimiuktuk River, was also adopted at the January 2017 BOG meeting.

At the Northwest Arctic Subsistence Regional Advisory Council public meeting, that took place on March 1-2, 2017 in Kotzebue, ADF&G mentioned that the non-resident hunt has been canceled for the current regulatory year and that permits that were sent out to non-resident users were all rendered void (NWARAC 2017, Saito 2017, pers. comm.). In April of 2017 the Board rejected Temporary Special Action WSA17-02, which requested that Federal public lands in Unit 23 be closed to all non-Federally qualified users for moose harvest during the 2017/18 regulatory year. The Board stated that they wanted to allow time to assess the effects of recent State actions prior to considering a unit-wide closure.

Biological Background

Moose expanded into Unit 23 from the east relatively recently, with the first moose appearing in the unit during the 1920s. Over the next 20-30 years, they expanded their range in Unit 23 to the Chukchi Sea coast (LeResche et al. 1974, Tape et al. 2016, Westing 2012). The Unit 23 moose population grew through the late-1980s (Westing 2012). This rise in population was followed by severe winters and extensive flooding from 1988-1991 which, in conjunction with predation by brown bears and wolves, reduced the population and overall moose density (Westing 2012).

State management goals for moose in Unit 23 include maintaining a unit wide combined population of 8,100-10,000 moose while maintaining a minimum November bull:cow ratio of 40:100, except in the Lower Kobuk which is disproportionally inhabited by maternal cows (Westing 2012). The higher bull:cow ratio goals are due to the low densities and wide distribution of moose throughout Unit 23.

Moose population surveys have been conducted in Unit 23 by ADF&G staff and Federal partners since the early 1990s. Census areas have fluctuated throughout the years due to time and financial restraints as well as evolving survey techniques available to biologists (Saito 2017, pers. comm.). Area biologists have tried different methods to obtain the most accurate population counts with the resources available. The most recent census area modification was the addition of the previously unsurveyed area between the Lower and Upper Kobuk census areas to the Upper Kobuk census area (Saito 2017, pers. comm.). It is planned for the current census areas to be in place for the foreseeable future (**Figure 2**).

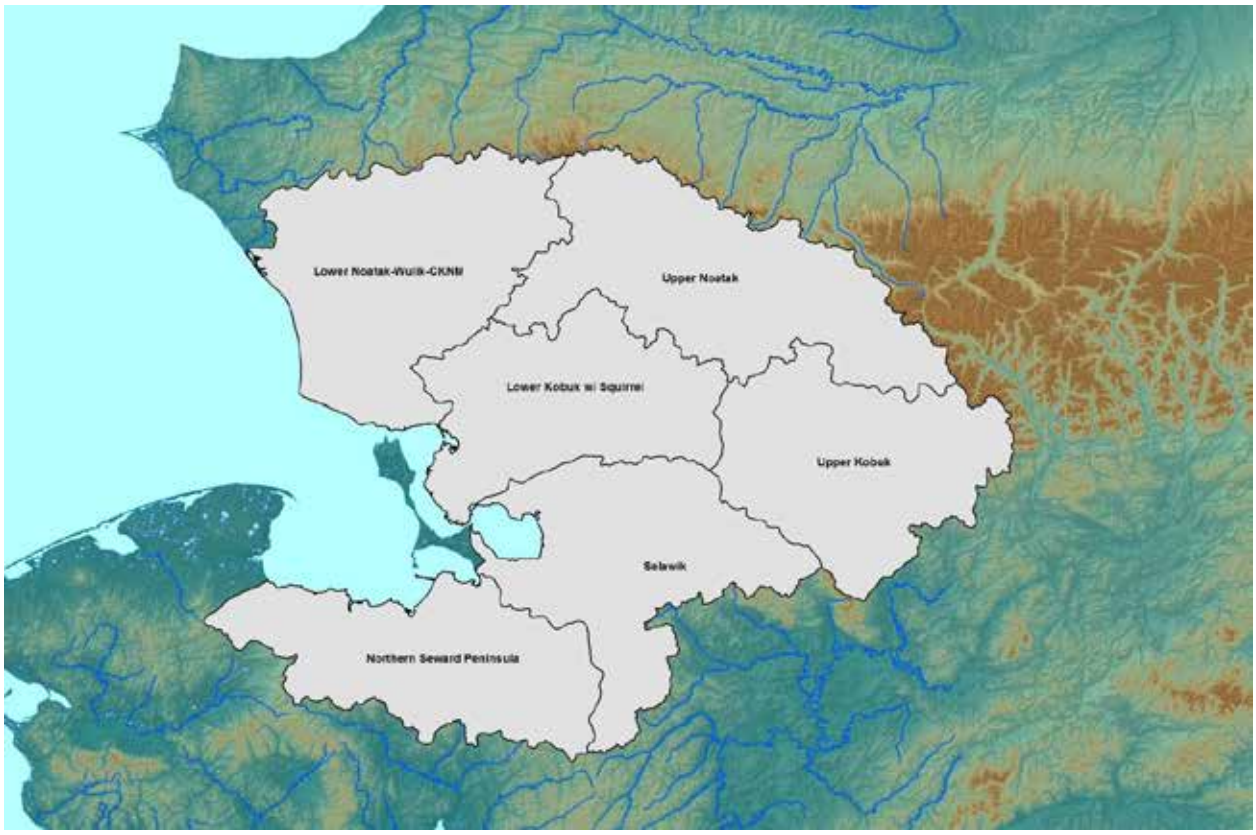

Figure 2. ADF&G moose census areas in 2017 (figure from Saito 2017, pers. comm.).

Between 2000 and 2011, spring geospatial population estimates showed adult moose densities throughout Unit 23 ranged from 0.03-0.59 moose/mi² (Westing 2012). During this time period, moose densities appeared to be stable. Since then, new spring geospatial population censuses have been conducted across each Unit 23 study area (**Table 1**). The most recent data shows adult moose densities throughout Unit 23 range from 0.03-0.44 moose/mi² depending on the census area (**Table 2;** ADF&G 2017a). Population census surveys are conducted in different census areas annually with each census area being surveyed approximately every five years (Alaska Board of Game 2017). The most recent population surveys were conducted for each of the census study areas as follows: Upper Noatak-2010, Lower Kobuk-2012, Lower Noatak-2013, Upper Kobuk-2014, Northern Seward Peninsula-2015, and Selawik-2016 (**Table 2**). While the Noatak drainages, Lower Kobuk, Selawik, and Northern Seward Peninsula populations have declined and are below population objectives, the Upper Kobuk has remained relatively stable (**Table 1**, **Figure 3**; Saito 2016a, pers. comm.).

At the Alaska Board of Game's Arctic and Western Region meeting in January 2017, the State biologist stated the current estimated moose population for Unit 23 was approximately 7,500 moose (ADF&G 2017a). This is below the overall population goal of 8,100-10,000 moose for Unit 23.

The last year that all fall composition surveys were done in all survey areas consistently (Lower Kobuk, Lower Noatak, Selawik, and Seward Peninsula) was 2007. From 2004-2007 the bull:cow ratio averaged

39:100 with average ratios ranging from 26-50 bulls:100 cows in the drainages surveyed and calf:cow ratios averaged 21:100 with average ratios ranging from 12-34 calves:100 cows (Saito 2016a, pers. comm.,

Table 1. Overview of most recent population estimates throughout Unit 23. Harvest rates are set at 6% of the population. The Upper Kobuk census area represents the updated census area that was created in 2014. Extrapolated total incorporates estimated populations in non-surveyed portions of Unit 23 (Saito 2016a, pers. comm.).

Unit 23 Study Area	Population Estimate	Population Objectives	Harvestable Surplus
Noatak River Drainages	1631	2000-2300	98
Lower Kobuk River Drainage	2546	2800-3400	153
Upper Kobuk River Drainage	727	600-800	44
Selawik/Tag River Drainage	940	2000-2500	56
Northern Seward Peninsula	617	700-1000	37
Total	**6461**		**388**
Extrapolated Total	7499.9		450

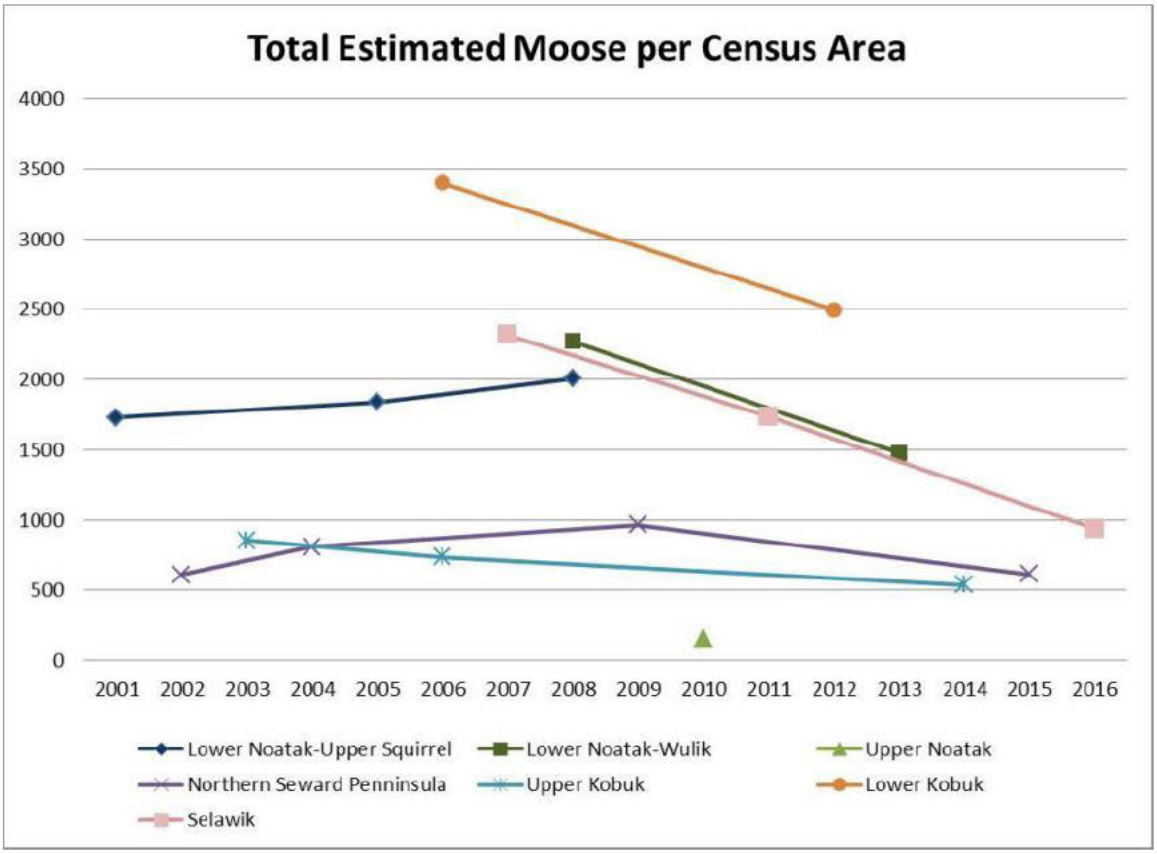

Figure 3. Total moose population estimates from 2001 to 2016 by census area. The old Upper Kobuk census area population estimates are shown here due to improved comparability across years (Saito 2016a, pers. comm.).

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Table 2. Moose population data collected during spring population census surveys in Unit 23 since 2001. The Upper Kobuk was surveyed in 2014 using both the older census area and the updated census area (Saito 2016a, pers. comm.).

Census Area	Year	Moose Observed	Total Moose Estimated	Census Area (mi^2)	Area Surveyed (mi^2)	Total Density ($/mi^2$)	Adult Density ($/mi^2$)	Calves :100 adults
Lower Noatak-Upper Squirrel	2001	709	1731	5230.2	832.0	0.33	0.30	10
	2005	575	1838	5349.7	915.5	0.34	0.30	13
	2008	596	2008	5349.7	1510.4	0.38	0.33	13
Lower Noatak-Wulik	2008	685	2273	6404.5	--	0.35	0.31	14
	2013	413	1478	6404.5	1310.2	0.23	0.21	11
Upper Noatak	2010	100	153	4485.6	1972.1	0.03	0.03	12
N. Seward Peninsula	2002	520	612	5888.5	1220.7	0.10	0.10	7
	2004	610	810	5882.9	1934.3	0.14	0.12	12
	2009	293	966	5773.2	1271.2	0.17	0.16	8
	2014	264	--	--	--	--	--	12
	2015	310	617	5767.8	1791.2	0.11	0.09	15
Upper Kobuk	2003	252	856	4001.5	895.4	0.21	0.19	12
	2006	219	737	4001.5	973.7	0.18	0.16	15
	2014	136	538	3990.8	839.2	0.13	0.13	7
	2014	186	727	5056.8	1082.5	0.14	0.13	7
Lower Kobuk	2006	1532	3398	4870.5	1457.6	0.70	0.59	15
	2012	789	2497	4870.5	1457.6	0.51	0.48	8
Lower Kobuk-Squirrel	2012	789	2546	5338.0	1290.8	0.48	0.44	8
Selawik	2007	678	2319	6580.1	1845.2	0.35	0.32	10
	2011	448	1739	6559	1289.1	0.27	0.24	11
	2015	532	--	--	--	--	--	14
	2016	520	940	6559	2273	0.14	0.13	14

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Westing 2012). The proportion of moose surveyed each year was estimated at 20-35% of the population (Westing 2012). Since 2007, fall composition surveys have been conducted sporadically in the four survey areas (**Table 3**; Saito 2016a, pers. comm.). According to Stout (2010) population guidelines, a ratio of less than 20 calves:100 cows may indicate the population is in decline while a ratio of 20-40 calves:100 cows may indicate a stable population. Taking this information into account, recent fall composition surveys show the Lower Kobuk population appears to be relatively stable while moose populations in the other survey areas appear to be in decline.

Table 3. Bull:Cow ratios in fall composition surveys conducted after 2007 (Saito 2016b, pers. comm.).

Survey Area	Year	Bulls:100 Cows	Calves:100 Cows
Selawik	2008	54	18
	2010	47	19
	2015	43	20
Lower Kobuk	2011	45	15
	2016	38	24
Lower Noatak	2013	53	4
Seward Peninsula	2014	34	16

The most recent survey completed was in the Selawik census area. The Selawik area spring moose survey was conducted in 2007, 2011, and 2016. In 2011, the moose population was estimated at 1,739 animals (Saito 2016b). This represented a 7% annual decline from the 2007 estimate of 2,319. In 2016, the population was estimated at 940; a 12% annual population decline from the 2011 survey (Saito 2016b). Fall composition surveys from 2008-2015 showed bull:cow ratios between 43-54:100. Calf recruitment remained steady during this time, ranging from 10-14 calves:100 adults for spring surveys, with fall composition ranging from 18-20 calves:100 cows (Saito 2016b).

At the Northwest Arctic Subsistence Regional Advisory Council public meeting in March (2017) NPS presented information on the importance of cow moose to overall population growth. It was stated that cow moose begin producing calves at three years of age and often produce twins every third year (NWARAC 2017). By maintaining cows in a region, a manager is potentially ensuring continued growth of that population.

Moose in Unit 23 are not evenly distributed across the landscape, with some drainages experiencing higher densities of moose than other drainages. During winter months large congregations of moose have been observed near villages, which can make these moose highly susceptible to harvest (Alaska Board of Game 2017). In areas with low moose densities, the harvest of congregations of moose near villages can lead to population crashes and possible population extirpation within the area.

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Habitat

Moose moved into Unit 23 around the 1920s (**Figure 4**), as suitable shrub and willow productivity and cover increased concurrently with rising average temperatures in the northern regions of the state (Tape et al. 2016). From 1860 to present day, willow heights have increased from an estimate of approximately 1.10 meters in 1860 to approximately 2 meters in 2009 and shrub habitat has spread in these Arctic habitats (Tape et al. 2016). Moose rely on willow and shrub habitats for browsing and for cover from predators. The taller vegetation heights estimated in the northern and western portions of the state provide more

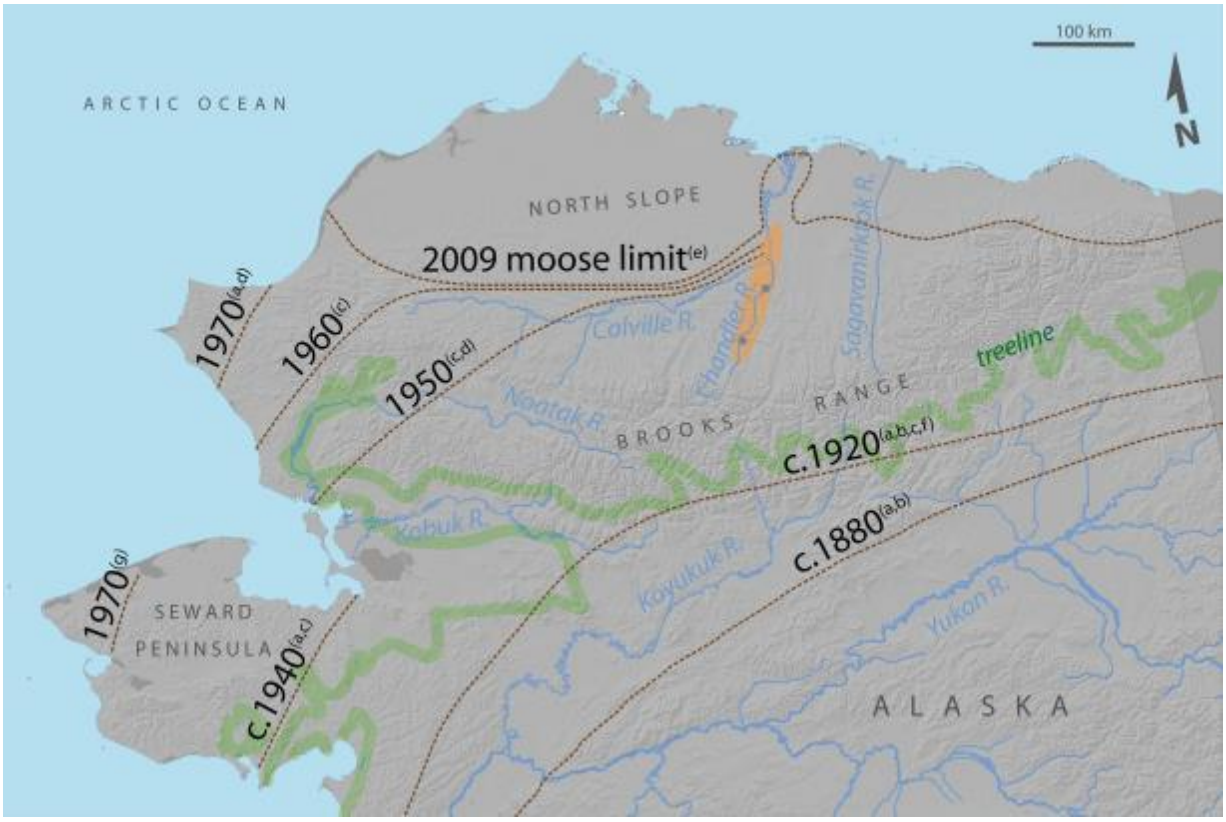

Figure 4. Temporal moose distribution changes in northern Alaska (figure from Tape et al. 2016).

suitable cover and increased available forage above the snowpack for moose populations than was present in the past (Tape et al. 2016). This expansion of moose habitat into northern latitudes has been found in other Arctic areas, such as Siberia (Frost and Epstein 2014). Wildfire (the primary driver of boreal forest succession) frequency is forecast to increase as the Arctic climate warms, causing projected moose habitat to increase by 19-64% in present day Western Arctic Caribou Herd core winter range (**Figure 5**; Joly et al. 2012). As statistical models show, this present day broad scale temporal habitat expansion of shrub habitat will continue to push north and west in Alaska as average temperatures increase across years (Swanson 2015).

With the expansion of shrub/willow habitat, migration of species reliant on this habitat resource can also be expected. Besides moose, snow shoe hare have also broadened their range into these northern regions (Tape et al. 2016). Herbivory can negatively impact habitat that is not yet stable in a newly established

area. In these areas it is necessary to monitor browsing of vegetation to understand overall habitat conditions for a species. During a habitat survey conducted in 2005, willows did not appear to be over-browsed by moose in Unit 23 (Westing 2012). Moose browse surveys were conducted in 30 plots within the Lower Kobuk survey area in Unit 23 from April 12-16, 2017. Although this data has not been analyzed at this time, past surveys showed that preferred browse removal rates are well below 20% (Hughes 2017, pers. comm.).

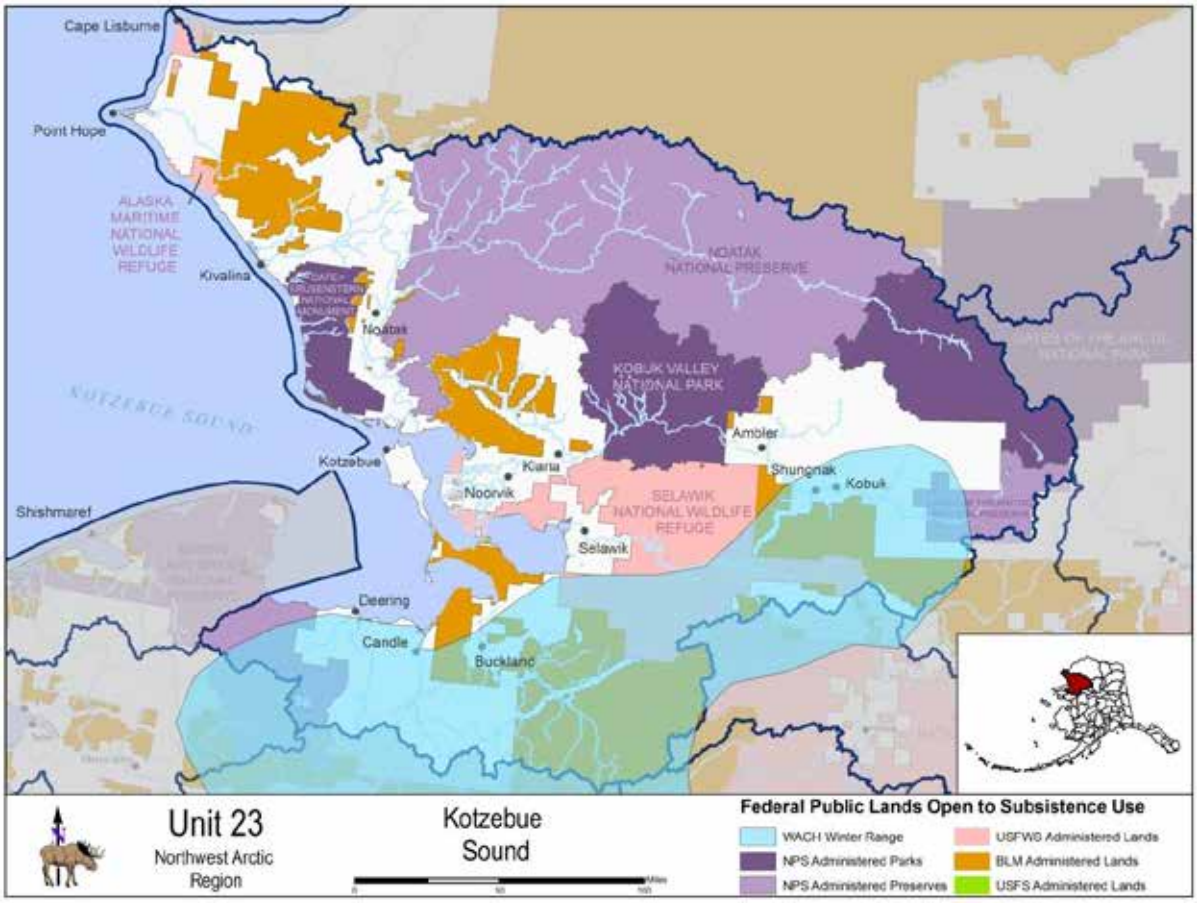

Figure 5. The location of the Western Arctic Caribou Herd winter migratory range in Unit 23 where moose habitat is expected to increase by 19-64% (Joly et al. 2012).

Cultural Knowledge and Traditional Practices

Game Management Unit 23 encompasses the Northwest Arctic Borough which was established in 1986 and is home to 7,523 residents from 11 communities (NAB 2016). Approximately 86% of the residents identify as Alaska Native or part Native, with the majority of these identifying as Inupiat Eskimo (NAB 2016). The borough comprises approximately 39,000 mi^2 on which subsistence activities are a vital part of the lifestyle for local residents (NAB 2016).

Documentation on the earliest archaeological sites to-date suggests the presence of communities in the Northwest Arctic beginning around 7900 B.C., especially inland near present-day Onion Portage

(Anderson 1984: 81). Coastal habitation in this region has been documented beginning 4,500 to 4,200 years before present (Anderson 1984: 84). By 1800, ten relatively autonomous societal territories had formed in what is commonly referred to as the "Kotzebue Region", unified by several preceding centuries of prehistoric Thule culture (Burch 1984: 304). Contact with Russians likely began in the 17th century and was followed by the arrival of Captain James Cook in Northern Alaska in 1778 (Anderson 1984: 93). The first recorded Russian contact in the Kotzebue Sound area was in 1818 by the German Lt. Otto Von Kotzebue, sailing under the Russian flag (NAB 2016).

Historically, the people of the Northwest Arctic lived in small family clusters that were spread widely across the landscape (Burch 1980: 265). It wasn't until the 20th century that most residents of the region became centralized in more permanent winter villages (Georgette and Loon 1993: 3). Kotzebue became the largest community in the region and is currently considered the hub of economic activity in the area. In 1985, Kotzebue was more than eight times larger than the average community in the region by population (2,633 individuals), and four times larger than the second largest community – Selawik (Georgette and Loon 1993: 3). In 2010 the population of Kotzebue was recorded as 3,201 individuals (DCCED 2016). The community is near the mouth of several major river systems. It is surrounded by the marine waters of Kotzebue Sound, and the original village was named "Qikiqtagruk" (Georgette and Loon 1993: 4).

The resources of the Northwest Arctic region are relatively rich and varied despite its high latitude (Burch 1984: 306). A variety of animal species are available and utilized for subsistence including marine mammals, terrestrial mammals, birds, and fish (Burch 1984: 306). Caribou has been a staple in the diet of many Inupiat peoples for centuries (Georgette and Loon 1993: 78). In many parts of the Northwest Arctic however, shifts in herd migration and size often causes variability in the availability of this resource, with the use of caribou and harvest strategies often changing accordingly over time (Georgette and Loon 1993: 78).

Despite the diversity of resources in the region, moose are considered a relatively recent addition, especially in lowland and coastal areas (Georgette and Loon 1993: 83). Archaeological sites in tundra and northern tree-line areas of Alaska have reported few moose remains until the mid-20th century and this is consistent with historical accounts and minor representation in Inupiat culture (Hall 1973, Coady 1980, Tape et al. 2016). Reports of nineteenth century explorers also lacked observations of moose along the Kobuk, Noatak, or Colville Rivers, as well as along the Arctic coast (Coady 1980).

Moose were present in the tributaries of the upper and middle Noatak River in the 1940s and became more common downriver after 1960 (Georgette and Loon 1993: 83). In the upper Kobuk River moose did not appear until the 1920s but soon thereafter populated the entirety of the drainage (Georgette and Loon 1993: 83). Uhl and Uhl (1977) reported that residents of the Cape Krusenstern area lacked historic traditions that included moose. By the 1980s, moose were present in suitable habitat throughout northwest Alaska (Georgette and Loon 1993: 84).

According to Georgette and Loon (1993), residents of Kotzebue continued to consider moose as secondary to caribou in their importance and desirability as a subsistence food; they were taken to add dietary variety. Residents hunted moose in the fall, but moose were also harvested throughout the winter as need

necessitated (Georgette and Loon 1993: 84). The relative size of moose makes them more difficult to butcher and pack than caribou, and hunters often prefer to harvest the species as close as possible to the edge of a river or a lake in proximity to their boat (Georgette and Loon 1993: 84). Moose is generally prepared and preserved by similar means as caribou, most often aged and frozen (Georgette and Loon 1993: 84). The cartilaginous parts of the nose were the only part of the heads used. Because moose hides were not generally smoked or tanned, they were rarely salvaged (Georgette and Loon 1993: 84).

The average per capita harvest of moose in Kotzebue in 1986 was 13 pounds, accounting for only 3% of the average household harvest (Georgette and Loon 1993: 84). Approximately 8% of Kotzebue households harvested moose (compared to 45% harvesting caribou), but 18% indicated that they hunted for moose but were unsuccessful (Georgette and Loon 1993: 84). Despite the small percentage of households harvesting moose, sharing of this resource was widespread with approximately 42% of households using it (Georgette and Loon 1993: 84). The use and harvest of moose by Kotzebue residents was similar in 2012 with approximately 13 pounds of this resource harvested per capita, 9% of households harvesting moose, and 37% of households using moose (ADF&G 2012).

The harvest and use of a resource in regional hubs may be different than that of a rural village since the former tends to be more heterogeneous in "culture, birthplace, education, employment, and length of residency" (Georgette and Loon 1993: 4). In 1992, the rural northwest arctic community of Kivalina harvested approximately 26 pounds of moose per capita, with 23% of the households harvesting the resource and 47% of households using the resource (ADF&G 1992). In 2010, residents of Kivalina harvested approximately 19 pounds of moose per capita with 13% of household harvesting the resource and 16% using the resource (ADF&G 2010).

Changes in harvest and use patterns may be attributable to many factors including the availability of moose and other resources in a given a year. Georgette and Loon (1993) suggested that future declines in caribou availability in the region could result in increased reliance on moose to meet the subsistence harvest demands of Kotzebue residents. Given that the Western Arctic Caribou Herd (WACH) has been declining since 2003 (Dau 2015), moose may already be becoming a more prominently sought after resource for meeting subsistence needs in the region.

Harvest History

Harvest numbers are collected from both State harvest reports and community household surveys. Community household surveys collect a broad range of information and are used as a method to determine, among other things, whether harvest is being reported accurately in State harvest reports. Harvest reports provide data on an annual basis. Community household surveys gather data from local communities pertaining to subsistence harvest on an irregular basis, with many communities only being visited once over a five year time span. In Unit 23, community household surveys show that moose harvest is underreported by local users, but nonlocal user harvest can be assumed accurate based on the requirement of registration permits and drawing permits in some areas. This section will discuss State harvest report data prior to reviewing community household survey data.

Prior to 2005 a greater percentage of the total reported moose harvest in Unit 23 was from non-Federally qualified users. In 2003 approximately 80% of the reported harvest was from non-Federally qualified users (ADF&G 2016). In 2005, after the implementation of registration hunts (RM880) by the BOG, this percentage dropped to approximately 56% (ADF&G 2016). According to the ADF&G (2016) harvest report website, the average annual reported harvest in Unit 23 from 2005-2015 was 153 moose, which is below the harvestable surplus (450) for the unit (**Table 1 and 4**). A majority of moose taken over these years have been bulls. Local residents, defined as those residing within Unit 23, accounted for 50.4% of the total reported harvest from 2005-2015 and 51.5% in 2015 alone (**Figure 6;** ADF&G 2016). Harvest success by local residents remained flat between 2004-2014 (**Figure 7**). In 2015, 165 moose (144 male, 21 female) were reported harvested (≈ 115 taken in September) with 35.1% hunter success by all users and local users making up 58% of all moose hunters throughout the unit (**Figure 7 and 8, Table 4 and 5;** ADF&G 2016, Saito 2016a, pers. comm., WINFONET 2017). In the last few years a majority of the moose harvest in Unit 23 was taken from the Kobuk drainage (**Figure 9;** ADF&G 2017a). In 2015, a majority of nonlocal users used aircraft to access hunting areas (19 nonresidents, 20 nonlocal residents, and 2 local residents), whereas most local residents reported using boats (1 nonresident, 20 nonlocal residents, 51 local residents) or snow machines (1 nonlocal resident, 22 local residents) to access hunting areas (WINFONET 2017). Community household survey data was not included in any of these values and will be discussed later in the analysis.

Table 4. Reported moose harvest in Unit 23 for 2005-2015 (ADF&G 2016).

Year	Species	Local Resident Harvest	Nonlocal Resident Harvest	Total Resident Harvest	Unknown Residency Harvest	Nonresident Harvest	Total Harvest	Male	Female	Unknown Gender
2015	Moose	85	59	144	1	20	165	144	21	0
2014	Moose	74	40	114	0	10	124	109	14	1
2013	Moose	88	53	141	2	21	164	151	12	1
2012	Moose	75	57	132	0	24	156	146	10	0
2011	Moose	72	45	117	1	26	144	133	11	0
2010	Moose	102	63	165	2	22	189	169	17	3
2009	Moose	80	50	130	2	23	155	144	10	1
2008	Moose	62	48	110	1	40	151	143	7	1
2007	Moose	64	29	93	5	25	123	116	7	0
2006	Moose	79	49	128	1	30	159	150	7	2
2005	Moose	65	41	106	1	41	148	137	10	1
Total:		**846**	**534**	**1380**	**16**	**282**	**1678**	**1542**	**126**	**10**

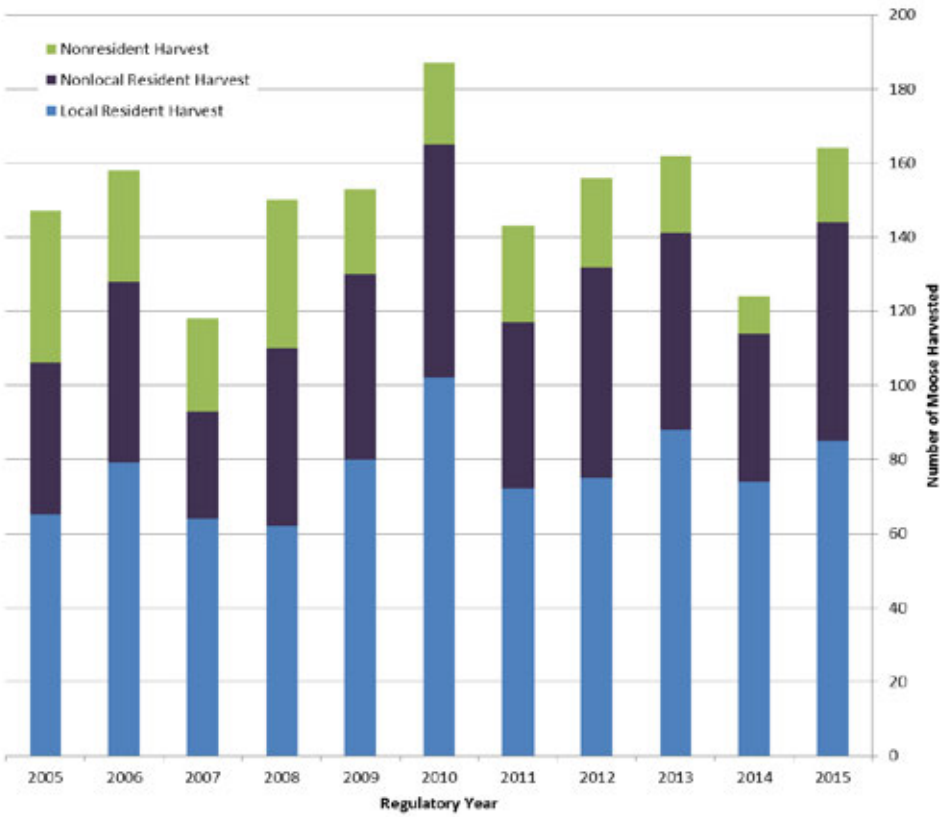

Figure 6. Number of moose harvested in Unit 23 from 2005-2015 according to State harvest reports (ADF&G 2016).

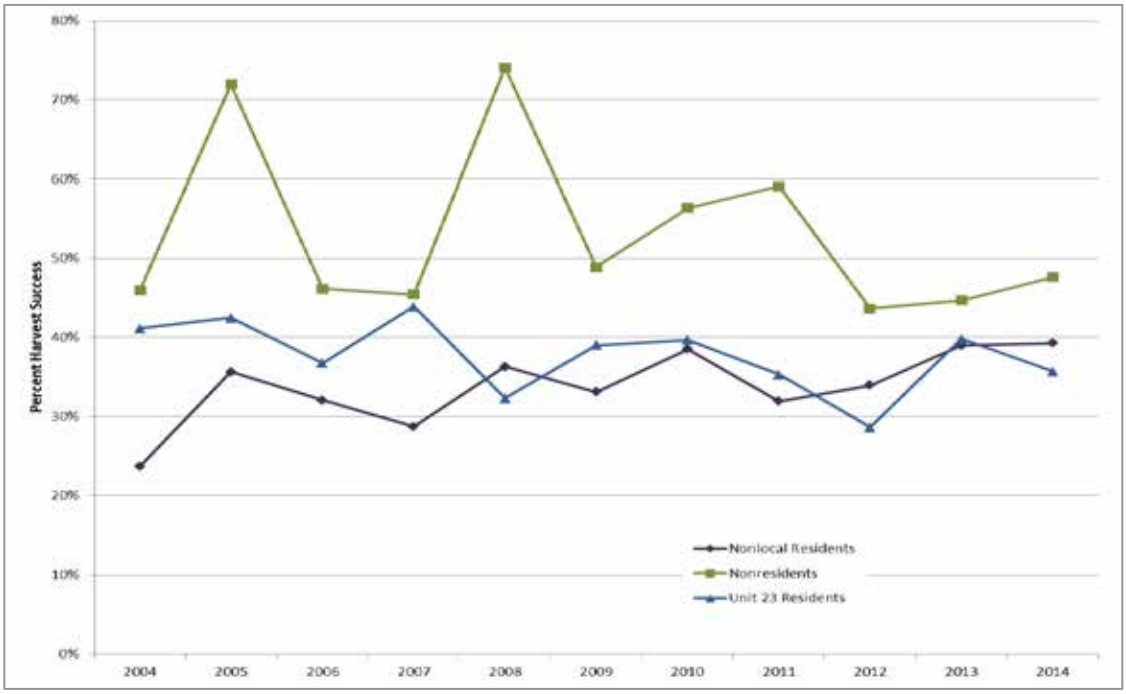

Figure 7. Moose harvest success among users of Unit 23 from 2004-2014 according to State harvest reports (Saito 2016a, pers. comm.).

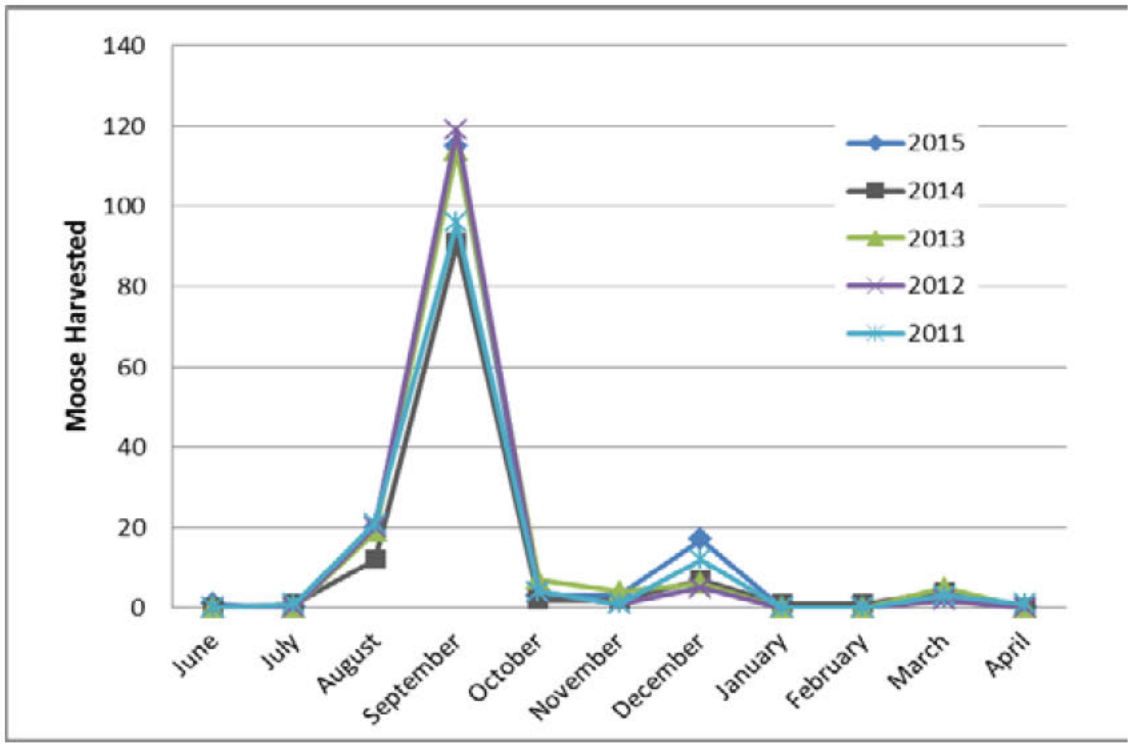

Figure 8. Moose harvest, by month, among users of Unit 23 from 2011-2015 according to State harvest reports (WINFONET 2017).

Table 5. Unsuccessful hunters that took part in moose hunts in Unit 23 according to ADF&G harvest reports compared to overall hunter participation according to State harvest reports (ADF&G 2016).

Year	Unsuccessful Local Resident	Unsuccessful Nonlocal Resident	Unsuccessful Nonresident	Unsuccessful Unspecified	Total Unsuccessful Hunters	Total Successful Hunters	Total Hunters Overall
2015	189	94	24	1	308	165	473
2014	130	76	11	1	218	124	342
2013	133	83	26	1	243	164	407
2012	187	111	31	1	330	156	486
2011	131	96	18	2	247	144	391
2010	154	102	17	0	273	189	462
2009	124	102	24	2	252	155	407
2008	127	87	14	3	231	151	382
2007	83	72	30	3	188	123	311
2006	136	104	34	3	277	159	436
2005	88	74	16	1	179	148	327

ADF&G issues both drawing permits to nonresidents (DM871, 872, 874, 876, 885) and registration permits to residents (RM880) in Unit 23. According to ADF&G harvest statistics, DM885 permits were not available until 2013 and permits available from DM871-877 hunts varied throughout the years (ADF&G 2017c). The total number of nonresident drawing permits given out in Unit 23 has declined since 2010

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(**Table 6**). The number of registration hunt permits handed out in Unit 23 has increased since 2011 (**Table 7**). Harvest reporting is required under registration permits, drawing permits, and harvest tickets, although it is more difficult to enforce reporting under the harvest ticket system.

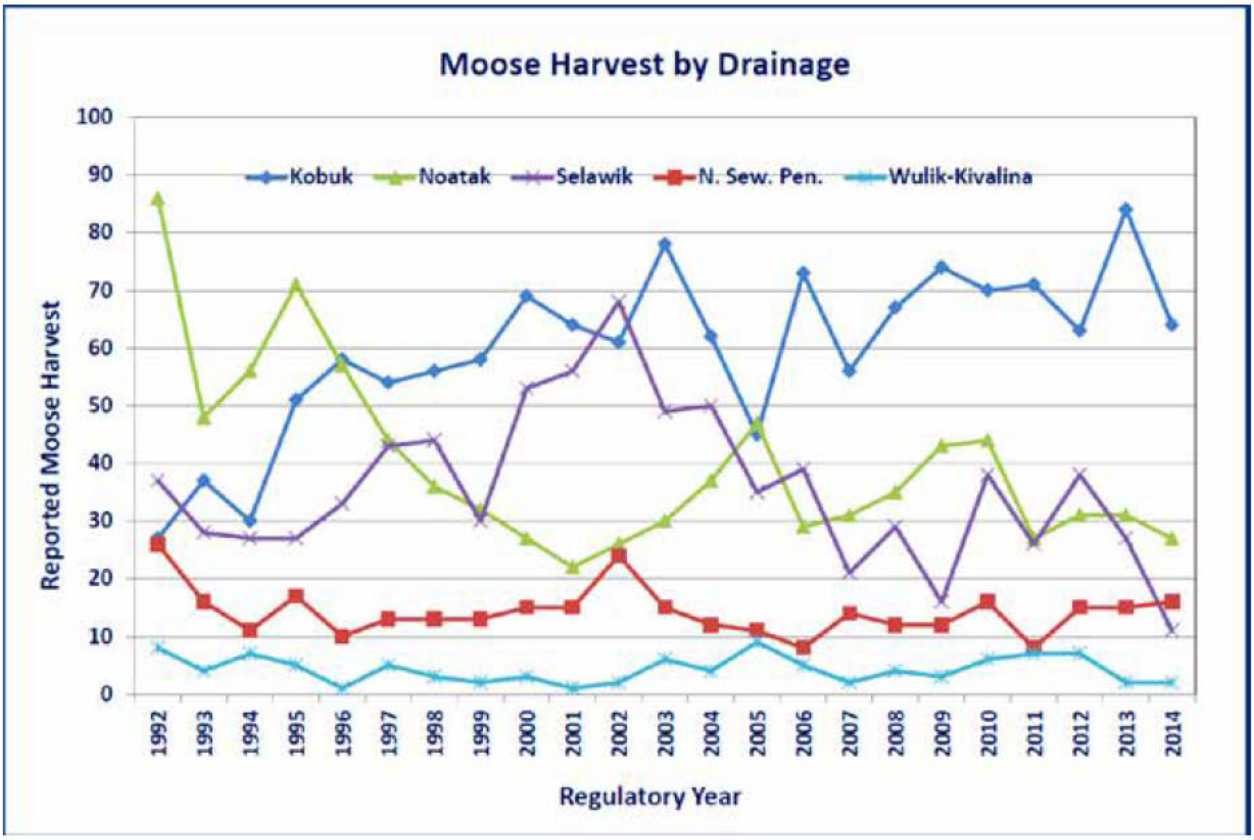

Figure 9. Moose harvest, by drainage, among users of Unit 23 from 1992-2014 according to State harvest reports (figure from ADF&G 2017a).

Table 6. Number of drawing permits available from ADF&G from 2011-2015 (ADF&G 2017c). Number of hunters is the number of individuals who received permits that actually went hunting.

Drawing Permit Hunts in Unit 23		
Year	Number of Permits	Number of Hunters
2011	68	43
2012	68	49
2013	65	51
2014	68	49
2015	50	37

Table 7. Number of registration permits given out by ADF&G from 2011-2015 (ADF&G 2017c). Number of hunters is the number of individuals who received permits that actually went hunting.

Registration Permit Hunt in Unit 23		
Year	Number of Permits	Number of Hunters
2011	446	261
2012	534	308
2013	522	299
2014	587	318
2015	569	336

Although Federally qualified subsistence users are required to obtain a harvest ticket from the State and report their harvest accordingly, community household surveys show that harvest reporting is generally low in Unit 23 (NWARAC 2016). Annual community harvest data is only intermittently available for any given community and annual study periods often do not match up with State regulatory years. However, in 2011, seven moose were reported as harvested by Selawik locals (ADF&G 2017d) while community household survey data in Selawik showed that approximately 40 moose were harvested by local residents that year (NWARAC 2016, Saito 2016b). Taking this disparity into account, ADF&G estimated that approximately 70 moose are taken from the Selawik drainage annually. This translates to a 7% harvest, which is high for the area (NWARAC 2016). Similar disparities can be seen in other communities over the last five years (**Table 8**). In 2011 and 2012, two and five communities were surveyed, respectively, with the number of moose harvested being greater than 50% and 150% of the entire reported local moose harvest for Unit 23 (**Table 9**; ADF&G 2017d, Saito 2016a, pers. comm.). These discrepancies are not taken into account when total harvest for the unit is reported on the ADF&G harvest report site. Although an average of 153 moose are reported in the ADF&G harvest reports, it is estimated from taking into account community household surveys that approximately 300 moose are harvested annually in Unit 23 (NWARAC 2017). The actual harvest of cow moose, in particular, is similarly expected to be approximately double of what is reported in harvest reports (Alaska Board of Game 2017). This is most likely a conservative estimate of overall harvest due to community surveys not being conducted in every community each year.

Table 8. Recorded moose harvest based on community surveys and harvest reports for those Unit 23 communities (ADF&G 2017d, Saito 2016a, pers. comm.).

Year	Community	Moose Harvested	
		Community Survey	Harvest Reports
2011	Noatak	14	5
	Selawik	40	7
2012	Ambler	14	3
	Kobuk	4	1
	Kotzebue	72	36
	Noorvik	24	9
	Shungnak	5	1
2013	Deering	1	3
2014	Point Hope	0	0

Table 9. Number of moose harvested according to community surveys vs. the number of moose harvested according to harvest reports for all of Unit 23 (ADF&G 2017d, Saito 2016a, pers. comm.).

Year	Overall Moose Harvested by Local Residents	
	Community Surveys (number of communities surveyed)	Harvest Reports For Unit 23
2011	54 (2)	72
2012	119 (5)	75
2013	1 (1)	88
2014	0 (1)	74

Other Alternative(s) Considered

Federal regulations could be modified to align with recent changes to State regulations in Unit 23, which eliminated the antlerless season and changed the harvest limit to one antlered bull. This would simplify regulations and protect cow moose in a declining moose population. Since cow moose are the keystone to population growth, conserving cows is essential to maintaining a healthy moose population. Eliminating cow harvest and shortening the overall moose seasons could aid in increasing the moose population in the unit. This modification would result in an additional reduction of harvest opportunity to Federally qualified subsistence users. Further discussion is warranted with the relevant Councils and the public before this alternative can be considered further.

Another option that could be considered is to modify Federal regulations to include a shorter cow season as requested and to provide Federal land managers with a delegated authority to close the cow hunt if deemed necessary to protect the moose population within specified drainages. This option would require up-to-date moose population data within drainages managed by the in-season manager. Due to census surveys only taking place approximately every five years in each census area, it could be difficult to detect population declines in specified drainages in a timely manner needed to make management decisions of this nature. This alternative would require up-to-date moose population data and interagency cooperation within drainages managed by the in-season manager.

Federal regulations could also be modified to create separate antlered and antlerless seasons rather than simply having bull and cow seasons, shorten the antlerless season, as requested, and include a Federal registration permit to better monitor cow harvest within Unit 23. Since the harvest of antlerless moose is no longer permitted on non-Federal lands, the harvest of cow moose may already be reduced. Shortening the antlerless moose harvest season on Federal lands could additionally reduce cow harvest. Since it is currently expected that much of the cow harvest is unreported, the addition of a registration permit may increase harvest reporting and provide a better understanding of the antlerless moose harvest within Unit 23. However, this alternative may not reduce cow harvest enough to make a substantial impact on the moose population in Unit 23.

Effects of the Proposal

If adopted, proposal WP18-41would shorten the moose season, reduce cow harvest, create a bull season, and reduce regulatory complexity between Federal and State hunt areas. According to community household surveys, local users may be responsible for as much as 73% of the moose harvest in the unit. Although better harvest reporting is needed, reducing overall harvest by local users could have a positive effect on the moose population. Browse surveys show that habitat is not currently a limiting factor for moose in Unit 23 and therefore, limiting harvest may allow for increased moose production.

A majority of the moose harvest by Federally qualified subsistence users takes place in September with another small peak of harvest occurring in December. Shortening the Federal season in Unit 23 by three months would result in reduced opportunity, but closing the season on December 31 would still allow Federally qualified users to harvest moose during their typical peak harvest dates.

Combining Federal hunt areas to align with State hunt areas would simplify harvest regulations and limit user confusion. Currently, the Noatak River drainage and the remainder hunt areas (**Figure 10**) have identical seasons and the Noatak drainage has a 5 month cow season. If the shortened cow season is adopted throughout the unit, combining these areas into a single hunt area would help to simplify regulations and help reduce regulatory complexity for Federally qualified subsistence users.

Overall, many of the effects of adopting proposal WP18-42 are similar to the effects of adopting proposal WP18-41. Proposal WP18-42 would reduce cow moose harvest by limiting current harvest limits during the regular season to one bull moose, and creating a winter registration permit hunt for any moose in Unit 23 that would include a target quota that would reduce the total cow harvest by 20% of current harvest levels.

In Unit 23, 21 cow moose were reported as harvested in 2015. If this proposal were adopted, the winter any moose registration hunt quota would be set at 17 moose. This reduction would most likely not have a significant impact on the moose population in Unit 23, since in previous years (2010-2014), annual cow moose harvest was reported to be between 10-17 cows and yet, the moose population still showed a decline. Requiring Federal registration permits for this season could lead to better harvest reporting among local users, but it could alternatively lead to greater confusion and lead to worse harvest reporting.

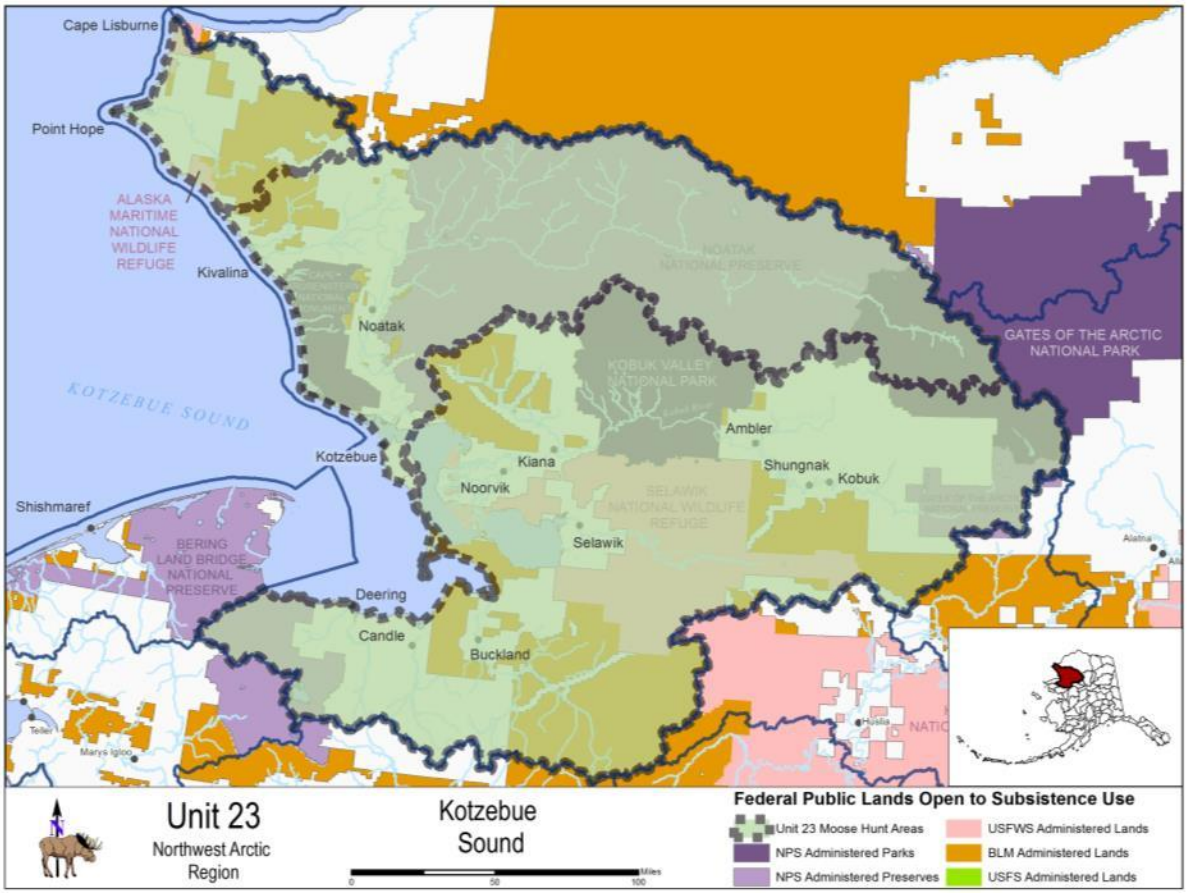

Figure 10. Current Federal moose hunting areas within Unit 23. If this proposal is adopted then the Noatak drainage would be combined with the southernmost remainder hunt area.

OSM PRELIMINARY CONCLUSION

Support Proposal WP18-41 **with modification** to change the harvest limit to one antlered bull July 1 (Aug. 1) – Dec. 31 and create a Nov. 1-Dec. 31 antlerless season by Federal registration permit and delegate authority to the Federal land manager to determine quotas and to close the season via a delegation of authority letter only (**Appendix I**); and **take no action** on Proposal WP18-42.

The modified regulation should read:

Unit 23—Moose

Unit 23—that portion north and west of and including the Singoalik River drainage, and all lands draining into the Kukpuk and Ipewik Rivers.

1 antlered bull	*July 1~~Mar.~~**Dec.** 31*

Or

1 antlerless moose by Federal registration permit. *No person may take a calf or a cow accompanied by a calf.*	***Nov. 1-Dec. 31***
~~*Unit 23—that portion lying within the Noatak River drainage—1 moose; however, antlerless moose may be taken only from Nov. 1-Mar. 31; no person may take a calf or a cow accompanied by a calf*~~	~~*Aug. 1-Mar. 31.*~~
Unit 23, remainder	
1 antlered bull	*Aug. 1-~~Mar.~~**Dec.** 31*
Or	
1 antlerless moose by Federal registration permit. *No person may take a calf or a cow accompanied by a calf.*	***Nov. 1-Dec. 31***

Justification

The moose population in Unit 23 is in decline across most of the unit. This trend can be seen in decreased census population estimates and calf:cow ratios below 20:100, both of which indicate a declining population. Areas, such as the Selawik drainage, have been experiencing up to a 12% annual decline between 2011 and 2016. Due to spring population census surveys, in each drainage, only taking place approximately every five years, it is difficult to assess the moose population decline across the unit as a whole. Moose densities vary by drainage and winter populations can be highly concentrated near villages, which can make them susceptible to harvest. If low density populations congregate near villages during the winter months during the moose season, then moose populations can quickly be locally extirpated.

Since cow moose are the keystone to population growth, conserving cows is essential to maintaining a healthy moose population. Obtaining better antlerless moose harvest data via a Federal registration hunt may assist in understanding cow moose harvest levels and related impacts to the moose population in Unit 23 as a whole. Changing to an antlered bull season, rather than a general bull season, will help reduce the risk of inadvertent cow harvest during a time when many bulls have dropped their antlers. Additionally, limiting the antlerless moose harvest to a two month season, setting an antlerless moose quota, and shortening the overall moose seasons could aid in increasing the moose population in the unit.

We recommend that the initial antlerless moose quota be set to reduce annual cow harvest by 20% based on the average of the last ten years of reported cow harvest. Using harvest data from 2006-2015 (**Table 4**), the initial quota would be set at nine antlerless moose. The Federal land manager will have the authority to modify the quota annually and specify drainages within Unit 23 in which the hunt will take place, based on the moose population status.

The State has already taken steps to limit moose harvest in the unit to allow for population growth including elimination of the antlerless season and the withdrawal of nonresident drawing permits for the 2017 fall moose season due to conservation concerns. Since local users may be responsible for as much as 73% of the total harvest in Unit 23 and much of this harvest goes unreported, shortening the overall season in

Federal regulations, changing to an antlered moose hunt, and establishing a limited antlerless moose hunt during a two month season, may provide an additional benefit to the moose population.

A majority of moose harvested by Federally qualified subsistence users takes place in September with another small peak of harvest occurring in December. Closing the season on December 31 would still allow Federally qualified subsistence users to harvest moose during their typical peak harvest dates. Combining Federal hunt areas would simplify harvest regulations and limit user confusion.

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APPENDIX I

Dear ___ Manager:

This letter delegates specific regulatory authority from the Federal Subsistence Board (Board) to the _____ Manager to issue emergency or temporary special actions if necessary to ensure the conservation of a healthy wildlife population, to continue subsistence uses of wildlife, for reasons of public safety, or to assure the continued viability of a wildlife population. This delegation only applies to the Federal public lands subject to Alaska National Interest Land Conservation Act (ANILCA) Title VIII jurisdiction within Unit 23 as it applies to moose on these lands.

It is the intent of the Board that actions related to management of moose by Federal officials be coordinated, prior to implementation, with the Alaska Department of Fish and Game (ADF&G), the Bureau of Land Management (BLM), Gates of the Arctic National Park and Preserve, Western Arctic Parklands, Selawik National Wildlife Refuge, Alaska Maritime National Wildlife Refuge, and the Chairs of the Northwest Arctic and North Slope Subsistence Regional Advisory Councils (Councils) to the extent possible. Federal managers are expected to work with managers from the State and other Federal agencies, the Council Chairs, and applicable Council members to minimize disruption to subsistence resource users and existing agency programs, consistent with the need for special action.

DELEGATION OF AUTHORITY

1. Delegation: The __ Manager is hereby delegated authority to issue emergency or temporary special actions affecting moose on Federal lands as outlined under the **Scope of Delegation** below. Any action greater than 60 days in length (temporary special action) requires a public hearing before implementation. Special actions are governed by regulation at 36 CFR 242.19 and 50 CFR 100.19.

2. Authority: This delegation of authority is established pursuant to 36 CFR 242.10(d)(6) and 50 CFR 100.10(d)(6), which states: "The Board may delegate to agency field officials the authority to set harvest and possession limits, define harvest areas, specify methods or means of harvest, specify permit requirements, and open or close specific fish or wildlife harvest seasons within frameworks established by the Board."

3. Scope of Delegation: The regulatory authority hereby delegated is limited to the following

authorities within the limits set by regulation at 36 CFR 242.26 and 50 CFR 100.26:

- To set annual harvest quotas for antlerless moose and close the antlerless moose season on Federal lands in Unit 23 once the quota has been reached.

- To specify drainages within Unit 23 in which the antlerless moose season will occur.

This delegation may be exercised only when necessary to conserve moose populations, to continue subsistence uses, for reasons of public safety, or to assure the continued viability of the population.

All other proposed changes to codified regulations, such as customary and traditional use determinations, adjustments to methods and means of take, or closures and restriction for take for only non-Federally qualified users shall be directed to the Federal Subsistence Board.

The Federal public lands subject to this delegated authority are those within Unit 23.

3. Effective Period: This delegation of authority is effective from the date of this letter and continues until superseded or rescinded.

4. Guidelines for Delegation: You will become familiar with the management history of the wildlife species relevant to this delegation in the region, with current State and Federal regulations and management plans, and be up-to-date on population and harvest status information. You will review special action requests or situations that may require a special action and all supporting information to determine (1) consistency with 36 CFR 242.19, (2) if the request/situation falls within the scope of authority, (3) if significant conservation problems or subsistence harvest concerns are indicated, and (4) what the consequences of taking an action or no action may be on potentially affected subsistence users and non-Federally qualified users. Requests not within your delegated authority will be forwarded to the Federal Subsistence Board for consideration. You will maintain a record of all special action requests and rationale for your decision. A copy of this record will be provided to the Administrative Records Specialist in the Office of Subsistence Management (OSM) no later than sixty days after development of the document.

You will notify OSM and coordinate with local ADF&G managers, Federal land managers, and the Chairs of the Northwest Arctic and North Slope Subsistence Regional Advisory Councils regarding special actions under consideration. You will issue decisions in a timely manner. Before the effective date of any decision, reasonable efforts will be made to notify the public, OSM, affected State and Federal managers, law enforcement personnel, and Council representatives. If an action is to supersede a State action not yet in effect, the decision will be

communicated to the public, OSM, affected State and Federal Managers, and the local Council representatives at least 24 hours before the State action would be effective. If a decision to take no action is made, you will notify the proponent of the request immediately. A summary of special action requests and your resultant action must be provided to the coordinator of the appropriate Subsistence Regional Advisory Council(s) at the end of each calendar year for presentation to the Council(s).

You may defer a special action request, otherwise covered by this delegation of authority, to the Federal Subsistence Board in instances when the proposed management action will have a significant impact on a large number of Federal subsistence users or is particularly controversial. This option should be exercised judiciously and may be initiated only when sufficient time allows for it. Such deferrals should not be considered when immediate management actions are necessary for conservation purposes. The Federal Subsistence Board may determine that a special action request may best be handled by the Board, subsequently rescinding the delegated regulatory authority for the specific action only.

5. <u>Support Services:</u> Administrative support for regulatory actions will be provided by the Office of Subsistence Management, U.S. Fish & Wildlife Service, Department of the Interior.

Sincerely,

Anthony Christianson
Chair, Federal Subsistence Board

cc: Assistant Regional Director, Office of Subsistence Management
Deputy Assistant Regional Director, Office of Subsistence Management
Subsistence Council Coordinators, Office of Subsistence Management
Chair, Northwest Arctic Subsistence Regional Advisory Council
Chair, North Slope Subsistence Regional Advisory Council
Commissioner, Alaska Department of Fish and Game
Federal Subsistence Liaison Team Leader, Alaska Department of Fish and Game
Federal Subsistence Board
Interagency Staff Committee
Administrative Record

WP18–43 Executive Summary	
General Description	Proposal WP18-43 requests that the Unit 23 brown bear harvest limit be increased from one to three bears and that the season be extended to year-round. *Submitted by: Northwest Arctic Subsistence Regional Advisory Council.*
Proposed Regulation	**Unit 23—Brown Bear** *Unit 23—~~1~~ **3** bears by State subsistence registration permit* ~~*Aug. 1 May 31*~~. ***July 1 – June 30***
OSM Preliminary Conclusion	**Support** Proposal WP18-43 **with modification** to increase the harvest limit to two bears per year. The modified regulation should read: **Unit 23—Brown Bear** *Unit 23—~~1~~ **2** bears by State subsistence registration permit* ~~*Aug. 1 May 31*~~. ***July 1 – June 30***
Southeast Alaska Subsistence Regional Advisory Council Recommendation	
Southcentral Alaska Subsistence Regional Advisory Council Recommendation	
Kodiak/Aleutians Subsistence Regional Advisory Council Recommendation	
Bristol Bay Subsistence Regional Advisory Council Recommendation	
Yukon-Kuskokwim Delta Subsistence Regional Advisory Council	

WP18–43 Executive Summary	
Recommendation	
Western Interior Alaska Subsistence Regional Advisory Council Recommendation	
Seward Peninsula Subsistence Regional Advisory Council Recommendation	
Northwest Arctic Subsistence Regional Advisory Council Recommendation	
Eastern Interior Alaska Subsistence Regional Advisory Council Recommendation	
North Slope Subsistence Regional Advisory Council Recommendation	
Interagency Staff Committee Comments	
ADF&G Comments	
Written Public Comments	**1 Oppose**

DRAFT STAFF ANALYSIS
WP18-43

ISSUES

Proposal WP18-43, submitted by the Northwest Arctic Subsistence Regional Advisory Council, requests that the Unit 23 brown bear harvest limit be increased from one to three bears and that the season be extended to year-round.

DISCUSSION

The proponent notes an overabundance of brown bears in Unit 23 and states that the proposed regulation changes would reduce human-bear conflicts, particularly the destruction of cabins and taking of meat from boats. The proponent also claims that disturbance of caribou migration by brown bears may also be reduced.

Existing Federal Regulation

Unit 23—Brown Bear

Unit 23—1 bear by State subsistence registration permit	*Aug. 1-May 31.*

Proposed Federal Regulation

Unit 23—Brown Bear

*Unit 23—~~1~~ **3** bear**s** by State subsistence registration permit*	*~~Aug. 1 May 31~~.* ***July 1 – June 30***

Existing State Regulation

Unit 23—Brown Bear

Residents: Two bears every regulatory year		*Aug. 1 – May 31*
Nonresidents: One bear every regulatory year by permit	*DB761-767*	*Aug. 1 – Oct. 31*
OR		
Nonresidents: One bear every regulatory year by permit	*DB771-777*	*Apr. 15-May 31*
OR		
Nonresidents: One bear every regulatory year by permit available at ADF&G in Kotzebue, Nome, and Galena beginning July 31	*RB761-767*	*Aug. 1-Oct. 31*
OR		

Nonresidents: One bear every regulatory year by permit available at ADF&G in Kotzebue, Nome, and Galena beginning Apr. 14	*RB771-777*	*Apr. 15-May 31*

In addition to other regulations, subsistence regulations apply to the following "Residents Only" hunt

Residents: Two bears every regulatory year by permit available in Kotzebue and Unit 23 license vendors beginning July 1	*RB700*	*Aug. 1-May 31*

Extent of Federal Public Lands

Federal public lands comprise approximately 71% of Unit 23 and consist of 40% National Park Service (NPS) managed lands, 22% Bureau of Land Management (BLM) managed lands, and 9% U.S. Fish and Wildlife Service (USFWS) managed lands.

Customary and Traditional Use Determinations

Residents of Units 21 and 23 have a customary and traditional use determination for brown bear in Unit 23.

Regulatory History

State brown bear hunting regulations were established for Unit 23 in 1961. From 1961 until the early 1990s, State regulations were geared toward trophy hunting (Westing 2013). Since the 1980s, brown bear hunting regulations across northern Alaska have become more liberal, including longer seasons, higher harvest limits, and the waiving of resident tag fees (Miller et al. 2011).

Federal brown bear hunting regulations for Unit 23 were adopted from State regulations in 1990. The season was Sept. 1-Oct. 10 and Apr. 15-May 25 with a harvest limit of one bear every four years. Residents of Units 21 and 23 were considered Federally qualified subsistence users for brown bear in Unit 23.

In 1992, seven proposals (P92-074, 075, 076, 078, 079, 086, 167) were submitted to change brown bear regulations in Unit 23. Proposals P92-74, and 78 sought to liberalize the brown bear harvest limit. Proposals P92-76, 79, and 86 sought to liberalize both the harvest limit and season. Proposals P92-075 and 167 requested eliminating the sealing requirement, prohibiting transfer of hides outside of Unit 23 unless to one's residence in Unit 21, requiring the salvage of all edible meat and the submittal of a harvest report and both ears to a Federally authorized representative within 30 days of harvest. These proposals were submitted because the current regulations conflicted with traditional practices, including restrictive seasons and harvest limits, failure to salvage edible meat, and sealing requirements. The Federal Subsistence Board (Board) considered these proposals concurrently and adopted them with modification to create the Northwest Alaska Brown Bear Management Area (NWABBMA), which included Unit 23 except for the Baldwin Peninsula north of the Arctic Circle (Kotzebue). The sealing requirement was removed

and the use of aircraft in any manner for brown bear subsistence hunting was prohibited. The season in the new hunt area was expanded to Sept. 1 – May 31 and the harvest limit became one bear by State registration permit. The harvest limit and season in Unit 23 remainder was unchanged.

In 1992, the Alaska Board of Game (BOG) also modified Unit 23 brown bear regulations in recognition of traditional harvest of bears by Inupiat hunters for meat, hides, and fat (Westing 2013). The BOG also established the NWABBMA and subsistence registration hunt (RB700) in line with recent changes under Federal regulations.

In 2005, the Board adopted proposal WP05-17 with modification to combine the Unit 23 brown bear hunt areas and to expand the season to Aug. 1 – May 31. This was done to provide more opportunity to Federally qualified subsistence users, to reduce regulatory complexity by aligning State and Federal regulations, and because there were no conservation concerns.

In 2007, Proposal WP07-50 proposed eliminating the permit requirement to hunt brown bear in Unit 23 because it was a burden on Federally qualified subsistence users and often permits were not available in villages. The proposal was withdrawn by the proponent before it went to the Board in order to allow more time to discuss the issue with the Councils and various agencies.

In 2008, the Board adopted Proposal WP08-52 to allow the sale of handicrafts made from nonedible parts of brown bears (i.e. fur, claws) taken in Unit 23 so that subsistence users could more fully utilize the brown bear resource.

In 2012, the Board adopted Proposal WP12-01 to require sealing of brown bear hides or claws prior to selling handicrafts incorporating these parts. This was done in order to ensure that marketed handicrafts are made from legally harvested bears.

In 2014, Proposal WP14-40 proposed eliminating the permit requirement to hunt brown bear in Unit 23 to reduce confusion about hunting regulations and to allow for more opportunistic harvests. The Board adopted WP14-40 with modification to insert the word "subsistence" into regulations (1 bear by State *subsistence* registration permit) in order to clarify that permits were required under both State and Federal subsistence hunting regulations versus State sport hunting regulations, which require sealing of hides and skulls. Eliminating the permit requirement was not adopted as it was an essential mechanism to monitor harvest and to inform brown bear management in the unit. Additionally, Federally qualified subsistence users would then be required to seal harvested bears. (However, sealing is required under the subsistence registration permit if the bear is removed from the unit or parts are sold as handicrafts).

In 2016, the BOG adopted Proposal 57 to allow the sale of brown bear hides and/or skulls by Alaska residents in units where the harvest limit is two or more bears annually. The proposal was submitted by the Nushagak Advisory Committee with the stated intent of encouraging brown bear harvest to 1) reduce predation on moose and caribou and 2) to reduce bear hazards around communities.

In 2017, the BOG adopted Proposal 40 to increase the resident brown bear harvest limit in Unit 23 to 2 bears per regulatory year. The BOG supported Proposal 40 because it provides more harvest opportunity, there were no conservation concerns, and because it was supported by five local Fish and Game Advisory Committees (ACs). Chairman Spraker also stated a second bear has not often been harvested in other units with a two bear harvest limit and that bear harvests in other units with long seasons have been sustainable (ADF&G 2017a). Proposals 37, 38, and 39 requested lengthening the nonresident brown bear season in Unit 23. The BOG adopted Proposal 37 to extend the nonresident season from Sept. 1-Oct. 31 to Aug. 1-Oct. 31 and took no action on Proposals 38 and 39. The BOG supported Proposal 37 in order to provide nonresidents more opportunity, to alleviate user conflicts during September by spreading nonresident hunting out over a longer season, and because all the local ACs supported it.

The Noatak Controlled Use Area (Noatak CUA) prohibits the use of aircraft in any manner for big game hunting from Aug. 15-Sept. 30 within a 10 mile corridor (5 miles either side) along the Noatak River. The Noatak CUA under State regulations extends from the mouth of the Agashashok River upstream to the mouth of the Nimiuktuk River. The Noatak CUA under Federal regulations extends from the mouth of the Noatak River upstream to the mouth of Sapun Creek. The purpose of this CUA is to reduce conflicts between local and nonlocal hunters and to improve subsistence harvests and caribou migration.

Current Events

Proposal WP18-44 requests that up to two raw/untanned brown bear hides (with claws attached) and/or skulls from brown bears harvested on Federal public lands in Unit 23 could be sold per regulatory year. The decision on WP18-44 could have ramifications on this proposal (i.e. permit requirements).

Biological Background

State management objectives for brown bear in Unit 23 are as follows (Westing 2013):

- Maintain a population that sustains a 3-year mean annual reported harvest of at least 50% males.
- Conduct a brown bear population estimate for some portion on Unit 23 in cooperation with Department of Interior (DOI) staff at least once every reporting period.
- Continue community-based assessments to collect brown bear harvest information from residents of Unit 23.
- Seal bear skins and skulls, determine sex, and extract a tooth for aging.
- Monitor harvest data (age, sex, and skull size) for changes related to selective pressure.
- Improve communication between the public and the Alaska Department of Fish and Game (ADF&G) to improve harvest reporting and prevent defense of life and property situations from occurring.

Biological information and trends for brown bear in most of Unit 23 is lacking. As brown bears in Interior Alaska are wide ranging and occur at low densities, population estimates are difficult and expensive to

obtain (Miller et al. 1997, 2011, Mowat et al. 2013, Schmidt et al. 2017). Brown bear densities are classified as adult bears (3+ years-old) and bears of all ages (bears), which includes sows with cubs.

In the early 1990s, surveys were conducted in the Western Brooks Range to obtain baseline data on bear abundance. Brown bear density was estimated as 29.5 bears of all ages/1,000 km^2 (Miller et al. 1997). Brown bear density within Gates of the Arctic National Park & Preserve (GAAR) is currently considered relatively low (Joly 2017, pers. comm.).

Aerial bear surveys were conducted in the lower Noatak Drainage in 1987, 2008, and 2016. While data seems to suggest that the brown bear population is increasing in this area, these surveys are not directly comparable due to differing methodologies and scales (NPS 2017). In 1987, a brown bear census was conducted in the lower Noatak River drainage to provide a benchmark of bear abundance before the Red Dog Mine was constructed (Westing 2013). Density was estimated at 1 adult bear/26 mi^2 (Westing 2013) and 17.9 bears/1000 km^2 (Miller et al. 1997). However, the study area was relatively small (2,000 km^2) and may not be representative of all of Unit 23. Preliminary results from the 2008 survey using the 1987 sightability correction factor (SCF) indicated a brown bear density of 3.4 bears/26 mi^2 (ADF&G 2017b, Saito 2017, pers. comm.). However, this estimate is likely not accurate due to violations of sampling protocols (e.g. sampling adjacent areas on different days) and use of a SCF from another study using different sampling methods (Robison 2017, pers. comm.).

The 2016 brown bear density estimate for the lower Noatak Drainage was 67.5 bears/1000 km^2. NPS conducted an aerial bear survey of the upper Noatak Drainage in May 2017. The preliminary density estimate is 30.6 bears/1000 km^2 (Robison 2017, pers. comm.).

While the population status of brown bears across all of Unit 23 is uncertain, the current population estimate is 3500 bears, which is extrapolated from 2008 density estimates within the Lower Noatak survey area (ADF&G 2017b). As this was derived from a small study area, it is not a correct unit-wide estimate.

Bear density estimates in Unit 22 on the Seward Peninsula may be more representative of southern Unit 23 (e.g. Buckland/Deering area) than estimates from northern Unit 23. Surveys conducted from 2013-2015 in western Unit 22 yielded brown bear density estimates of 21 adult bears/1000 km^2 and 35.6 bears of all ages/1000 km^2 (Schmidt et al. 2017).

Local residents have described substantial population increases in the Unit 23 brown bear population since the 1940s and observations by ADF&G staff suggest a stable or increasing population (Westing 2013, ADF&G 2017b). Several factors may contribute to this trend (Westing 2013). Growing populations of moose, caribou and musk ox in the early 2000s have provided a stable prey base for brown bears and shifted subsistence harvest increasingly toward large ungulates. Possible declines in commercial salmon fishing may have allowed more salmon to reach inland areas, increasing food for bears. Regulations protecting sows with cubs curtailed the traditional practice of "denning" or killing all den occupants, which occurred when bears were relied upon more to meet subsistence needs. Finally, selection of large male bears by

sport hunters may allow survival of cubs that otherwise could have been killed by large boars (Westing 2013).

Bear density is related to food availability. Salmon availability may be the primary determinant of high and low bear densities across Alaska (Miller et al. 1997, Mowat et al. 2013). The short growing season and absence of salmon make the western Brooks Range poor brown bear habitat; although salmon runs may be seasonally important sources of food in other portions on Unit 23 (Miller et al. 1997). Social factors can also influence bear distribution. For example, a sow with cubs may avoid areas with large male bears that could kill her offspring (Mowat et al. 2013).

In northern Alaska, brown bear populations are often managed conservatively for several reasons: Large home ranges are required to meet resource needs, resulting in low density populations (McLoughlin et al. 2002); Female brown bears do not successfully reproduce until they are > 5 years old and have low reproductive rates, small litters, and long intervals between litters (Reynolds 1987, USFWS 1982, Miller et al. 2011); Sows exhibit high fidelity to home ranges with little emigration or immigration (Reynolds 1993); and monitoring methods are imprecise and expensive (Miller et al. 2011).

In 1991, radio-collared brown bears in the vicinity of Red Dog Mine emerged from their dens between April 10 and May 15 (Ayres 1991). Between 2014 and 2016, the few deaths of radio-collared brown bears within GAAR tracked thus far have been human-related (Joly 2017, pers. comm.). Brown bear habitat in northwestern Alaska is predicted to improve due to climate change causing increases in shrub and forest cover as well as wildfires, which create edge habitats that are often preferred by bears (Nielson et al. 2010, Joly et al. 2012, Rupp et al. 2000, Swanson 2015).

Cultural Knowledge and Traditional Practices

Brown bears have long been a highly respected and utilized subsistence resource in northwest Alaska and the species has a prominent physical and symbolic role in the lives of local people (Loon and Georgette 1989). These animals provide a source of meat, raw materials, and medicine within the Inupiaq culture of the region (Loon and Georgette 1989). Brown bears have also been prized as trophy sport hunting animals in the region, largely by non-Native residents of the regional hubs of Nome and Kotzebue (Loon and Georgette 1989). Loon and Georgette (1989) provide a thorough ethnographic account of traditional brown bear harvest and use in the region and is the source of cultural information included in this section, unless otherwise noted.

The hunting of brown bears in Inupiaq culture traditionally required strict adherence to prescribed practices designed to show respect to the animal, and a hunter's success was considered dependent on adherence to these protocols. The Inupiat people believed that bears have excellent hearing and that hunters should not discuss their intentions to kill these animals. Bragging, threatening a bear, acting with too much confidence, or even suggesting a craving for bear meat was considered taboo, potentially leading to harming of the hunter or his family. In modern times, some residents of the region continue to adhere to these protocols and will often refer to "that animal" rather than mentioning it by name. While no longer adhered to,

the Inupiaq also believed that it was taboo for women and girls to eat bear meat (Loon and Georgette 1989, Anderson et al. 1977). Dogs were also not fed bear meat as it was said to make them vicious.

The use of brown bears for food in the region is variable among communities, depending on geographic location. Inland communities eat brown bears more frequently while coastal communities rarely eat this species unless it is harvested in interior areas where bears feed on fish and berries (Loon and Georgette 1989, Burch 1985, Burch 2006). Coastal bears are often considered unpalatable due to their tendency to consume marine mammal carcasses along the beaches. Loon and Georgette (1989) found that some coastal communities avoid bears in the fall because this is when bears have the greatest access to sea mammal carcasses. Noatak hunters also avoid bears in the upper Noatak River drainage because the bear diet in this area consists of squirrels, a prey species causing unpalatable flavor in brown bear meat. Kotzebue displays a mixture of brown bear harvest patterns, likely due to a variety of geographical and cultural backgrounds of residents residing in this regional hub.

Loon and Georgette (1989) found that the consumption of brown bears differs between Unit 23 (Northwest Arctic) and Unit 22 (Seward Peninsula). While communities in Unit 23 often consume brown bears, consumption of bears is uncommon in Unit 22 (Sobelman 1985, Thomas 1982, Loon and Georgette 1989).

For the communities that consume brown bears, Georgette and Loon (1989) found that hunters rarely, if ever, take a bear in defense of life and property. While nuisance animals may be killed, it is more likely for residents of these communities to use the meat and not report the animal as killed in defense of life and property. Some communities considered bears a nuisance; reindeer hunters also commonly held this view. In the 1980s, brown bear was not a substantial component of the diet in any northwest Alaska community as compared to moose or caribou, but it likely plays a vital seasonal role in the subsistence diet when other large land mammals are not available.

Among the edible parts of a brown bear, the fat is the most prized product (Loon and Georgette 1989). Local hunters time their hunting to correspond with when bears have the most fat and the meat is of highest quality (Loon and Georgette 1989; Burch 2006). Brown bears are predominantly hunted in northwest Alaska during the spring and fall (Loon and Georgette 1989; Burch 2006). Spring hunting takes place earlier inland where warmer conditions arrive sooner. When bears emerge from their dens in the spring, they are still relatively fat and gradually become lean; thus subsistence brown bear harvests occur between spring emergence from hibernation until snow machine travel is no longer possible (Loon and Georgette 1989).

Many residents prefer to hunt smaller bears because the meat is tender (Loon and Georgette 1989). Brown bear meat is preserved dried, half-dried, frozen and aged. The fat is also aged then cooked before being eaten. It is also common for dried fish and meat to be dipped in bear fat similar to the way that seal oil is used. Bear livers are not consumed. Bear fat is also considered a valuable source of medicine in the region for curing illnesses and sores. It has been used to treat colds, itchy throats, and coughs by ingesting or applying to the chest. Cooked bear meat with fat is said to increase appetite among the ill. It is also used to treat persistent sores and boils.

Usually the hide is in good condition at the same time the bear is the fattest (Loon and Georgette 1989). Some residents of the region harvest brown bears in the fall once their diet has transitioned to berries, roots, fish, and caribou. Later in the fall, bears regain much of their body fat before hibernation, and therefore, harvest at this time is also preferred. In the spring, hunters utilize tracks to locate bears, and in the fall, they concentrate efforts along salmon spawning streams and in areas with prolific berries.

In modern times, brown bears are rarely hunted in the winter or summer because they are considered lean and their hides are of lesser quality (Loon and Georgette 1989). In the summer, bears are also considered more dangerous. Traditionally the Inupiaq people hunted brown bears in their dens in the winter. These bears were less likely to fight, and before firearms were available, killing a hibernating bear with a spear was likely easier and safer as compared to outside of the den in other seasons. This was also a good source of winter meat when other resources were depleted or unavailable. Some hunters would stake bear dens in the late fall and return to the den later in the year to harvest the bear. In Noatak some hunters routinely pursue bears at night along rivers and streams in the fall; a technique that is considered quite dangerous.

Brown bear hunting is a very specialized activity (Loon and Georgette 1989). Before the arrival of fire-arms, bears were largely hunted with spears and arrows. Traditionally, bears harvested by the Inupiat were almost exclusively harvested by a small number of men from each community and the harvest was dis-tributed to other local households. Men continue to be the primary bear hunters in the region. Often, bears are harvested opportunistically while in pursuit of other subsistence resources or while traveling for other purposes. Hunting areas are generally accessed by boat in the fall and by snow machine in spring. Traditionally however, travel was often accomplished by dog team. Hides are sometimes discarded in the field if packing it out presents logistical challenges.

It is a cultural tradition in the region for a hunter to remove the hyoid bone from beneath a bear's tongue immediately after it is killed (Loon and Georgette 1989). In some places this bone is placed between willow branches, on a tussock, or simply discarded in the field. This practice was meant to ensure that the spirit of the bear has left the area and that there would be no retaliation on the hunter. Traditionally, the head of a brown bear was never brought back to the village and was either buried or placed on a tree or shrub (Burch 2006). When meat is served, family members could not discuss or make comments about the meal. The hunters believed that these practices prevented bad luck, safeguarded their camps, and reduced the potential for future conflict with bears. Removing the hyoid bone and leaving the head in the field remains a common practice.

Beyond nutritional value, brown bears also provide the raw materials for production. Bear hides, bones, teeth, and claws were traditionally used to make spearheads, fishhooks, rope, snowshoe bindings, dog harnesses, scraping tools, doors, mattresses, ruffs, and mukluks (Loon and Georgette 1989). More re-cently, bear hides have been used primarily for mattresses, rugs, ruffs, mukluks and masks while claws are sometimes used for necklaces. Rope made of bear hide is said to be tougher and last longer than that of caribou or bearded seal. Narrow bones of the bear foreleg were used for spearheads and snares while knee joints were made into scraping tools. The hides were traditionally used to make dog harnesses and were preferred since dogs did not chew them as they did for other species. Travelers often carried bear hides to use as mattresses and as doors for sod houses; today they are carried as winter survival gear.

Sharing of brown bear meat, fats, and raw materials is common in northwest Alaska. Loon and Georgette (1989) stated that all of the hunters interviewed in their study shared their brown bear harvests with other households. The hunter typically only keeps a small amount of the bear meat and fat for his family and the rest is given to elders, widows, sick people, and other residents of the community. The hides were traditionally retained by the member of the hunting party that made the most decisive moves in killing the bear (Burch 2006).

Harvest History

There are two resident and four nonresident brown bear hunts in Unit 23 under State regulations. Residents can hunt under the general season, which requires sealing or under the State's subsistence hunt, which requires a registration permit and has similar requirements as the Federal hunt (i.e. salvage of edible meat, no use of aircraft, no sealing required). Spring and fall drawing and registration permits are available to nonresidents. To date, nonresident hunts have been undersubscribed (ADF&G 2017a).

Brown bear harvest from Unit 23 has increased steadily since 1992, although the number of bears taken for food by local residents is low (Westing 2013, Braem et al. 2015). The liberalization of brown bear hunting regulations in Unit 23 in order to reduce bear densities, human-bear conflicts, and bear predation on moose as well as to provide for traditional hunting practices and increase opportunity for other hunters has contributed to increased harvests (Westing 2013). Harvest data is from harvest reports and community household surveys and also includes bears taken in defense of life or property (DLP). However, many DLP kills are not reported because Unit 23 residents consider the reporting requirement as onerous or fear they have broken the law (Westing 2013). Local and nonlocal residents are considered Alaska residents living within and outside of Unit 23, respectively.

Between 1990 and 2016, reported Unit 23 brown bear harvest averaged 50 bears/year, ranging from 30-78 bears/year (**Figure 1**, Westing 2013, Saito 2017, pers. comm.). Over the same time period, Unit 23 residents, nonlocal residents, and nonresidents averaged 28%, 44%, and 27% of the reported Unit 23 brown bear harvest, respectively (**Figure 1**, Westing 2013, Saito 2017, pers. comm.). Prior to 1981, nonresidents accounted for most of the reported brown bear harvest in Unit 23; however, since 1992, nonlocal residents have reported the higher harvests (Westing 2013).

Most brown bears in Unit 23 are harvested under the general hunt by both local and nonlocal residents (**Figure 2**). Between 2002 and 2016, 68% of the harvest occurred under the general hunt and averaged 37 bears/year. Over the same time period, harvest under the subsistence registration permit accounted for only 3.5% of the harvest and averaged 1.8 bears/year (**Figure 2**, Westing 2013, Saito 2017, pers. comm.). Between 2011 and 2016, DLP kills averaged 1 bear/year and ranged from 0-3 bears/year (Saito 2017, pers. comm.).

Many bears taken by local residents are not reported (Ayers 1991, Westing 2013). According to household surveys between 1998 and 2012, brown bear harvest by Unit 23 communities (excluding Kotzebue) was approximately 17 bears/year and annual per capita harvest averaged 0.004 bears/person (Westing 2013).

Westing (2013) combined the average annual Kotzebue brown bear harvest (8 bears/year) with the village per capita harvest estimates to determine that an estimated 20-30 brown bears are taken annually by local hunters. This is substantially more than the reported harvest by local residents, which averaged 14 bears/year between 1990 and 2016 (28% of 50 bears/year).

Between 1992 and 2011, the percent of males in the Unit 23 brown bear harvest exceeded the State management goal of a 3-year mean annual reported harvest of >50% boars (**Figure 3**). Harvest data do not indicate that overharvesting is occurring in Unit 23 based on data from the Lower Noatak River drainage (Westing 2013, ADF&G 2017a). However, due to the large number of unreported bear harvests and lack of population data across most of Unit 23, the impact of hunting on the Unit 23 brown bear population is unknown.

Additionally, overharvesting may already be occurring within accessible areas of GAAR such as floatable fishing rivers, which attract both people and bears. As bear density and productivity is low within GAAR, low levels of harvest may impact the population (Joly 2017, pers. comm.).

Bears are traditionally harvested in the spring and fall (FSB 1992). Most Unit 23 brown bear harvest occurs in September, often opportunistically when hunting moose or caribou. The second highest harvest month is April (Westing 2013). Airplanes are the most common transport method used to hunt brown bears in Unit 23, followed distantly by snowmachines and boats (Westing 2013). Federally qualified subsistence users usually access brown bear hunting locations by boat and snowmachines (Loon and Georgette 1989). Many local residents view brown bears as a nuisance or threat to subsistence activities (i.e. picking berries, drying fish) and conflicts with bears seem to be increasing (Westing 2013, ADF&G 2017a).

Most brown bears are harvested from the Noatak River drainage followed by the Kobuk River drainage. Few brown bears are harvested from the Selawik River, Wulik/Kivalina Rivers, and Northern Seward Peninsula drainages (Westing 2013). Westing (2013) suggests that heavily hunted portions of Unit 23 may be acting as "population sinks" where bears, especially boars, are continually replaced by bears from lightly hunted areas such the upper Noatak drainage and Brooks Range.

Between regulatory years 1992/93 and 2011/12, the annual mean skull size for male and female brown bears sealed in Unit 23 remained stable and averaged 21.63" and 19.5" across all years, respectively. Over the same time period, annual mean age for male and female brown bears averaged 7.5 years (range: 5.6-9.6 years) and 7.3 years (range: 3.4-10.2 years), respectively (Westing 2013).

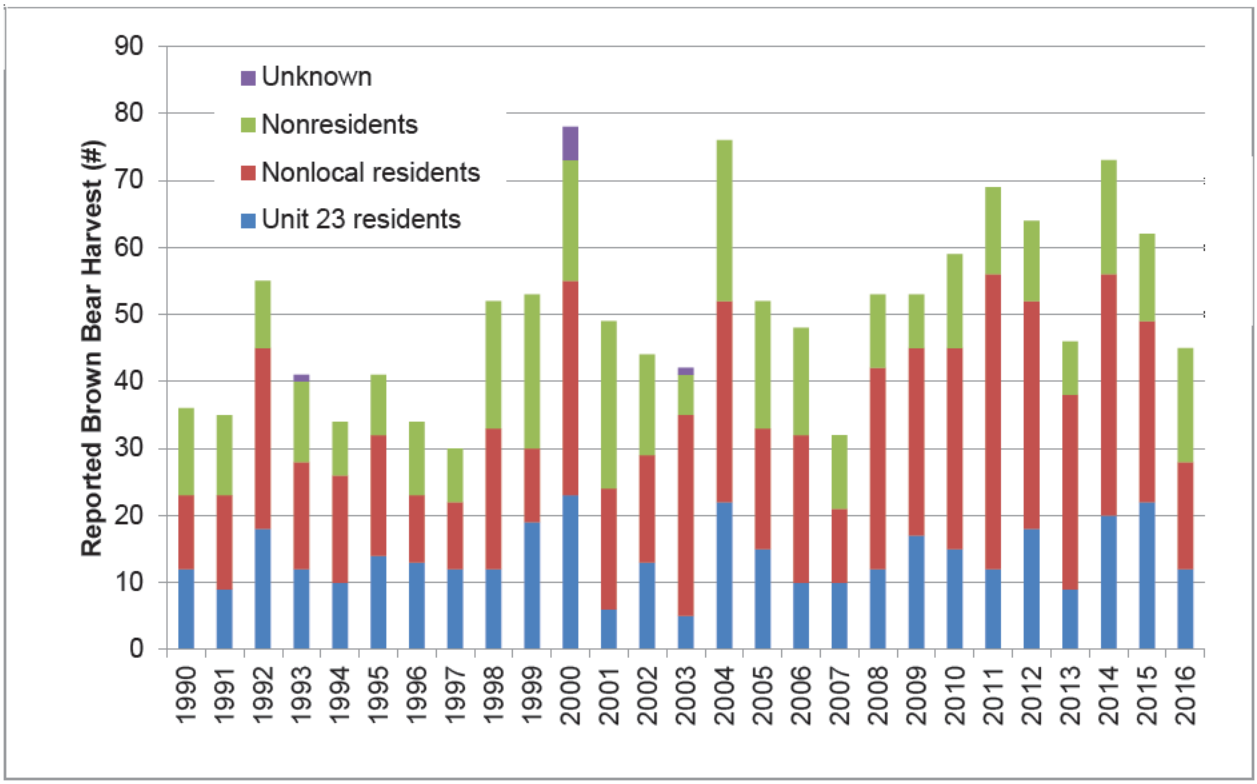

Figure 1. Reported Unit 23 brown bear harvest by residency (Westing 2013, Ayres 1991, Saito 2017, pers. comm.).

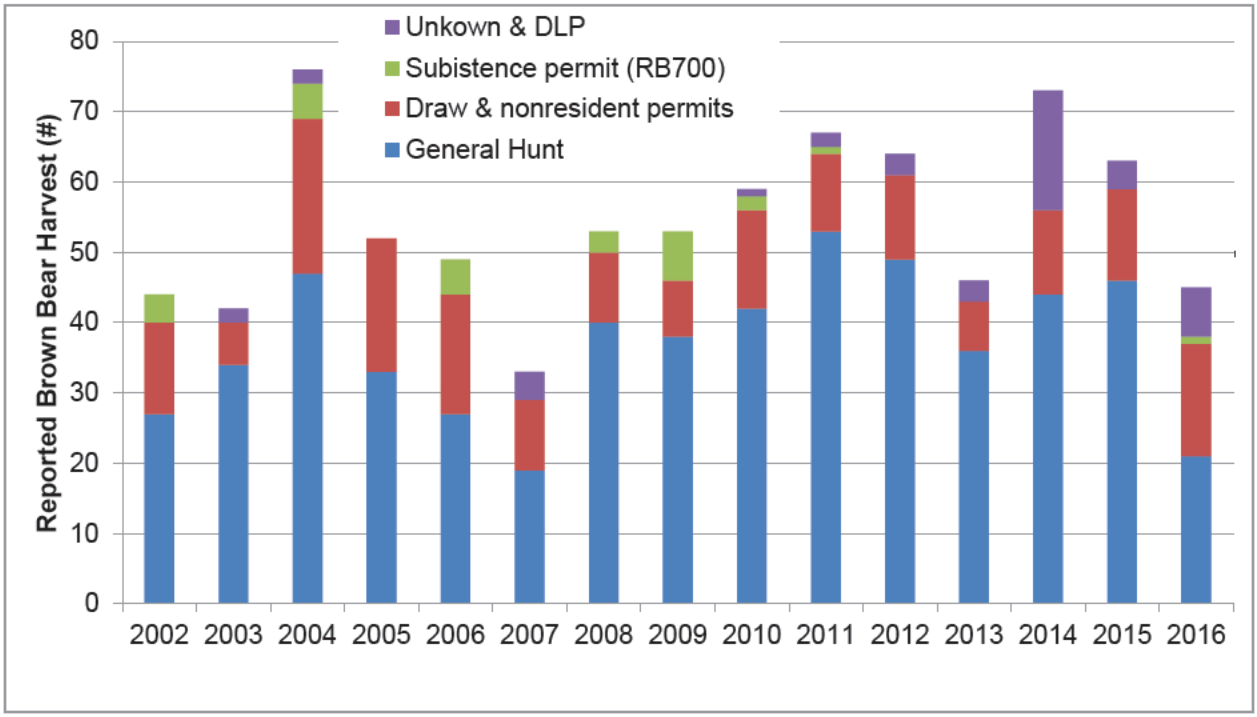

Figure 2. Reported Unit 23 brown bear harvest by hunt type (Westing 2013, Saito 2017, pers. comm.).

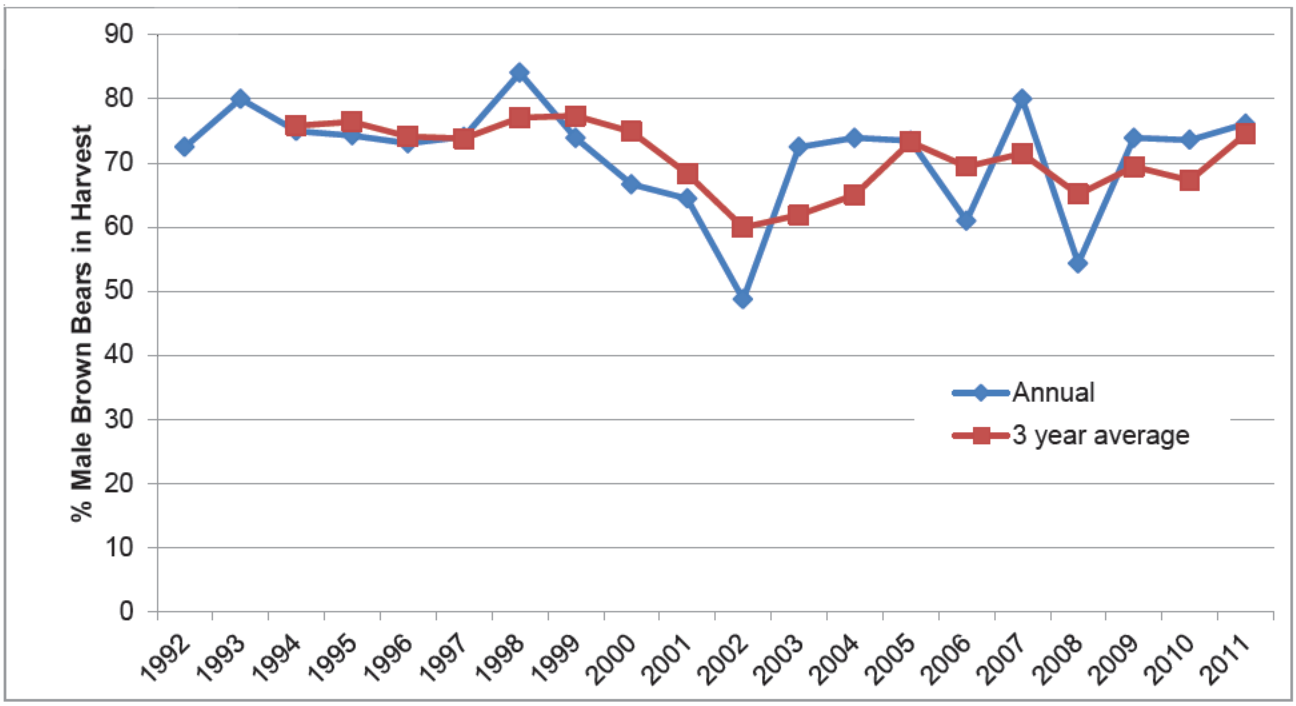

Figure 3. Percent of male brown bears in Unit 23 harvest.

Other Alternatives Considered

One alternative considered was to increase the harvest limit to two bears per year instead of three. As there are many uncertainties about brown bear populations and harvest in Unit 23 and because brown bear populations are slow to recover from overharvest, a more conservative approach may be warranted. A two bear harvest limit would be consistent with State regulations, reducing regulatory complexity and user confusion. A year round season would provide for a subsistence priority and increased opportunity for Federally qualified subsistence users.

Effects of the Proposal

If this proposal is adopted, the Unit 23 brown bear harvest limit would increase to three bears and the season would be year round, which would provide more opportunity for Federally qualified subsistence users. However, for this regulation to be adopted, concurrence would be needed from the State to allow Federally qualified subsistence users to use a State registration permit with season dates and harvest limits that differ from existing State regulations. Additionally, action taken on WP18-44 may influence the outcome of this proposal.

It is difficult to determine if adoption of this proposal would increase actual harvest or harvest reporting. As bears are traditionally harvested in fall and spring and most of the reported harvest has occurred in September and April, few bears are expected to be harvested during the extended season in June and July. As subsistence use of brown bears has been low, all edible meat must be salvaged, and two bears can already be harvested per year under State regulations, increasing the harvest limit to three bears/year is not

expected to result in a substantial increase in harvest. Additionally, the harvest of a second bear in other units with a two bear harvest limit has been low (ADF&G 2017a). However, as regional sheep, moose, and caribou populations are currently declining, brown bears may become a more important subsistence resource.

There may be conservation concerns for this proposal. While biological data on brown bears in Unit 23 is sparse, the best available information suggests that the brown bear population is stable or increasing (Westing 2013, ADF&G 2017b, NPS 2017). Recent liberalization of State brown bear regulations (increase resident harvest limit, extend nonresident season) were widely supported by local ACs, ADF&G, and the BOG, indicating no conservation concerns. While brown bear densities in GAAR are low and overharvesting may already be occurring in this area (Joly 2017, pers. comm.), GAAR comprises a minority of the Federal public lands in Unit 23. Additionally, most of the Unit 23 reported harvest occurs within the lower, not the upper, Noatak river drainage (Westing 2013). Therefore, the density estimates from the Lower Noatak survey area should be considered more appropriate for this proposal analysis. However, there are still many uncertainties regarding brown bear populations and harvest in Unit 23 and brown bear population are slow to recover from overharvest. A three bear harvest limit would be the highest in the state and may be unsustainable.

Additionally, this proposal would only apply to Federally qualified subsistence users who comprise a minority of reported Unit 23 brown bear harvest and an unknown proportion of total harvest. Adoption of this proposal would provide a subsistence priority for Federally qualified subsistence users. Currently, Federal regulations are more restrictive than State regulations.

A year round season and higher harvest limit may also increase reporting of DLP kills as legality concerns as well as the burden of submitting the hide and skull to the State would be eliminated (provided Federally qualified subsistence users are able to use the State registration permit). Indeed, property damage caused by bears was one reason this proposal was submitted. Adoption of this proposal would also allow the take and eating of nuisance bears (i.e. habituated to disturbing fish camps or cabins) during the summer that would not be legal under DLP.

However, as harvest is often biased toward large male bears, increasing the harvest limit could potentially increase human-bear conflicts as older bears learn to avoid people and kill younger bears, which are responsible for most of the human-bear conflicts (Joly 2017, pers.comm.).

OSM PRELIMINARY CONCLUSION

Support Proposal WP18-43 **with modification** to increase the harvest limit to two bears per year.

The modified regulation should read:

Unit 23—Brown Bear

*Unit 23—~~1~~ **2** bear**s** by State subsistence registration permit*	~~*Aug. 1 May 31*~~. ***July 1 – June 30***

Justification

A year round season will increase opportunity for Federally qualified subsistence users. As most bears are traditionally taken in the spring and fall, only a slight increase in harvest is expected from extending the season through the summer.

Increasing the harvest limit will also provide more opportunity for Federally qualified subsistence users. Federally qualified subsistence users comprise a minority of the reported harvest in Unit 23 and all Alaska residents can already harvest two bears under State regulations. There are many uncertainties regarding brown bear populations and harvest in Unit 23, warranting a more conservative harvest limit increase than was proposed.

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WRITTEN PUBLIC COMMENTS

12
July 8, 2017

RECEIVED
JUL 18 2017
BY:

Federal Subsistence Board
Office of Subsistence Management
1011 East Tudor Road, MS 121
Anchorage, Alaska 99503
EMAILED TO: subsistence@FWS.gov

RE: Comments on subsistence proposalsWP18-43 and WP18-44 and some general recommendations on approaches toward similar proposals

Sirs:

We write out of concern with the above-mentioned proposals to urge that they not be adopted.

Neither proposal provides any justification that includes mention of a "customary and traditional" use that would support their adoption. The Board should not adopt proposals that do not have a credible justification in customary and traditional use of the resource much less one that has no justification whatsoever of such a use.

Although we are aware that Loon and Georgette (1989) document customary and traditional use of brown bear meat in non-coastal areas of Unit 23, Proposal 43 (to increase the federal subsistence bag limit to 3 bears/year) is undercut by the acknowledgement in Proposal 44 (to allow sale of bear hides) that "...traditionally the Iñupiat do not care to obtain coastal brown bear meat and fat because they feed on carrion". Proposal 44 also states that "traditionally, Iñupiat peoples of the region did not make handicrafts from bears skulls and hides as this was taboo". Given these acknowledgements and the absence of description of how bears are/were used in a customary and traditional way, there is no basis provided that would support these proposals. Given the lack of direct justification based on customary and traditional uses, we believe these proposals have a basis in the desire of the proponents to reduce the bear population to some unspecified lower level because they find bears to be inconvenient in the various ways identified in the proposals. Inconvenience is not a customary and traditional use. What is customary and traditional is the ways the Native Americans of northwestern Alaska found to cope with co-existing with bears.

The justification for Proposal 43 has the following justifications which are addressed below:

1. The proponents assert that there is an "over-abundance" of brown bears in Unit 23". No basis for this assertion is provided except for mentions of ways bears are inconvenient. The closest density estimates are in GMU 22 (Schmidt et al. 2017; Miller et al. 1997) and another one in Red Dog Mine area in Unit 23 (Ballard et al. 1993 and also reported in Miller et al. 1997). These estimates are both in the range considered typical for interior Alaska (Miller et. al. 1997). Another estimate by NPS for the Lower Noatak was recently conducted 2017 and is in process of being prepared; this estimate is reportedly higher than the others. Ecologically brown bears are an archetypical "K-selected" species characterized by low reproductive rates and population stability at carrying capacity of their environments or lower. We further note that harvests have been increasing in GMU 23 since the State initiated its "intensive management" program in 1995 (see figure at end of this letter). The 3 year running average harvest in 1997 was 29 bears

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compared to 59 bears in 2015 (see figure below). This is a doubling of harvest over a 20 year period and if there is any demographic consequence from this it is unlikely to be an "overpopulation of bears".

2. "Reduce conflicts with brown bears". We have little doubt that such conflicts occur. However, the proponents of this proposal provide no information documenting levels of these conflicts or trends. Neither is information provided indicating an increase in bag limit would reduce such conflicts. Human-bear conflicts are best addressed by techniques that eliminate or reduce the ability of bears to obtain anthropogenic foods. If these steps are not taken, such conflicts will persist regardless of the level to which bears are reduced. We note that in North American, no group has a longer history of co-existence with bears (all 3 species) than native Alaskans and that some of this expertise could and should be used to reduce conflicts without reducing bear abundance. These techniques included elevated food caches which are proven effective and have been adopted by non-native peoples around the world to reduce conflicts with bears. Solar-powered electric fences are a modern innovation that could be usefully adopted as well to prevent bears from accessing cabins or food storage areas without resorting to killing bears.

3. "Reduce the effects of brown bears on disrupting caribou migratory patterns". The authors provide no support for the assertion that bears "disrupt" such patterns or that a change in bag limit would address such disruptions if they do exist. Bears will congregate where food is available and if this is, for example, in areas where caribou traditionally cross rivers or other natural corridors, bears will continue to seek out caribou in these areas of food availability. Trying to eliminate "disruptions" if they occur in such areas is a classic case of a population "sink" for bears. Bears will continue to show up in such attractive areas and be killed thereby depopulating bears from the much larger "source" population.

4. "Reduce destruction of cabins and taking of meat from boats by brown bears". We address this in point #2 above. Although these activities by bears are doubtless nuisances to some local residents, it is hard to see how they would be reduced without greatly reducing bear numbers to the point of near elimination.

Proposal 44 proposes to allow the sale of up to 2 raw/untanned brown bear hides (with claws attached and/or skulls) per regulatory year for qualified CT users. Such sales were initially allowed by state regulations last year and everyone in the state can already do this including all residents of Unit 23. Justifications offered are:

1. "Promote alignment with state with state regulations." We note that no "alignment" is needed as under state regulations such sales are already permitted for bears taken in Unit 23 under the state's general hunting regulations with a bag limit of 2/year. Adoption of this proposal would, in fact, misalign with state regulations with regard to where take can occur that would allow such sales. Most significantly, extension of subsistence regulations designed to reduce numbers of bears in federal conservation areas like National Parks, National Preserves, and National Wildlife Refuges will likely conflict with federal obligations to manage such areas for "natural diversity" consistent with NPS regulations adopted last year and published in the Federal Register. There should be a compelling reason based on well-established CT uses by qualified subsistence users before undercutting federal mandates to manage these areas in the national interest rather in the parochial interests of local residents. We further observe that a federal

subsistence bag limit of 3 bears/year would "misalign" these regulations from the state bag limit and create confusion about whether the federal bag limit was additive to the state bag limit.

2. "Promote the increased utilization of harvested brown bears". No "utilization" of brown bears is mentioned in this proposal which is internally inconsistent as it specifically acknowledges that brown bears are **not** traditionally used by Iñupiat people for either food or the making of handicraft items from brown bear parts. What this proposal would actually do is allow the commercialization by sale of hides from brown bears taken in National Parks, National Preserves, and National Wildlife Refuges (created by ANILCA in 1980) where only qualified CT users are allowed to hunt. This proposal provides no valid justification based on need or customary and traditional use that would justify such commercialization of wildlife on these National Interest Conservation units.

3. "Provide opportunity for profit". The sale of untanned bear hides with claws attached and skulls is already allowed, since last year, under state regulations. Since this was just adopted last year there can be no recent customary and traditional use based on such sales and it would very likely be exceedingly dangerous to bear populations to institutionalize commercialization of bear parts especially on federal conservation areas like National Parks, Preserves, and Refuges. The commercialization of bears taken on federal national interest conservation lands conflicts with the objectives for management of these lands by federal land managers as described above in point #1 for Proposal 43. We believe that the subsistence provisions that are part of ANILCA are designed to assure continuation of customary and traditional uses by subsistence users and that the opportunity to "profit" by sale of wildlife parts is inconsistent with the intent of ANILCA.

4. "Reduce the overpopulation of bears in Unit 23." This assertion is addressed above in point # 1 for Proposal 43.

5. "Reduce conflicts with brown bears in communities and camps". This assertion is addressed above in point # 2 for Proposal 43.

5. "Reduce danger resulting from human and bear interactions." This point is addressed above in point #2 for Proposal 43. We further note that the State has regulations allowing the take of bears in Defense of Life and Property situations so this justification is redundant.

As a general comment, we believe that the most likely reason for these proposals and others like them is to reduce the abundance of bears and other predators in the hope that this will result in making it easier for hunters to harvest caribou and moose in Unit 23. Although the western Arctic caribou is declining, there exist no evidence that this is a result of natural predation which has occurred for millennia and is cyclic. We believe the federal subsistence board should not adopt proposals designed to reduce predators on National Conservation Units and certainly not without sound justifications based on solid science. We suspect that such "uses" predicated on the assumed need for reducing predators are outside the intended scope of the subsistence provisions of ANILCA, conflict with other federal mandates to manage wildlife on National Interest Conservation Units for natural diversity in the national interest, have little likelihood of accomplishing the desired objectives absent extreme reductions in predator abundance, and have no justification based on the ways aboriginal Americans utilized wildlife populations during historical or prehistorical periods.

Thanks you for your consideration of these comments.

Sterling Miller
Retired, Alaska Dept. Fish and Game bear research biologist
PO Box 822
Lolo, MT 59847-0822

Clait E. Braun (by sm)
Past President, The Wildlife Society
Former editor, *Journal of Wildlife Management*
5572 N. Ventana Vista Road
Tucson, AZ 85750-7204

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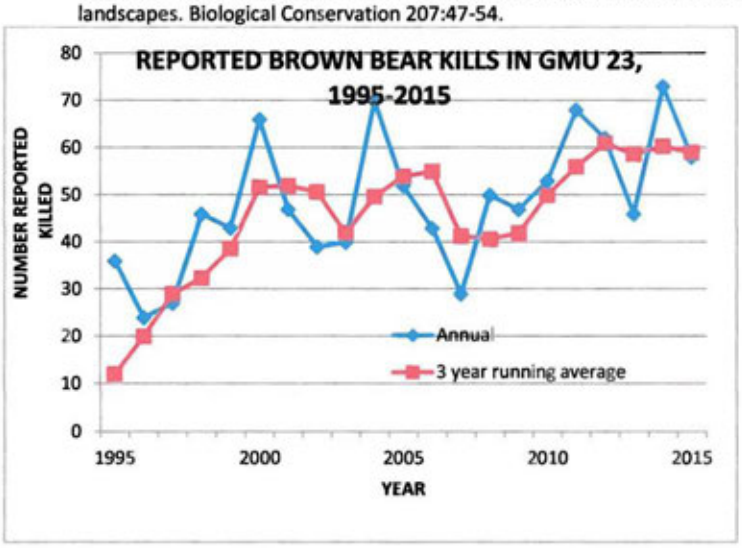


4

WP18–44 Executive Summary	
General Description	Proposal WP18-44 requests regulations allowing the sale of up to two raw/untanned brown bear hides (with claws attached) and/or skulls per regulatory year, from brown bears legally harvested by Federally qualified subsistence users on Federal public lands in Unit 23. *Submitted by: Northwest Arctic Subsistence Regional Advisory Council*
Proposed Regulation	***(j) Utilization of fish, wildlife, or shellfish*** *(13) You may sell the raw/untanned and tanned hide or cape from a legally harvested caribou, deer, elk, goat, moose, musk ox, and sheep.* ***(i) You may sell, through customary trade, the skull or raw/untanned or tanned hide, with claws attached, and the skull, from up two brown bears legally harvested on Federal public lands in Unit 23, annually. Any skull or hide must by sealed by an ADF&G representative prior to its sale.***
OSM Preliminary Conclusion	**Oppose**
Southeast Alaska Subsistence Regional Advisory Council Recommendation	
Southcentral Alaska Subsistence Regional Advisory Council Recommendation	
Kodiak/Aleutians Subsistence Regional Advisory Council Recommendation	
Bristol Bay Subsistence Regional Advisory Council Recommendation	
Yukon-Kuskokwim Delta Subsistence Regional Advisory Council	

WP18–44 Executive Summary	
Recommendation	
Western Interior Alaska Subsistence Regional Advisory Council Recommendation	
Seward Peninsula Subsistence Regional Advisory Council Recommendation	
Northwest Arctic Subsistence Regional Advisory Council Recommendation	
Eastern Interior Alaska Subsistence Regional Advisory Council Recommendation	
North Slope Subsistence Regional Advisory Council Recommendation	
Interagency Staff Committee Comments	
ADF&G Comments	
Written Public Comments	**1 Oppose**

DRAFT STAFF ANALYSIS
WP18-44

ISSUES

Proposal WP18-44, submitted by the Northwest Arctic Subsistence Regional Advisory Council, requests regulations allowing the sale of up to two raw/untanned brown bear hides (with claws attached) and/or skulls per regulatory year, from brown bears legally harvested by Federally qualified subsistence users on Federal public lands in Unit 23.

DISCUSSION

The Northwest Arctic Regional Advisory Council (Northwest Arctic Council) voted to submit this proposal to align State and Federal regulations in Unit 23 by adding a provision in Federal regulations allowing the sale of up to two skulls and raw/untanned hides of brown bears legally harvested on Federal public lands by Federally qualified subsistence users, per regulatory year. The Council also voted to submit a companion proposal (WP18-43) to increase the Federal harvest limit for brown bears from one bear to three bears per regulatory year and extend the season to year round. The proponent clarified that they only seek to allow the sale of two brown bear skulls and raw/untanned hides (with claws attached) per regulatory year.

The Northwest Arctic Council offered several justifications for this request including 1) alignment with State regulations, 2) increased utilization of harvested bears, 3) opportunity for profit, 4) overpopulation of brown bears in Unit 23, 4) increased conflicts with bears in communities and at camps, and 5) increased danger due to increased bear activity. Some members of the Council also indicated that traditionally, Inupiat peoples of the region did not make handicrafts from bear skulls and hides as this was taboo, therefore the regulation change would most appropriately apply to raw/unaltered hides and skulls.

At the January 2017 meeting the Alaska Board of Game (BOG) modified State brown bear hunting regulations in Unit 23 from one bear per year to two bears per year. According to 5 AAC 92.200(b):

> a person may not purchase, sell, advertise, or otherwise offer for sale any part of a brown bear, except an article of handicraft made from the fur of a brown bear, and except for skulls and hides with claws attached of brown bears harvested in areas where the harvest limit is two bears per regulatory year.

Because of the State increase in the brown bear harvest limit to two bears per regulatory year in Unit 23, the sale of brown bear skulls and hides (with claws attached) will be legal under general State regulations in Unit 23 as of July 1, 2017 per 5 AAC 092.200(b). However, brown bears harvested under a State subsistence registration permit in Unit 23(as currently required under Federal regulations) that are either removed from the subsistence area or presented for commercial tanning must be sealed by a designated sealing officer and the skin of the head and front claws must be removed and kept by the Alaska Department of Fish and Game (ADF&G). Federal regulations currently allow the harvest of 1 brown bear annually in

Unit 23 by State registration permit, therefore requiring that the front claws be removed and kept by ADF&G upon sealing.

Existing Federal Regulation

(j) Utilization of fish, wildlife, or shellfish

(13) You may sell the tanned and raw/untanned hide or capes from a legally harvested deer, elk, goat, sheep, caribou, muskox, and moose.

Unit 23—Brown Bear

Unit 23—1 bear by State subsistence registration permit	*Aug 1-May 31*

Proposed Federal Regulation

(j) Utilization of fish, wildlife, or shellfish

(13) You may sell the raw/untanned and tanned hide or cape from a legally harvested caribou, deer, elk, goat, moose, musk ox, and sheep.

(*i*)***You may sell, through customary trade, the skull or raw/untanned or tanned hide, with claws attached, and the skull, from up two brown bears legally harvested on Federal public lands in Unit 23, annually. Any skull or hide must by sealed by an ADF&G representative prior to its sale.***

Note: The proposal as submitted omitted "or tanned hide". However, this was an oversight as the proponent's intention was to align State and Federal regulations.

Existing State Regulation

Use of Game

Game taken under a hunting license MAY NOT be used for the following purposes:

Buying or selling of any part of a brown/grizzly bear, EXCEPT:

-brown bears taken in areas with a two brown bear bag limit per regulatory year, raw and untanned brown bear hides (with claws attached) and skulls may be sold, after sealing.

Unit 23—Brown Bear

Residents: Two bears every regulatory year		*Aug. 1 – May 31*
Nonresidents: One bear every regulatory year by permit OR	*DB761-767*	*Aug. 1 – Oct. 31*
Nonresidents: One bear every regulatory year by permit OR	*DB771-777*	*Apr. 15-May 31*
Nonresidents: One bear every regulatory year by permit available at ADF&G in Kotzebue, Nome, and Galena beginning Aug. 31.	*RB761-767*	*Aug. 1-Oct. 31*
OR		
Nonresidents: One bear every regulatory year by permit available at ADF&G in Kotzebue, Nome, and Galena beginning Apr. 14.	*RB771-777*	*Apr. 15-May 31*

In addition to other regulations, subsistence regulations apply to the following "Residents Only" hunt

Residents: Two bears every regulatory year by permit available in Kotzebue and Unit 23 license vendors beginning July 1	*RB700*	*Aug. 1-May 31*

Extent of Federal Public Lands

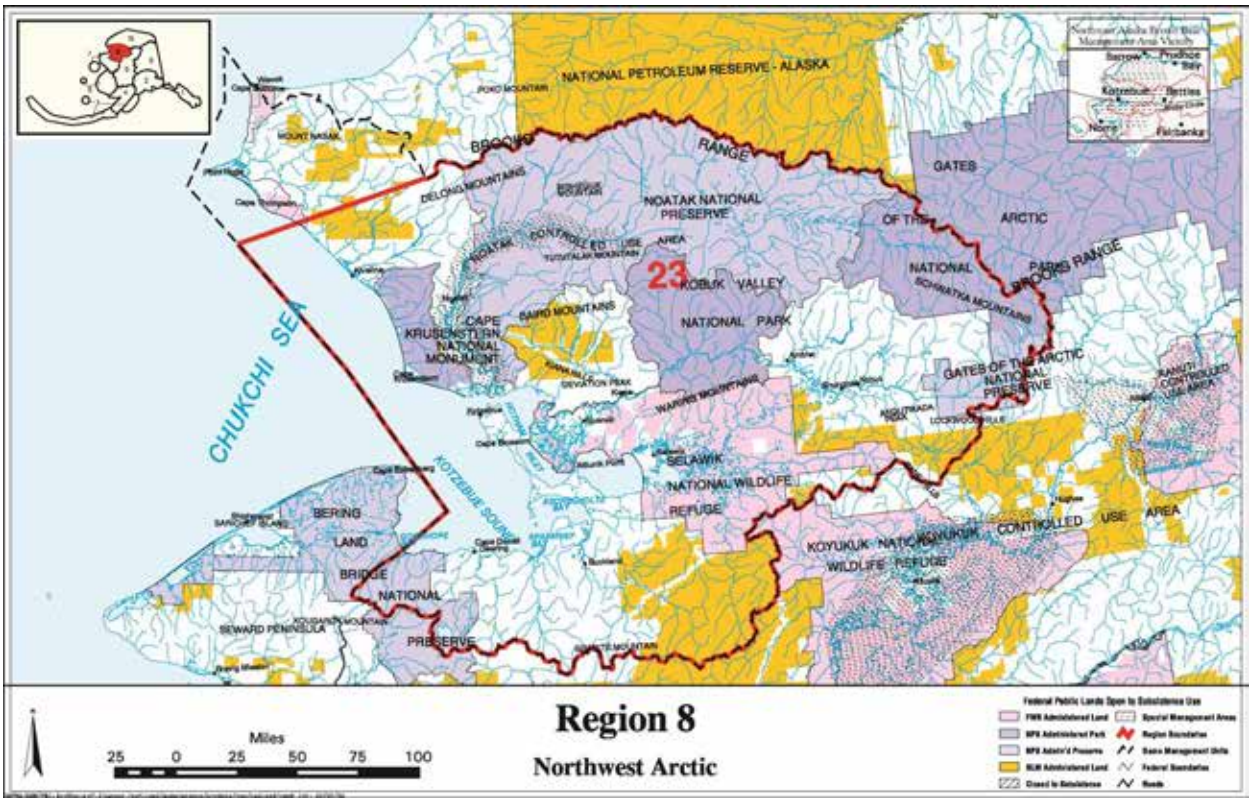
Federal public lands comprise approximately 71% of Unit 23 and consist of 40% National Park Service (NPS) managed lands, 22% Bureau of Land Management (BLM) managed lands, and 9% U.S. Fish and Wildlife Service (USFWS) managed lands (see **Unit 23 Map**).

Customary and Traditional Use Determinations

Residents of Units 21 and 23 have a customary and traditional use determination for brown bear in Unit 23.

Regulatory History

State brown bear hunting regulations were established for Unit 23 in 1961. From 1961 until the early 1990s, State regulations were geared toward trophy hunting (Westing 2013). Since the 1980s, brown bear hunting regulations across northern Alaska have become more liberal, including longer seasons, higher harvest limits, and waived resident tag fees (Miller et al. 2011).



Unit 23 Map

Federal brown bear hunting regulations for Unit 23 were adopted from State regulations in 1990. The season was Sept. 1-Oct. 10 and Apr. 15-May 25 with a harvest limit of one bear every four years. Residents of Units 21 and 23 were established as Federally qualified subsistence users for brown bear in Unit 23.

In 1992, seven proposals (P92-074, P92-075, P92-076, P92-078, P92-079, P92-086, and P92-167) were submitted to change Federal subsistence brown bear regulations in Unit 23. Proposals P92-74, and P78 sought to increase the brown bear harvest limit. Proposals P92-76, P79, and P86 sought to liberalize both the harvest limit and season. Proposals P92-075 and P167 requested eliminating the sealing requirement, requiring all edible meat to be salvaged, prohibiting transfer of hides outside of Unit 23 unless to one's residence in Unit 21, and submittal of a harvest report and both ears to a Federally authorized representative within 30 days of the taking. These proposals were submitted because then current regulations, which included restrictive seasons and harvest limits, failure to salvage edible meat, and sealing requirements conflicted with traditional practices. The Federal Subsistence Board (Board) considered these proposals concurrently and adopted them with modification to remove the sealing requirement, and to prohibit the use of aircraft in any manner for brown bear subsistence hunting. The season in the new hunt area was expanded to Sept. 1 – May 31 with a harvest limit of one bear per regulatory year by State registration permit. The harvest limit and season in Unit 23 remainder was unchanged.

In 1992, BOG also modified Unit 23 brown bear regulations in recognition of traditional patterns of harvest of bears by Inupiat hunters for meat, hides, and fat (Westing 2013). BOG established the Northwest Alaska Brown Bear Management Area (NWABBMA) and a subsistence registration hunt (RB700).

In 2005, the Board adopted Proposal WP05-17 with modification to combine the Unit 23 brown bear hunt areas and to expand the season from Sept 1 – May 31 to Aug 1 – May 31. This was done to provide more opportunity to Federally qualified subsistence users, to reduce regulatory complexity by aligning State and Federal regulations, and because there were no conservation concerns.

In 2007, Proposal WP07-50 proposed eliminating the permit requirement to hunt brown bear in Unit 23 because it was a burden on Federally qualified subsistence users and permits were often not available in villages. The proposal was withdrawn by the proponent before it went to the Board in order to allow more time to discuss the issue with the Councils and various agencies.

In 2008, the Board adopted Proposal WP08-52 to allow the sale of handicrafts made from the fur of a brown bear taken in Unit 23 so that subsistence users could more fully utilize the brown bear resource.

In 2012, the Board adopted Proposal WP12-01 to require sealing of brown bear hides or claws prior to selling handicrafts incorporating these parts. This was done in order to ensure that marketed handicrafts were made from legally harvested bears. The proposal was submitted by the Brown Bear Claw Handicraft Working Group.

In 2014, Proposal WP14-40 proposed eliminating the permit requirement to hunt brown bear in Unit 23 to reduce confusion about hunting regulations and to allow for more opportunistic harvests. The Board adopted WP14-40 with modification to insert the word "subsistence" into regulations (1 bear by State *subsistence* registration permit) in order to clarify that permits were required under both State and Federal regulations, which require sealing of hides and skulls. Eliminating the permit requirement was not recommended as it was an essential mechanism to monitor harvest and to inform brown bear management in the unit. Also, Federally qualified subsistence users would then be required to seal harvested bears. (However, sealing is required under the subsistence registration permit if the bear is removed from the unit or parts are sold as handicrafts).

In 2016, the BOG adopted Proposal 57 to allow the sale of brown bear hides and/or skulls by Alaska residents in units where the harvest limit is two or more bears annually. The proposal was submitted by the Nushagak Advisory Committee with the stated intent of encouraging brown bear harvest to 1) reduce predation on moose and caribou and 2) to reduce bear hazards around communities.

In 2017, the BOG adopted Proposal 40 to increase the resident brown bear harvest limit in Unit 23 to 2 bears per regulatory year. The BOG supported Proposal 40 because it provided more harvest opportunity, because there were no conservation concerns, and because it was supported by five local Fish and Game Advisory Committees (ACs). Chairman Spraker also stated that a low number of second bears have been taken in other units with 2 bear harvest limits and that bear harvests in other units with long seasons and higher harvest numbers have been sustainable (ADF&G 2017a). Proposals 37, 38, and 39 requested

lengthening the nonresident brown bear season in Unit 23. The BOG adopted Proposal 37, extending the nonresident season from Sept. 1-Oct. 31 to Aug. 1-Oct. 31 and took no action on Proposals 38 and 39. The BOG supported Proposal 37 in order to alleviate user conflicts during September, by spreading nonresident hunting out over a longer season, and because all the local ACs supported it.

In November of 2017 the BOG will hear Poposal 49, which requests that a permit be required before brown bear skulls and hides with claws attached can be sold. This proposal was submitted by ADF&G because there is currently no method to track the sale of bears harvested in areas where the harvest limit is two brown bears per year (ADF&G 2017a). The proponent states that this proposal will allow ADF&G to track and quantify the interest in selling brown bear skulls and hides with claws attached (ADF&G 2017a). The proponent also states that there are concerns about the potential to commercialize the harvest of brown bears and that there is internet in knowing the magnitude of this use (ADF&G 2017a).

Handicrafts and customary trade regulations

The sale of animal products under Federal law is permitted as handicrafts or through customary trade. If harvesting bears under the state's general hunting regulations for residents where there is a two brown bear per regulatory year harvest limit, the tanned and untanned hides (with claws attached) and skulls may be sold, after sealing. While the proponent has expressed in public testimony that raw/untanned brown bear hides that are prepared for sale typically require much more time and skill in ensuring that there are no rips or tears during processing as compared to those prepared for personal use (NWA RAC 2017), this does not appear to meet the definition of a handicraft as defined in 50 CFR §100.4:

> *Handicraft* means a finished product made by a rural Alaskan resident from the nonedible byproducts of fish or wildlife and is composed wholly or in some significant respect of natural materials. The shape and appearance of the natural material must be substantially changed by the skillful use of hands, such as sewing, weaving, drilling, lacing, beading, carving, etching, scrimshawing, painting, or other means, and incorporated into a work of art, regalia, clothing, or other creative expression, and can be either traditional or contemporary in design. The handicraft must have substantially greater monetary and aesthetic value than the unaltered natural material alone.

Raw/untanned hides (with claws attached) and skulls are unlikely to align with the definition of a handicraft but these items may be sold more appropriately under customary trade. Federal subsistence regulations define customary trade in 50 CFR §100.4 as:

"Exchange for cash of fish and wildlife resources regulated in this part, not otherwise prohibited by Federal law or regulation, to support personal and family needs; and does not include trade which constitutes a significant commercial enterprise."

Customary trade is also addressed in 50 CFR §7(b):

"You may not exchange in customary trade or sell fish or wildlife or their parts, taken pursuant to the regulations in this part, unless provided for in this part."

State regulations define customary trade as "limited, non-commercial exchange, for minimal amounts of cash, as restricted by the appropriate board, of fish or game resource" (AS 16.05.940). Both State and Federal subsistence regulations provide for customary trade of fish, however neither currently provide for customary trade of large land mammals (5 AAC 92.200; 50 CFR §100.7); though this does not preclude the Board from doing so. According to 50 CFR §100.10(4)(x) regarding the Board's authorities, this part indicated that the Board may "Determine what types and forms of trade of fish and wildlife taken for subsistence uses constitute allowable customary trade."

If defined as customary trade, the sale of raw/untanned hides and skulls of brown bears under Federal regulations would still require adherence to the meat salvage regulations, including, 50 CFR §100.25 j(1-3):

> (1) You may not use wildlife as food for a dog or furbearer, or as bait, except as allowed for in §100.26, §100.27, or §100.28, or except for the following:
>
> (2) If you take wildlife for subsistence, you must salvage the following parts for `human use:
>
> > (i) The hide of a wolf, wolverine, coyote, fox, lynx, marten, mink, weasel, or otter;
> >
> > (ii) The hide and edible meat of a brown bear, except that the hide of brown bears taken in Units 5, 9B, 17, 18, portions of 19A and 19B, 21D, 22, 23, 24, and 26A need not be salvaged;
> >
> > (iii) The hide and edible meat of a black bear;
> >
> > (iv) The hide or meat of squirrels, hares, marmots, beaver, muskrats, or unclassified wildlife.
>
> (3) You must salvage the edible meat of ungulates, bear, grouse, and ptarmigan.

Federal subsistence fisheries regulations regarding customary trade are defined by region and fishery. Examples of limitations placed on customary trade as written in 50 CFR §100.27 include restrictions on who can participate in customary trade of subsistence resources (only rural residents [50 CFR §100.27(11)], only those residents with a customary and traditional use determination [50 CFR §100.27(11)(iii)]), annual limitations on cash value ($400-$500 with record-keeping requirements [50 CFR §100.27(12)(i/ii)]), and a percentage of a household's annual harvest [50 CFR §100.27(12)(ii)]. Given that this proposal requests the sale of up to two raw/unaltered brown bear hides (with claws attached) and skulls per regulatory year, it is unlikely that this would be defined as a significant commercial enterprise and would thus meet the definition of customary trade.

The issue of claw retention was examined extensively by the Brown Bear Claw Handicraft Working Group that was formed by the Board in 2009 to discuss a range of issues relating to brown bear claws including their use in handicrafts, the feasibility of tracking, and potential changes to regulations. The group was

composed of representatives from nine of the ten Councils, staff from ADF&G, and staff of Federal agencies. Of particular concern to this group was preventing the illegal harvest and sale of brown bear parts that can garner significant monetary value in worldwide markets, and which may incentivize illegal harvest of brown bear populations elsewhere in North America where concervation concerns are prevalent (OSM 2010).

Unpublished meeting minutes from the Working Group indicate that the USFWS Office of Law Enforcement was concerned about further developing a market for brown bear products. Rory Stark, a law enforcement officer, noted that brown bear claws, paws, and gall bladders are the primary illegal items sought for these markets and that all other parts of the bear are often wasted (OSM 2010). He explained that documentation through sealing and tagging is necessary to ensure that handicraft materials are made from legally harvested bears and that this certification could result in a more valuable handicraft. According to Stark, law enforcement across the United States was engaged in 146 cases of illegal sale of black and brown bear parts between 2000 and 2010.

In 2012, the working group submitted a proposal to the Board (WP12-01) requesting that prior to selling a handicraft incorporating a brown bear claw(s), the hide or claw(s) not attached to a hide, must be sealed by an authorized ADF&G representative and that a copy of the ADF&G sealing certificate must accompany the handicraft when sold. WP12-01 was adopted with modification to add language that old claws may be sealed if an affidavit is signed to verify that the brown bear was harvested by a Federally qualified subsistence user on Federal public lands. Germane to this proposal are sealing requirements that help to track the sale of wildlife parts, to increase product value by validating that the animal was legally harvested, and to provide documentation to allow individuals traveling to another country to obtain a Commission on the International Trade of Endangered Species (CITES) permit for the item to be legally transported across international borders.

During BOG deliberations on proposal 57 (sale of brown bear hides and/or skulls) in March of 2017, some concerns were expressed by BOG members regarding tracking bear products, worldwide black markets, and the potential for hunters to falsify records regarding the unit of harvest (ADF&G 2016). Lieutenant Paul Fussey of the Alaska Wildlife Troopers testified that law enforcement tracks internet activity for hides and that these individuals attempt to verify permit and sealing records when bear products are encountered. At the time of the testimony, all bear hides sold by Alaska residents were appropriately harvested under a predator control permit. Very few brown bear hides had been encountered. A representative of ADF&G's Division of Subsistence also testified that the ability of subsistence users to sell hides and/or skulls of bears harvested for subsistence could aid users in engaging in a mixed cash-subsistence economy by providing additional means of purchasing gasoline and other products (ADF&G 2016). Current Events

Proposal WP18-43 requests that the Unit 23 brown bear harvest limit be increased from one to three bears and that the season be extended to year round. The decision on WP18-43 could have ramifications on this proposal (i.e. harvest limits and determining the number of brown bear hides and skull to be sold).

Biological Background

State management objectives for brown bear in Unit 23 are as follows (Westing 2013):

- Maintain a population that sustains a 3-year mean annual reported harvest of at least 50% males.
- Conduct a brown bear population estimate for some portion on Unit 23 in cooperation with Department of Interior (DOI) staff at least once every reporting period.
- Continue community-based assessments to collect brown bear harvest information from residents of Unit 23.
- Seal bear skins and skulls, determine sex, and extract a tooth for aging.
- Monitor harvest data (age, sex, and skull size) for changes related to selective pressure.
- Improve communication between the public and the Alaska Department of Fish and Game (ADF&G) to improve harvest reporting and prevent defense of life and property situations from occurring.

Biological information and trends for brown bear in most of Unit 23 is lacking. As brown bears in Interior Alaska are wide ranging and occur at low densities, population estimates are difficult and expensive to obtain (Miller et al. 1997, 2011, Mowat et al. 2013, Schmidt et al. 2017). Brown bear densities are classified as adult bears (3+ years-old) and bears of all ages (bears), which includes sows with cubs.

In the early 1990s, surveys were conducted in the Western Brooks Range to obtain baseline data on bear abundance. Brown bear density was estimated as 29.5 bears of all ages/1,000 km^2 (Miller et al. 1997). Brown bear density within Gates of the Arctic National Park & Preserve (GAAR) is currently considered relatively low (Joly 2017, pers. comm.).

Aerial bear surveys were conducted in the lower Noatak Drainage in 1987, 2008, and 2016. While data seems to suggest that the brown bear population is increasing in this area, these surveys are not directly comparable due to differing methodologies and scales (NPS 2017). In 1987, a brown bear census was conducted in the lower Noatak River drainage to provide a benchmark of bear abundance before the Red Dog Mine was constructed (Westing 2013). Density was estimated at 1 adult bear/26 mi^2 (Westing 2013) and 17.9 bears/1000 km^2 (Miller et al. 1997). However, the study area was relatively small (2,000 km^2) and may not be representative of all of Unit 23. Preliminary results from the 2008 survey using the 1987 sightability correction factor (SCF) indicated a brown bear density of 3.4 bears/26 mi^2 (ADF&G 2017c, Saito 2017, pers. comm.). However, this estimate is likely not accurate due to violations of sampling protocols (e.g. sampling adjacent areas on different days) and use of a SCF from another study using different sampling methods (Robison 2017, pers. comm.).

The 2016 brown bear density estimate for the lower Noatak Drainage was 67.5 bears/1000 km^2. NPS conducted an aerial bear survey of the upper Noatak Drainage in May 2017. The preliminary density estimate is 30.6 bears/1000 km^2 (Robison 2017, pers. comm.).

While the population status of brown bears across all of Unit 23 is uncertain, the current population estimate is 3500 bears, which is extrapolated from 2008 density estimates within the Lower Noatak survey area (ADF&G 2017c). As this was derived from a small study area, it is not a correct unit-wide estimate.

Bear density estimates in Unit 22 on the Seward Peninsula may be more representative of southern Unit 23 (e.g. Buckland/Deering area) than estimates from northern Unit 23. Surveys conducted from 2013-2015 in western Unit 22 yielded brown bear density estimates of 21 adult bears/1000 km^2 and 35.6 bears of all ages/1000 km^2 (Schmidt et al. 2017).

Local residents have described substantial population increases in the Unit 23 brown bear population since the 1940s and observations by ADF&G staff suggest a stable or increasing population (Westing 2013, ADF&G 2017c). Several factors may contribute to this trend (Westing 2013). Growing populations of moose, caribou and musk ox in the early 2000s have provided a stable prey base for brown bears and shifted subsistence harvest increasingly toward large ungulates. Possible declines in commercial salmon fishing may have allowed more salmon to reach inland areas, increasing food for bears. Regulations protecting sows with cubs curtailed the traditional practice of "denning" or killing all den occupants, which occurred when bears were relied upon more to meet subsistence needs. Finally, selection of large male bears by sport hunters may allow survival of cubs that otherwise could have been killed by large boars (Westing 2013).

Bear density is related to food availability. Salmon availability may be the primary determinant of high and low bear densities across Alaska (Miller et al. 1997, Mowat et al. 2013). The short growing season and absence of salmon make the western Brooks Range poor brown bear habitat; although salmon runs may be seasonally important sources of food in other portions on Unit 23 (Miller et al. 1997). Social factors can also influence bear distribution. For example, a sow with cubs may avoid areas with large male bears that could kill her offspring (Mowat et al. 2013).

In northern Alaska, brown bear populations are often managed conservatively for several reasons: Large home ranges are required to meet resource needs, resulting in low density populations (McLoughlin et al. 2002); Female brown bears do not successfully reproduce until they are > 5 years old and have low reproductive rates, small litters, and long intervals between litters (Reynolds 1987, USFWS 1982, Miller et al. 2011); Sows exhibit high fidelity to home ranges with little emigration or immigration (Reynolds 1993); and monitoring methods are imprecise and expensive (Miller et al. 2011).

In 1991, radio-collared brown bears in the vicinity of Red Dog Mine emerged from their dens between April 10 and May 15 (Ayres 1991). Between 2014 and 2016, the few deaths of radio-collared brown bears within GAAR tracked thus far have been human-related (Joly 2017, pers. comm.). Brown bear habitat in northwestern Alaska is predicted to improve due to climate change causing increases in shrub and forest cover as well as wildfires, which create edge habitats that are often preferred by bears (Nielson et al. 2010, Joly et al. 2012, Rupp et al. 2000, Swanson 2015).

Cultural Knowledge and Traditional Practices

Brown bears have long been a highly respected and utilized subsistence resource in northwest Alaska and the species has a prominent physical and symbolic role in the lives of local people (Loon and Georgette 1989). These animals provide a source of meat, raw materials, and medicine within the Inupiaq culture of the region (Loon and Georgette 1989). Brown bears have also been prized as trophy sport hunting animals in the region, largely by non-Native residents of the regional hubs of Nome and Kotzebue (Loon and Georgette 1989). Loon and Georgette (1989) provide a thorough ethnographic account of traditional brown bear harvest and use in the region and is the source of cultural information included in this section, unless otherwise noted.

The hunting of brown bears in Inupiaq culture traditionally required strict adherence to prescribed practices designed to show respect to the animal and a hunter's success was considered dependent on adherence to these protocols. The Inupiat people believed that bears have excellent hearing and that hunters should not discuss their intentions to kill these animals. Bragging, threatening a bear, acting with too much confidence, or even suggesting a craving for bear meat was considered taboo, potentially leading to harming of the hunter or his family. In modern times some residents of the region continue to adhere to these protocols and will often refer to "that animal" rather than mentioning it by name. While no longer adhered to, the Inupiaq also believed that it was taboo for women and girls to eat bear meat (Loon and Georgette 1989, Anderson et al. 1977). Dogs were also not fed bear meat as it was said to make them vicious.

The use of brown bears for food in the region is variable among communities, depending on geographic location. Inland communities eat brown bears more frequently while coastal communities rarely eat this species unless it is harvested in interior areas where bears feed on fish and berries (Loon and Georgette 1989, Burch 1985, Burch 2006). Coastal bears are often considered unpalatable due to their tendency to consume marine mammal carcasses along the beaches. Loon and Georgette (1989) found that some coastal communities avoid bears in the fall because this is when bears have the greatest access to sea mammal carcasses. Noatak hunters also avoid bears in the upper Noatak River drainage because the bear diet in this area consists of squirrels, a prey species causing unpalatable flavor in brown bear meat. Kotzebue displays a mixture of brown bear harvest patterns, likely due to a variety of geographical and cultural backgrounds of residents residing in this regional hub.

Loon and Georgette (1989) found that the consumption of brown bears differs between Unit 23 (Northwest Arctic) and Unit 22 (Seward Peninsula). While communities in Unit 23 often consume brown bears, consumption of bears is uncommon in Unit 22. Among the communities for which the researchers had information in Unit 22, only White Mountain and Golovin reported regular use of bear meat. Many communities in this Unit reported use of brown bear in the past, particularly before moose arrived in the area. There was limited evidence of brown bear use for food in the regional hub of Nome and while one respondent said that hunters would sometimes bring home small quantities of bear meat, he also indicated that this was not a common resource consumed in the community. Other studies have documented limited harvest of brown bears for food in Shishmaref (Sobelman 1985) and Shaktoolik (Thomas 1982); Wales and Teller are suspected to have similar patterns (Loon and Georgette 1989). Respondents in Unalakleet

indicated that they could not imagine using a brown bear for food (Loon and Georgette 1989). Another Unalakleet respondent stated that bears were more palatable before walrus carcasses began washing up on the shores in such large numbers.

For the communities that consume brown bears, Georgette and Loon (1989) found that hunters rarely, if ever, take a bear in defense of life and property. While nuisance animals may be killed, it is more likely for residents of these communities to use the meat and not report the animal as killed in defense of life and property. Some communities considered bears a nuisance; reindeer hunters also commonly held this view. In the 1980s brown bear was not a substantial component of the diet in any northwest Alaska community as compared to moose or caribou, but it likely plays a vital seasonal role in the subsistence diet when other large land mammals are not available.

Among the edible parts of a brown bear, the fat is the most prized product (Loon and Georgette 1989). Local hunters time their hunting to correspond with when bears have the most fat and the meat is of highest quality (Loon and Georgette 1989; Burch 2006). Brown bears are predominantly hunted in northwest Alaska during the spring and fall (Loon and Georgette 1989; Burch 2006). Spring hunting takes place earlier inland where warmer conditions arrive sooner. When bears emerge from their dens in the spring, they are still fat and gradually become lean; thus subsistence brown bear harvests occur between spring emergence from hibernation until snow machine travel is no longer possible.

Many residents prefer to hunt smaller bears because the meat is tender (Loon and Georgette 1989). Brown bear meat is preserved dried, half-dried, frozen and aged. The fat is also aged then cooked before being eaten. It is also common for dried fish and meat to be dipped in bear fat similar to the way that seal oil is used. Bear livers are not consumed. Bear fat is also considered a valuable source of medicine in the region for curing illnesses and sores. It has been used to treat colds, itchy throats, and coughs by ingesting or applying to the chest. Cooked bear meat with fat is said to increase appetite among the ill. It is also used to treat persistent sores and boils.

Usually the hide is in good condition at the same time the bear is the fattest (Loon and Georgette 1989). Some residents of the region harvest brown bears in the fall once their diet has transitioned to berries, roots, fish, and caribou. Later in the fall bears regain much of their body fat before hibernation and therefore harvest at this time is also preferred. In the spring hunters utilize tracks to locate bears and in the fall they concentrate efforts along salmon spawning streams and in areas with prolific berries.

In modern times brown bears are rarely hunted in the winter or summer because they are considered lean and their hides are of lesser quality (Loon and Georgette 1989). In the summer, bears are also considered more dangerous. Traditionally the Inupiaq people hunted brown bears in their dens in the winter. These bears were less likely to fight and before firearms were available, killing a hibernating bear with a spear was likely easier and safer as compared to outside of the den in other seasons. This was also a good source of winter meat when other resources were depleted or unavailable. Some hunters would stake bear dens in the late fall and return to the den later in the year to harvest the bear. In Noatak some hunters routinely pursue bears at night along rivers and streams in the fall, a technique that is considered quite dangerous.

Brown bear hunting is a very specialized activity (Loon and Georgette 1989). Before the arrival of firearms bears were largely hunted with spears and arrows. Traditionally, bears harvested by the Inupiat were almost exclusively harvested by a small number of men from each community and the harvest was distributed to other local households. Men continue to be the primary bear hunters in the region. Often, bears are harvested opportunistically while in pursuit of other subsistence resources or while traveling for other purposes. Hunting areas are generally accessed by boat in the fall and by snow machine in spring. Traditionally however, travel was often accomplished by dog team. Hides are sometimes discarded in the field if packing it out presents logistical challenges.

It is a cultural tradition in the region for a hunter to remove the hyoid bone from beneath a bear's tongue immediately after it is killed (Loon and Georgette 1989). In some places this bone is placed between willow branches, on a tussock, or simply discarded in the field. This practice was meant to ensure that the spirit of the bear has left the area and that there would be no retaliation on the hunter. Traditionally, the head of a brown bear was never brought back to the village and was either buried or placed on a tree or shrub (Burch 2006). When meat is served, family members could not discuss or make comments about the meal. The hunters believed that these practices prevented bad luck, safeguarded their camps, and reduced the potential for future conflict with bears. Removing the hyoid bone and leaving the head in the field remains a common practice.

Beyond nutritional value, brown bears also provide the raw materials for production. Bear hides, bones, teeth, and claws were traditionally used to make spearheads, fishhooks, rope, snowshoe bindings, dog harnesses, scraping tools, doors, mattresses, ruffs, and mukluks (Loon and Georgette 1989). More recently bear hides have been used primarily for mattresses, rugs, ruffs, mukluks and masks while claws are sometimes used for necklaces. Rope made of bear hide is said to be tougher and last longer than that of caribou or bearded seal. Narrow bones of the bear foreleg were used for spearheads and snares while knee joints were made into scraping tools. The hides were traditionally used to make dog harnesses and were preferred since dogs did not chew them as they did for other species. Travelers often carried bear hides to use as mattresses and as doors for sod houses; today they are carried as winter survival gear.

Sharing of brown bear meat, fats, and raw materials is common in northwest Alaska. Loon and Georgette (1989) stated that all of the hunters interviewed in their study shared their brown bear harvests with other households. The hunter typically only keeps a small amount of the bear meat and fat for his family and the rest is given to elders, widows, sick people, and other residents of the community. The hides were traditionally retained by the member of the hunting party that made the most decisive moves in killing the bear (Burch 2006).

Customary trade

Customary trade is a long-standing practice among Alaska Native cultures and closely resembles bartering practices with the introduction of monetary exchange (Ikuta and Slayton 2012, Magdanz et al. 2007). Within all rural communities in Alaska there are customary and traditional patterns of distributing and exchanging subsistence goods (Wolfe et al. 2000). In the literature, the term trade often refers to many different kinds of reciprocal exchanges including sharing, barter, purchasing, and sales (Magdanz et al.

2007, Ikuta and Slayton 2012). These forms of distribution may be understood as a continuum of subsistence activities rather than discreet or fundamentally separate activities (Ikuta and Slayton 2012).

Trading relationships are common and have been documented among the Inupiaq (Huntington 1966, Burch 1970, Burch 1988, Magdanz et al. 2007, Braem et al. 2013). Burch (1988) identified nine categories of property transfer (including subsistence foods) among the Inupiaq, ranging from a free gift with no expectation of reciprocity to exchange for cash, though traditionally this was for other subsistence foods, other products, or raw materials (Krieg et al. 2007). By the 18th century, Russian goods and Siberian reindeer skins were traded along the northwest coast of Alaska for furs, maritime products, jade and wood (Burch 1988, Ikuta and Slayton 2012).

Cash was introduced relatively recently to trading networks of exchange and has become another commodity that facilitates local, noncommercial distribution of subsistence goods (Wheeler 1998, Ikuta and Slayton 2012). The influx of cash into trading networks may also represent the replacement of a portion of bartering networks that facilitate local, noncommercial distribution of subsistence products in rural Alaska (Ikuta and Slayton 2012). Cash in a mixed cash-subsistence economy has been adopted to enhance the importance of wild foods and is used among many resources; there is not a conflict between cash and subsistence products (Wheeler 1998:268). Similar to other resources, the value of cash is relative, varies by availability, and is often controlled by the season (Wheeler 1998). Wheeler (1998) notes that strategies to use cash are similar to the use of other resources "when it is available, use it to the maximum extent possible, and when it is not available, make do with other resources."

In 2010, data on customary trade for one Inupiaq community in the Northwest Arctic Borough (NAB), Selawik, was documented by ADF&G. Selawik is the second largest among 12 communities in the NAB and had a population of approximately 829 individuals as of 2010 (Braem et al. 2013). During the study year (2010-2011), approximately 32% of households engaged in customary trade (Braem 2013). The average estimated amount per trade was $109 and the total reported trades for the community was $3,675 (Braem et al. 2013). Households primarily traded berries and whitefish and lesser amount of caribou and other fish species (Braem et al. 2013). Most customary trades (82%) occurred among Selawik residents with fewer trades occurring between Selawik and Noatak, Kivalina, Noorvik, and Kotzebue (Braem et al 2013).

While the Board has not yet authorized the use of brown bears in customary trade, the species may play a role in local subsistence distribution and sharing networks given its availability and relationships to cultural practice (see Cultural Knowledge and Traditional Practices section above).

Harvest History

There are two resident and four nonresident brown bear hunts in Unit 23 under State regulations. Residents can hunt under the general season, which requires sealing or under the State's subsistence hunt, which requires a registration permit and has similar requirements as the Federal hunt (i.e. salvage of edible meat, no use of aircraft, no sealing required). Spring and fall drawing and registration permits are available to nonresidents. To date, nonresident hunts have been undersubscribed (ADF&G 2017b).

Brown bear harvest from Unit 23 has increased steadily since 1992, although the number of bears taken for food by local residents is low (Westing 2013, Braem et al. 2015). The liberalization of brown bear hunting regulations in Unit 23 in order to reduce bear densities, human-bear conflicts, and bear predation on moose as well as to provide for traditional hunting practices and increase opportunity for other hunters has contributed to increased harvests (Westing 2013). Harvest data is from harvest reports and community household surveys and also includes bears taken in defense of life or property (DLP). However, many DLP kills are not reported because Unit 23 residents consider the reporting requirement as onerous or fear they have broken the law (Westing 2013). Local and nonlocal residents are considered Alaska residents living within and outside of Unit 23, respectively.

Between 1990 and 2016, reported Unit 23 brown bear harvest averaged 50 bears/year, ranging from 30-78 bears/year (**Figure 1**, Westing 2013, Saito 2017, pers. comm.). Over the same time period, Unit 23 residents, nonlocal residents, and nonresidents averaged 28%, 44%, and 27% of the reported Unit 23 brown bear harvest, respectively (**Figure 1**, Westing 2013, Saito 2017, pers. comm.). Prior to 1981, nonresidents accounted for most of the reported brown bear harvest in Unit 23; however, since 1992, nonlocal residents have reported the higher harvests (Westing 2013).

Most brown bears in Unit 23 are harvested under the general hunt by both local and nonlocal residents (**Figure 2**). Between 2002 and 2016, 68% of the harvest occurred under the general hunt and averaged 37 bears/year. Over the same time period, harvest under the subsistence registration permit accounted for only 3.5% of the harvest and averaged 1.8 bears/year (**Figure 2**, Westing 2013, Saito 2017, pers. comm.). Between 2011 and 2016, DLP kills averaged 1 bear/year and ranged from 0-3 bears/year (Saito 2017, pers. comm.).

Many bears taken by local residents are not reported (Ayers 1991, Westing 2013). According to household surveys between 1998 and 2012, brown bear harvest by Unit 23 communities (excluding Kotzebue) was approximately 17 bears/year and annual per capita harvest averaged 0.004 bears/person (Westing 2013). Westing (2013) combined the average annual Kotzebue brown bear harvest (8 bears/year) with the village per capita harvest estimates to determine that an estimated 20-30 brown bears are taken annually by local hunters. This is substantially more than the reported harvest by local residents, which averaged 14 bears/year between 1990 and 2016 (28% of 50 bears/year).

Between 1992 and 2011, the percent of males in the Unit 23 brown bear harvest exceeded the State management goal of a 3-year mean annual reported harvest of >50% boars (**Figure 3**). Harvest data do not indicate that overharvesting is occurring in Unit 23 based on data from the Lower Noatak River drainage (Westing 2013, ADF&G 2017b). However, due to the large number of unreported bear harvests and lack of population data across most of Unit 23, the impact of hunting on the Unit 23 brown bear population is unknown.

Additionally, overharvesting may already be occurring within accessible areas of GAAR such as floatable fishing rivers, which attract both people and bears. As bear density and productivity is low within GAAR, low levels of harvest may impact the population (Joly 2017, pers. comm.).

Bears are traditionally harvested in the spring and fall (FSB 1992). Most Unit 23 brown bear harvest occurs in September, often opportunistically when hunting moose or caribou. The second highest harvest month is April (Westing 2013). Airplanes are the most common transport method used to hunt brown bears in Unit 23, followed distantly by snowmachines and boats (Westing 2013). Federally qualified subsistence users usually access brown bear hunting locations by boat and snowmachines (Loon and Georgette 1989). Many local residents view brown bears as a nuisance or threat to subsistence activities (i.e. picking berries, drying fish) and conflicts with bears seem to be increasing (Westing 2013, ADF&G 2017b).

Most brown bears are harvested from the Noatak River drainage followed by the Kobuk River drainage. Few brown bears are harvested from the Selawik River, Wulik/Kivalina Rivers, and Northern Seward Peninsula drainages (Westing 2013). Westing (2013) suggests that heavily hunted portions of Unit 23 may be acting as "population sinks" where bears, especially boars, are continually replaced by bears from lightly hunted areas such the upper Noatak drainage and Brooks Range.

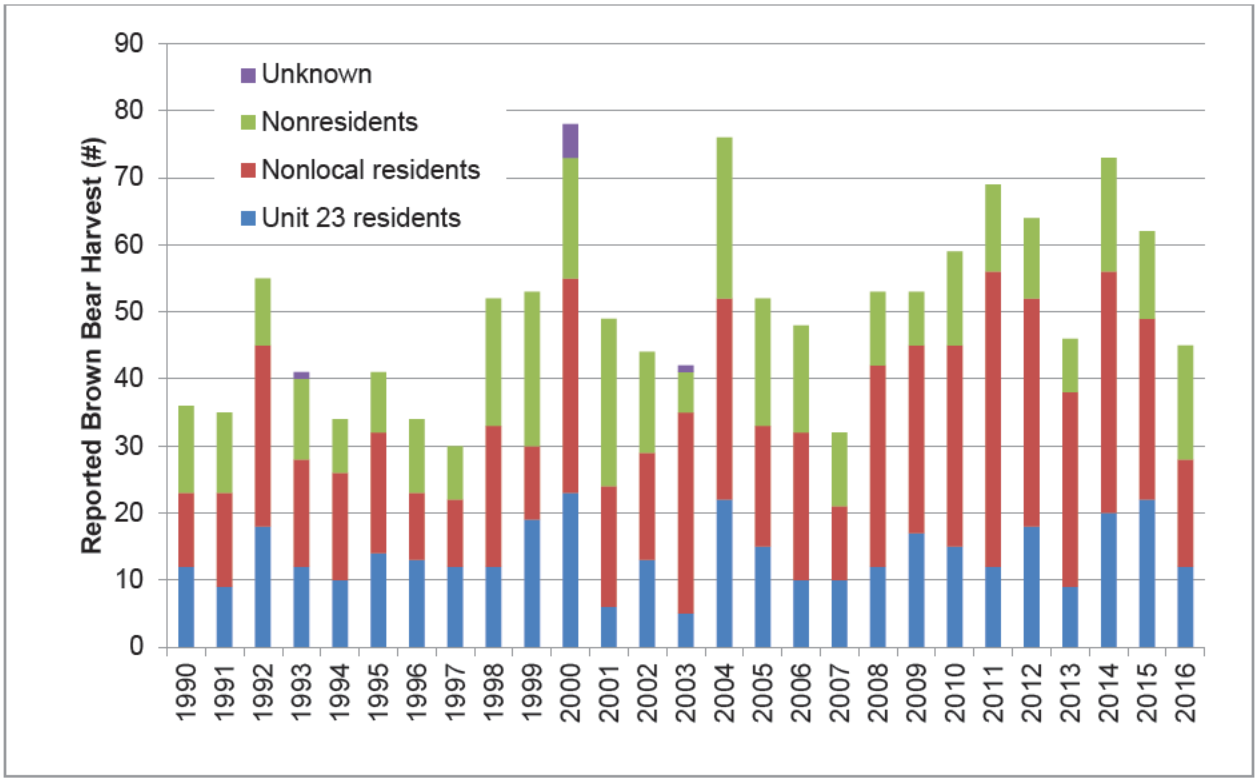


Figure 1. Reported Unit 23 brown bear harvest by residency (Westing 2013, Ayres 1991, Saito 2017, pers. comm.).

0000000702

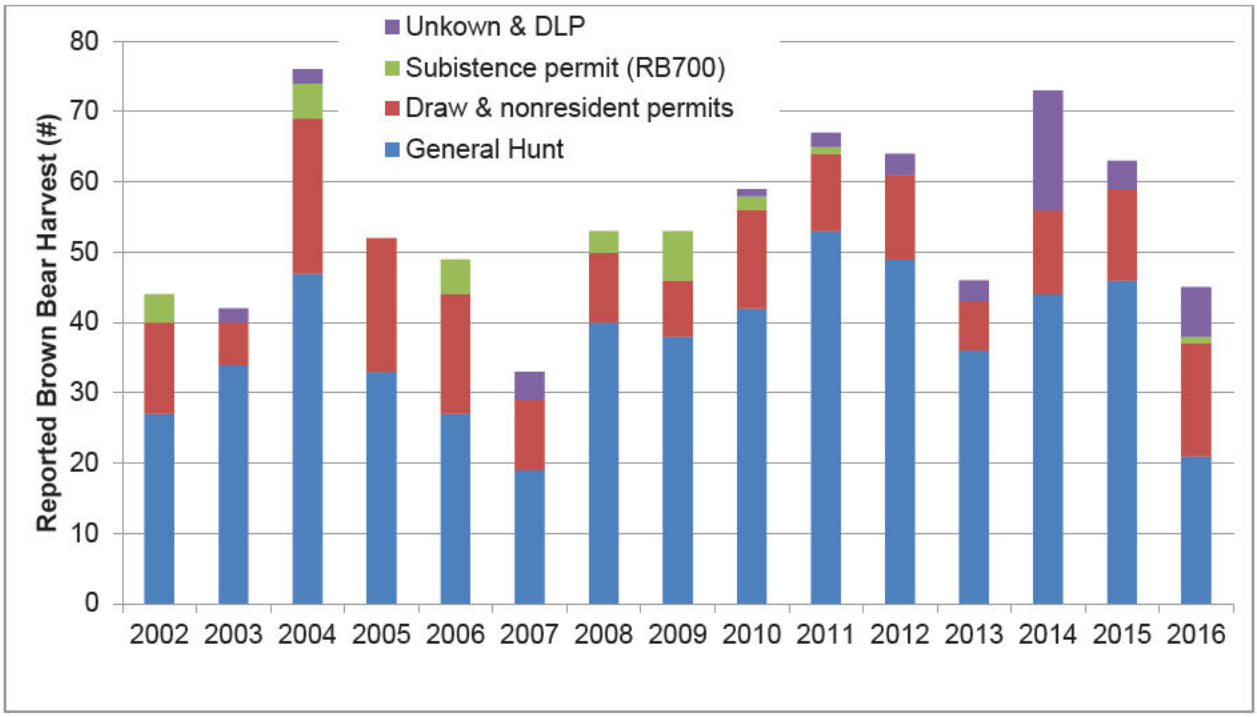


Figure 2. Reported Unit 23 brown bear harvest by hunt type (Westing 2013, Saito 2017, pers. comm.).

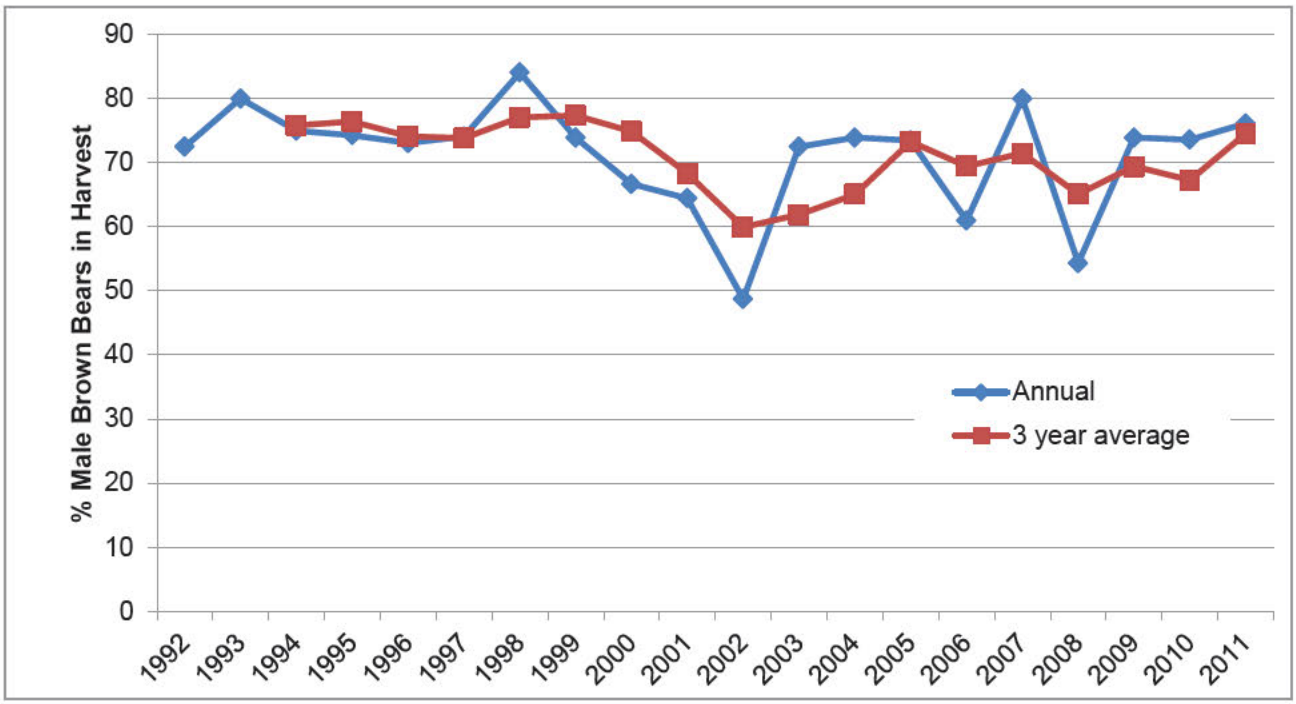


Figure 3. Percent of male brown bears in Unit 23 harvest.

Other Alternatives Considered

One alternatived considered would be to adopt this proposal with modification to create a general season for brown bears in Unit 23 and authorize the customary trade of brown bear hides and skulls in Unit 23.

The modified regulation would read:

> *(j) Utilization of fish, wildlife, or shellfish*
>
> *(13) You may sell the raw/untanned and tanned hide or cape from a legally harvested caribou, deer, elk, goat, moose, musk ox, and sheep.*
>
> *(i) You may sell* ***through customary trade,*** *the skull or raw/untanned or tanned hide, with claws attached, and the skull, from up to two brown bears legally harvested on Federal public lands in Unit 23, annually. Any skull or hide must be sealed by an ADF&G representative prior to its sale.*
>
> Unit 23 – Brown Bear
>
> *Unit 23 – 1 bear by State subsistence registration permit* *Aug. 1 – May 31*
>
> ***OR***
>
> ***1 bear by Federal registration permit*** *Aug. 1 – May 31*

This alternative would provide Federally qualified subsistence users with additional opportunities to utilize, through customary trade, parts of legally harvested brown bears without significant modification of those parts under Federal regulations. Under this scenario, creating a general season for brown bears in Unit 23 would be necessary to provide a hunt that is uncoupled from the State's subsistence registration permit, given that State regulations for this hunt require that the front claws be removed and retained by the State at the time of sealing. While the proponent does not explicitly request the creation of a Federal general hunt, they do request the ability to retain and sell the front claws as is currently allowed under the State's general hunt. However, it should be made clear that according to 50 CFR 100.25(j)(2)(ii), the edible meat of any bear harvested under this general hunt would still need to be salvaged for human use.

This alternative may also increase harvest reporting as a result of sealing requirements associated with the sale of brown bear hides and skulls. However, if a Federally qualified subsistence user did not wish to sell the skull and hide of a harvested brown bear as provided for in this proposal, there would be no way to track

harvest of bears in Unit 23. Requiring the use of a Federal registration permit would alleviate this concern and allows for better management of the species.

Effects of the Proposal

If this proposal is adopted, the unaltered/untanned hides (with claws attached) and skulls of up to two brown bears annually could be sold under customary trade, provided that the brown bears are legally harvested by Federally qualified subsistence users on Federal public lands in Unit 23. This would provide Federally qualified subsistence users with an increased ability to legally utilize brown bear parts that are sometimes discarded in the field.

It is difficult to determine if adoption of this proposal would increase actual harvest or harvest reporting. As subsistence use of brown bears has been low, and all edible meat must be salvaged under Federal regulations, allowing the sale of up to two unaltered hides and skulls per year is not expected to result in a substantial increase in harvest. Additionally, Federally qualified subsistence users can already sell the unaltered hides and/or skulls of brown bears legally harvested in Unit 23 under State regulations. Furthermore, current Federal regulations require Federally qualified subsistence users to acquire a State subsistence registration permit to hunt brown bears in Unit 23. This permit allows hides and skulls of up to two bears annually to remain unsealed, unless "removed from subsistence area or presented for commercial tanning." If sealing is required under the State subsistence permit, the skin of the head and front claws are removed and kept by ADF&G. However, this proposal request seeks the retention of hides with claws attached. If this proposal is adopted, there may be an increase in reporting of harvested brown bears due to the sealing requirements.

The sale of raw/unaltered brown bear hides under customary trade would need to support personal and family needs and not constitute a significant commercial enterprise as per the definition of customary trade set forth in 50 CFR §100.4. Because Federal hunting regulations link brown bear harvest in Unit 23 to the State's subsistence registration permit for this species, and because the State now provides a resident harvest limit of two bears per regulatory year, unaltered brown bear hides and skulls may already be sold without sealing, provided that they are not removed from the subsistence area or presented for commercial tanning. If hides and skulls of bears legally harvested under State subsistence registration regulations are removed from the subsistence area or presented for commercial tanning, the skin of the head and front claws are removed and kept by ADF&G. Conversely, residents hunting under general State regulations may sell two tanned or untanned hides (with claws attached) and skulls, after sealing. The proponent of this proposal wishes to sell the raw / untanned hides (with claws attached) and skulls of brown bears under Federal subsistence regulations, which would require both the removal of the link to the State's subsistence registration hunt in order to be able to retain and sell the front claws of brown bears after sealing, and the adoption of specific regulatory language authorizing the customary trade of brown bear hides and skulls in Unit 23.

There may be conservation concerns for this proposal. While biological data on brown bears in Unit 23 is sparse, the best available information suggests that the brown bear population is stable or increasing (Westing 2013, ADF&G 2017c, NPS 2017). Recent liberalization of State brown bear regulations

(increase resident harvest limit, extend nonresident season) were widely supported by local ACs, ADF&G, and the BOG, indicating no conservation concerns. While brown bear densities in GAAR are low and overharvesting may already be occurring in this area (Joly 2017, pers. comm.), GAAR comprises a minority of the Federal public lands in Unit 23. Additionally, most of the Unit 23 reported harvest occurs within the lower, not the upper, Noatak river drainage (Westing 2013). Therefore, the density estimates from the Lower Noatak survey area should be considered more appropriate for this proposal analysis. However, there are still many uncertainties regarding brown bear populations and harvest in Unit 23 and brown bear population are slow to recover from overharvest.

Additionally, this proposal would only apply to Federally qualified subsistence users who comprise a minority of reported Unit 23 brown bear harvest and an unknown proportion of total harvest. Adoption of this proposal would allow for increased utilization of harvested brown bears and provide an economic opportunity to Federally qualified subsistence users. It would also recognize a general pattern of customary trade of wildlife in Unit 23 and provide increased opportunity to engage in this practice within the mixed cash-subsistence economy of the region.

OSM PRELIMINARY CONCLUSION

Oppose Proposal WP18-44.

Justification

Adoption of this proposal is unlikely to significantly increase subsistence opportunities for area residents. Federally qualified subsistence users can already sell the unaltered hides and/or skulls of brown bears legally harvested in Unit 23 under the State's general hunting regulations. This includes brown bears harvested on Federal public lands (excluding NPS managed parks and monuments). Few residents of Unit 23 hunt brown bears under Federal or State subsistence regulations due to meat salvage and sealing requirements; these requirements would remain in place if this proposal was adopted.

There are law enforcement and conservation concerns regarding the sale of brown bear products. Global markets drive high prices for brown bear parts and are known to encourage poaching. Increasing market availability and/or prices of brown bear products may intensify illegal harvest from those populations. Tracking the illegal harvest and sale of brown bear products is difficult. Furthermore, customary trade of animal products may not rise to the level of a "significant commercial enterprise", but defining and enforcing the parameters of this is challenging. Given the unaltered nature of the products requested in this proposal, these products also do not meet the requirements of a "handicraft" which may already be sold under Federal subsistence regulations.

While there is evidence of a general pattern of customary trade of wildlife in Unit 23, there is no documented pattern as it relates specifically to brown bears, especially the hides and skulls of this species. The most recently documented harvest data for brown bears suggests that harvest by local residents for food is low. Additionally, the proponent lists several justifications for their request but none of these indicate that adoption of this proposal would facilitate patterns of customary trade. A member of the Northwest Arctic Council indicated that people of the region traditionally discarded the skull of brown bears in the field, and

that they do not generally utilize the hide of brown bears, but rather they more frequently utilize the meat and fat of the species.

Lastly, population data for brown bears in Unit 23 is sparse and variable. In GAAR, brown bear populations are considered low and overharvest may already be occurring. Brown bear populations are slow to recover from overharvest and commercial incentivization may increase the risk of overharvest from potentially vulnerable populations.

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WRITTEN PUBLIC COMMENTS

12
July 13, 2017

RECEIVED
JUL 16 2017
BY:

Federal Subsistence Board
Office of Subsistence Management
1011 East Tudor Road, MS 121
Anchorage, Alaska 99503
EMAILED TO: subsistence@FWS.gov

RE: Comments on subsistence proposalsWP18-43 and WP18-44 and some general recommendations on approaches toward similar proposals

Sirs:

We write out of concern with the above-mentioned proposals to urge that they not be adopted.

Neither proposal provides any justification that includes mention of a "customary and traditional" use that would support their adoption. The Board should not adopt proposals that do not have a credible justification in customary and traditional use of the resource much less one that has no justification whatsoever of such a use.

Although we are aware that Loon and Georgette (1989) document customary and traditional use of brown bear meat in non-coastal areas of Unit 23, Proposal 43 (to increase the federal subsistence bag limit to 3 bears/year) is undercut by the acknowledgement in Proposal 44 (to allow sale of bear hides) that "...traditionally the Iñupiat do not care to obtain coastal brown bear meat and fat because they feed on carrion". Proposal 44 also states that "traditionally, Iñupiat peoples of the region did not make handicrafts from bears skulls and hides as this was taboo". Given these acknowledgements and the absence of description of how bears are/were used in a customary and traditional way, there is no basis provided that would support these proposals. Given the lack of direct justification based on customary and traditional uses, we believe these proposals have a basis in the desire of the proponents to reduce the bear population to some unspecified lower level because they find bears to be inconvenient in the various ways identified in the proposals. Inconvenience is not a customary and traditional use. What is customary and traditional is the ways the Native Americans of northwestern Alaska found to cope with co-existing with bears.

The justification for Proposal 43 has the following justifications which are addressed below:

1. The proponents assert that there is an "over-abundance" of brown bears in Unit 23". No basis for this assertion is provided except for mentions of ways bears are inconvenient. The closest density estimates are in GMU 22 (Schmidt et al. 2017; Miller et al. 1997) and another one in Red Dog Mine area in Unit 23 (Ballard et al. 1993 and also reported in Miller et al. 1997). These estimates are both in the range considered typical for interior Alaska (Miller et. al. 1997). Another estimate by NPS for the Lower Noatak was recently conducted 2017 and is in process of being prepared; this estimate is reportedly higher than the others. Ecologically brown bears are an archetypical "K-selected" species characterized by low reproductive rates and population stability at carrying capacity of their environments or lower. We further note that harvests have been increasing in GMU 23 since the State initiated its "intensive management" program in 1995 (see figure at end of this letter). The 3 year running average harvest in 1997 was 29 bears

1

compared to 59 bears in 2015 (see figure below). This is a doubling of harvest over a 20 year period and if there is any demographic consequence from this it is unlikely to be an "overpopulation of bears".

2. "Reduce conflicts with brown bears". We have little doubt that such conflicts occur. However, the proponents of this proposal provide no information documenting levels of these conflicts or trends. Neither is information provided indicating an increase in bag limit would reduce such conflicts. Human-bear conflicts are best addressed by techniques that eliminate or reduce the ability of bears to obtain anthropogenic foods. If these steps are not taken, such conflicts will persist regardless of the level to which bears are reduced. We note that in North American, no group has a longer history of co-existence with bears (all 3 species) than native Alaskans and that some of this expertise could and should be used to reduce conflicts without reducing bear abundance. These techniques included elevated food caches which are proven effective and have been adopted by non-native peoples around the world to reduce conflicts with bears. Solar-powered electric fences are a modern innovation that could be usefully adopted as well to prevent bears from accessing cabins or food storage areas without resorting to killing bears.

3. "Reduce the effects of brown bears on disrupting caribou migratory patterns". The authors provide no support for the assertion that bears "disrupt" such patterns or that a change in bag limit would address such disruptions if they do exist. Bears will congregate where food is available and if this is, for example, in areas where caribou traditionally cross rivers or other natural corridors, bears will continue to seek out caribou in these areas of food availability. Trying to eliminate "disruptions" if they occur in such areas is a classic case of a population "sink" for bears. Bears will continue to show up in such attractive areas and be killed thereby depopulating bears from the much larger "source" population.

4. "Reduce destruction of cabins and taking of meat from boats by brown bears". We address this in point #2 above. Although these activities by bears are doubtless nuisances to some local residents, it is hard to see how they would be reduced without greatly reducing bear numbers to the point of near elimination.

Proposal 44 proposes to allow the sale of up to 2 raw/untanned brown bear hides (with claws attached and/or skulls) per regulatory year for qualified CT users. Such sales were initially allowed by state regulations last year and everyone in the state can already do this including all residents of Unit 23. Justifications offered are:

1. "Promote alignment with state with state regulations." We note that no "alignment" is needed as under state regulations such sales are already permitted for bears taken in Unit 23 under the state's general hunting regulations with a bag limit of 2/year. Adoption of this proposal would, in fact, misalign with state regulations with regard to where take can occur that would allow such sales. Most significantly, extension of subsistence regulations designed to reduce numbers of bears in federal conservation areas like National Parks, National Preserves, and National Wildlife Refuges will likely conflict with federal obligations to manage such areas for "natural diversity" consistent with NPS regulations adopted last year and published in the Federal Register. There should be a compelling reason based on well-established CT uses by qualified subsistence users before undercutting federal mandates to manage these areas in the national interest rather in the parochial interests of local residents. We further observe that a federal

subsistence bag limit of 3 bears/year would "misalign" these regulations from the state bag limit and create confusion about whether the federal bag limit was additive to the state bag limit.

2. "Promote the increased utilization of harvested brown bears". No "utilization" of brown bears is mentioned in this proposal which is internally inconsistent as it specifically acknowledges that brown bears are **not** traditionally used by Iñupiat people for either food or the making of handicraft items from brown bear parts. What this proposal would actually do is allow the commercialization by sale of hides from brown bears taken in National Parks, National Preserves, and National Wildlife Refuges (created by ANILCA in 1980) where only qualified CT users are allowed to hunt. This proposal provides no valid justification based on need or customary and traditional use that would justify such commercialization of wildlife on these National Interest Conservation units.

3. "Provide opportunity for profit". The sale of untanned bear hides with claws attached and skulls is already allowed, since last year, under state regulations. Since this was just adopted last year there can be no recent customary and traditional use based on such sales and it would very likely be exceedingly dangerous to bear populations to institutionalize commercialization of bear parts especially on federal conservation areas like National Parks, Preserves, and Refuges. The commercialization of bears taken on federal national interest conservation lands conflicts with the objectives for management of these lands by federal land managers as described above in point #1 for Proposal 43. We believe that the subsistence provisions that are part of ANILCA are designed to assure continuation of customary and traditional uses by subsistence users and that the opportunity to "profit" by sale of wildlife parts is inconsistent with the intent of ANILCA.

4. "Reduce the overpopulation of bears in Unit 23." This assertion is addressed above in point # 1 for Proposal 43.

5. "Reduce conflicts with brown bears in communities and camps". This assertion is addressed above in point # 2 for Proposal 43.

5. "Reduce danger resulting from human and bear interactions." This point is addressed above in point #2 for Proposal 43. We further note that the State has regulations allowing the take of bears in Defense of Life and Property situations so this justification is redundant.

As a general comment, we believe that the most likely reason for these proposals and others like them is to reduce the abundance of bears and other predators in the hope that this will result in making it easier for hunters to harvest caribou and moose in Unit 23. Although the western Arctic caribou is declining, there exist no evidence that this is a result of natural predation which has occurred for millennia and is cyclic. We believe the federal subsistence board should not adopt proposals designed to reduce predators on National Conservation Units and certainly not without sound justifications based on solid science. We suspect that such "uses" predicated on the assumed need for reducing predators are outside the intended scope of the subsistence provisions of ANILCA, conflict with other federal mandates to manage wildlife on National Interest Conservation Units for natural diversity in the national interest, have little likelihood of accomplishing the desired objectives absent extreme reductions in predator abundance, and have no justification based on the ways aboriginal Americans utilized wildlife populations during historical or prehistorical periods.

Thanks you for your consideration of these comments.

Sterling Miller
Retired, Alaska Dept. Fish and Game bear research biologist
PO Box 822
Lolo, MT 59847-0822

Clait E. Braun (by sm)
Past President, The Wildlife Society
Former editor, *Journal of Wildlife Management*
5572 N. Ventana Vista Road
Tucson, AZ 85750-7204

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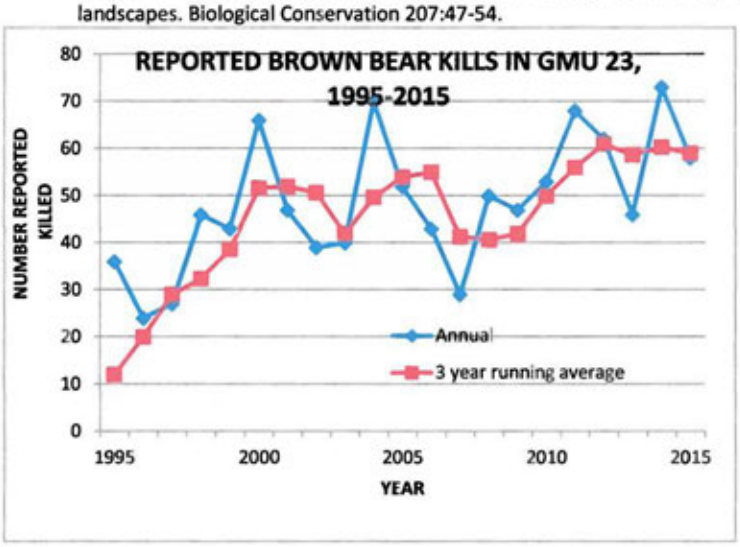


WP18–45 Executive Summary			
General Description	Proposal WP18-45 requests that the caribou harvest limit in Unit 23 be reduced from 5 caribou per day to 3 caribou per day. *Submitted by: Northwest Arctic Subsistence Regional Advisory Council.*		
Proposed Regulation	**Unit 23—Caribou**		
	Unit 23—that portion which includes all drainages north and west of, and including, the Singoalik River drainage	***3*** ~~***5***~~*caribou per day as follows:* *Calves may not be taken.* *Bulls may be harvested*	 *July 1–Oct. 14* *Feb. 1–June 30*
		Cows may be harvested. However, cows accompanied by calves may not be taken July 15–Oct. 14.	*July 15–Apr. 30*
	Unit 23, remainder	***3*** ~~***5***~~*caribou per day as follows:* *Calves may not be taken.* *Bulls may be harvested*	 *July 1–Oct. 31* *Feb.1–June 30*
		Cows may be harvested. However, cows accompanied by calves may not be taken July 31–Oct. 14.	*July 31–March 31*
OSM Preliminary Conclusion	**Oppose**		
Southeast Alaska Subsistence Regional Advisory Council Recommendation			
Southcentral Alaska Subsistence Regional Advisory Council Recommendation			

WP18–45 Executive Summary	
Kodiak/Aleutians Subsistence Regional Advisory Council Recommendation	
Bristol Bay Subsistence Regional Advisory Council Recommendation	
Yukon-Kuskokwim Delta Subsistence Regional Advisory Council Recommendation	
Western Interior Alaska Subsistence Regional Advisory Council Recommendation	
Seward Peninsula Subsistence Regional Advisory Council Recommendation	
Northwest Arctic Subsistence Regional Advisory Council Recommendation	
Eastern Interior Alaska Subsistence Regional Advisory Council Recommendation	
North Slope Subsistence Regional Advisory Council Recommendation	

WP18–45 Executive Summary	
Interagency Staff Committee Comments	
ADF&G Comments	
Written Public Comments	**None**

DRAFT STAFF ANALYSIS
WP18-45

ISSUES

Proposal WP18-45, submitted by the Northwest Arctic Subsistence Regional Advisory Council (Northwest Arctic Council), requests that the caribou harvest limit in Unit 23 be reduced from 5 caribou per day to 3 caribou per day.

DISCUSSION

The proponent states that the proposed change is needed to conserve the Western Arctic caribou herd (WACH) population, which is currently declining and is a vital subsistence resource. The proponent notes that the requested change will still meet the needs of Federally qualified subsistence users.

Existing Federal Regulations

Unit 23—Caribou

Unit 23—that portion which includes all drainages north and west of, and including, the Singoalik River drainage	*5 caribou per day as follows:* *Calves may not be taken.* *Bulls may be harvested*	 *July 1–Oct. 14* *Feb. 1–June 30*
	Cows may be harvested. However, cows accompanied by calves may not be taken July 15–Oct. 14.	*July 15–Apr. 30*
Unit 23, remainder	*5 caribou per day as follows:* *Calves may not be taken.* *Bulls may be harvested*	 *July 1–Oct. 31* *Feb.1–June 30*
	Cows may be harvested. However, cows accompanied by calves may not be taken July 31–Oct. 14.	*July 31–March 31*

Proposed Federal Regulations

Unit 23—Caribou

Unit 23—that portion which includes all drainages north and west of, and including, the Singoalik River drainage	***3*** ~~*5*~~ *caribou per day as follows:* *Calves may not be taken.* *Bulls may be harvested*	 *July 1–Oct. 14* *Feb. 1–June 30*
	Cows may be harvested. However, cows accompanied by calves may not be taken July 15–Oct. 14.	*July 15–Apr. 30*
Unit 23, remainder	***3*** ~~*5*~~ *caribou per day as follows:* *Calves may not be taken.* *Bulls may be harvested*	 *July 1–Oct. 31* *Feb.1–June 30*
	Cows may be harvested. However, cows accompanied by calves may not be taken July 31–Oct. 14.	*July 31–March 31*

Existing State Regulations

Unit 23—Caribou

23, north of and including Singoalik River drainage	*Residents—Five caribou per day; however, calves may not be taken.*	*Bulls*	*RC907*	*July 1-Oct. 14* *Feb. 1-June 30*
		Cows	*RC907*	*Jul. 15-Apr. 30*
	Nonresidents—One bull; however, calves may not be taken		*HT*	*Aug. 1-Sept. 30*
23 remainder	*Residents—Five caribou per day; however, calves may not be taken.*	*Bulls*	*RC907*	*July 1-Oct. 14* *Feb. 1-June 30*
		Cows	*RC907*	*Sept. 1-Mar. 31*
	Nonresidents—One bull; however, calves may not be taken		*HT*	*Aug. 1-Sept. 30*

Extent of Federal Public Lands

Federal public lands comprise approximately 71% of Unit 23 and consist of 40% National Park Service (NPS) managed lands, 22% Bureau of Land Management (BLM) managed lands, and 9% U.S. Fish and Wildlife Service (USFWS) managed lands.

Customary and Traditional Use Determinations

Residents of Unit 21D west of the Koyukuk and Yukon Rivers, Galena, 22, 23, 24 including residents of Wiseman but not including other residents of the Dalton Highway Corridor Management Area, and 26A have a customary and traditional use determination for caribou in Unit 23 (**Map 1**).

Regulatory History

In 1990, the caribou hunting season in Unit 23 was open year round with a 5 caribou per day harvest limit and a restriction on the take of cows May 16-June 30.

In 1995, the Federal Subsistence Board (Board) adopted Proposal P95-51 to increase the caribou harvest limit from 5 to 15 caribou per day so that subsistence hunters could maximize their hunting efforts when caribou were available (FWS 1995a).

In 1997, the Board adopted Proposal P97-66 with modification to provide a customary and traditional use determination for caribou in Unit 23 for rural residents of Unit 21D west of the Koyukuk and Yukon rivers, Galena, Units 22, 23, 24 including residents of Wiseman, but not other residents of the Dalton Highway Corridor Management Area and Unit 26A (**Map 1**, FWS 1995b, 1997).

In 2000, the Board adopted Proposal WP00-53 with modification, allowing the use of snowmachines to position a hunter to select individual caribou for harvest in Units 22 and 23. This was done to recognize a customary and traditional practice in the region (FWS 2000a).

In 2013, an aerial photo census indicated significant declines in the Teshekpuk Caribou herd (TCH), WACH, and possibly the Central Arctic Caribou Herd (CACH) populations (Caribou Trails 2014). In response, the Alaska Board of Game (BOG) adopted modified Proposal 202 (RC76) in March 2015 to reduce harvest opportunities for both Alaska residents and nonresidents within the range of the WACH and the TCH. These regulation changes – which included lowering bag limits for nonresidents from two caribou to one bull, reductions in bull and cow season lengths, the establishment of new hunt areas, and prohibiting calf harvest – were adopted to slow or reverse the population decline. The regulatory changes took effect on July 1, 2015.

In 2015, four special actions, WSA15-03/04/05/06, requesting changes to caribou regulations in Units 23, 24, and 26, were submitted by the North Slope Council and approved with modification by the Board, effective July 1, 2015. Temporary Special Action WSA15-03 requested designation of a new hunt area for caribou in the northwest corner of Unit 23 where the harvest limit would be reduced from 15 to 5 caribou per day, the harvest season would be shortened for bulls and cows, and the take of calves would be

prohibited. The Board did not establish a new hunt area, applying the restrictions to all of Unit 23 and also prohibited the take of cows with calves. These State and Federal regulatory changes were the first time that harvest restrictions had been implemented for the WACH in over 30 years.

Five proposals (WP16-37, WP16-48, WP16-49/52, and WP16-61) concerning caribou regulations in Unit 23 were submitted to the Board for the 2016-2018 wildlife regulatory cycle. The Board adopted WP16-48 with modification to allow the positioning of a caribou, wolf, or wolverine for harvest on BLM lands only. Proposal WP16-37 requested that Federal caribou regulations mirror the new State regulations across the ranges of the WACH and TCH (Units 21D, 22, 23, 24, 26A, and 26B). The Board adopted Proposal WP16-37 with modification to reduce the harvest limit to 5 caribou per day, restrict bull season during rut and cow season around calving, prohibit the harvest of calves and the harvest of cows with calves before weaning (mid-Oct.), and to create a new hunt area in the northwest corner of Unit 23. The Board took no action on the remaining proposals (WP16-49/52, and WP16-61) because of action taken on WP16-37.

In 2015, the Northwest Arctic Council submitted a temporary special action request (WSA16-01) to close caribou hunting on Federal public lands in Unit 23 to non-Federally qualified users (NFQU) for the 2016/17 regulatory year. The Council stated that their request was necessary for conservation purposes but also needed because nonlocal hunting activities were negatively affecting subsistence harvests. In April 2016, the Board approved WSA16-01, basing its decision on the strong support of the Northwest Arctic and North Slope Councils, public testimony in favor of the request, as well as concerns over conservation and continuation of subsistence uses (FSB 2016).

In June 2016, the State submitted a special action request (WSA16-03) to reopen caribou hunting on Federal public lands in Unit 23 to NFQU, providing new biological information (e.g. calf recruitment, weight, body condition) on the WACH. The State specified that there was no biological reason for the closure and that it could increase user conflicts. In January 2017, the Board rejected WSA16-03 due to the position of all four affected Councils (Northwest Arctic, North Slope, Seward Peninsula, and Western Interior) as well as public testimony and Tribal consultation comments opposing the request. Additionally, the Board found the new information provided by the State to be insufficient to rescind the closure.

In January 2017, the BOG adopted Proposal 2, requiring registration permits for residents hunting caribou within the range of the Western Arctic and Teshekpuk herds in Units 21, 23, 24, and 26 (a similar proposal was passed for Unit 22 in 2016). The Alaska Department of Fish and Game (ADF&G) submitted the proposal in order to better monitor harvest and improve management flexibility. Also in January 2017, the BOG rejected Proposal 45, which proposed requiring big game hunting camps to be spaced at least three miles apart along the Noatak, Agashashok, Eli, and Squirrel Rivers. The proposal failed as it would be difficult to enforce.

In March 2017, the Northwest Arctic and North Slope Councils submitted temporary special action requests (WSA17-03 and -04, respectively) to close caribou hunting on Federal public lands in Unit 23 and in Units 26A and 26B, respectively, to non-Federally qualified users for the 2017/18 regulatory year. Both Councils stated that the intent of the proposed closures was to ensure subsistence use in the 2017/18

regulatory year, to protect declining caribou populations, and to reduce user conflicts. The Board voted to approve WSA17-03 with modification to close all Federal public lands within a 10 mile wide corridor (5 miles either side) along the Noatak River from the western boundary of Noatak National Preserve upstream to the confluence with the Cutler River; within the northern and southern boundaries of the Eli and Agashashok River drainages, respectively; and within the Squirrel River drainage, to caribou hunting except by Federally qualified subsistence users for the 2017/18 regulatory year. The Board considered the modification a reasonable compromise for all users and that closure of the specified area was warranted in order to continue subsistence use. The Board rejected WSA17-04 due to recent changes to State regulations that should reduce caribou harvest.

Controlled Use Areas

In 1988, the Traditional Council of Noatak submitted a proposal to the BOG to create the Noatak Controlled Use Area (CUA) in order to restrict the use of aircraft in any manner for big game hunting Aug. 15 - Sept. 20 due to user conflicts (Fall 1990:86). The proposed CUA extended five miles on either side of the Noatak River, from the mouth of the Eli River upstream to the mouth of the Nimiuktuk River, including the north side of Kivivik Creek (ADF&G 1988:47). The BOG adopted the proposal with modification to close a much smaller area extending from the Kugururok River to Sapun Creek from Aug. 20-Sept. 20.

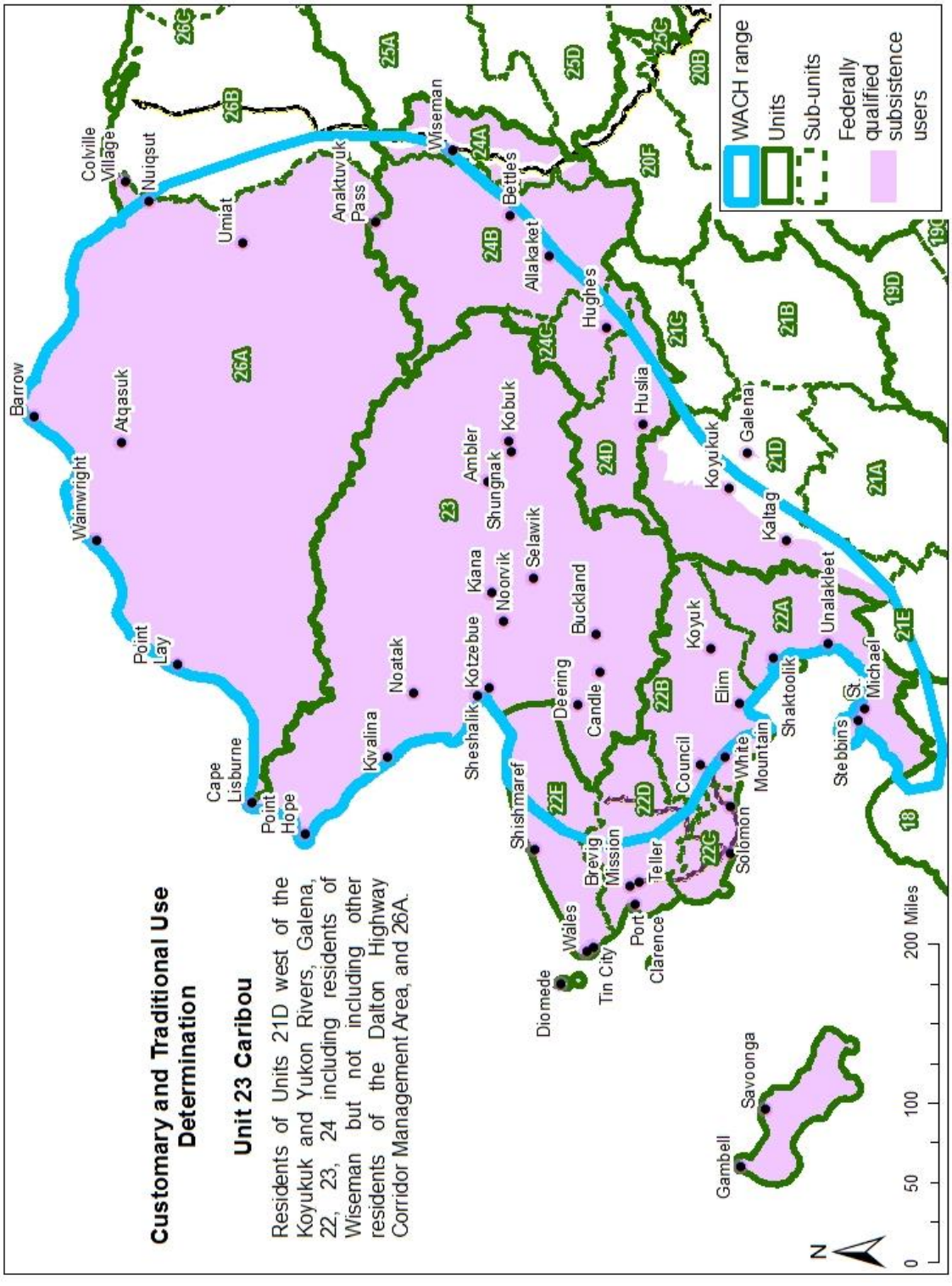
The CUA was expanded in 1994 and modified in 2017 (Betchkal 2015, Halas 2015, ADF&G 2017a). From 1994-2016, the Noatak CUA consisted of a 10-mile wide corridor (5 miles either side) along the Noatak River from its mouth to Sapun Creek with approximately 80 miles of the CUA within Noatak National Preserve (NP) (**Map 2**, Betchkal 2015). The closure dates from 1994-2009 were Aug. 25-Sept. 15. In 2009 (effective 2010), the BOG adopted Proposal 22 to expand the closure dates to Aug. 15-Sept. 30 in response to the timing of caribou migration becoming less predictable (ADF&G 2009). During the 2016/17 BOG regulatory cycle, the Noatak/Kivalina & Kotzebue AC proposed (Proposal 44) extending the upriver boundary of the Noatak CUA to the Cutler River, citing increased user conflicts as their rationale (ADF&G 2017b). In January 2017, the BOG approved amended Proposal 44 to shift the boundaries of the Noatak CUA to start at the mouth of the Agashashok River and end at the mouth of the Nimiuktuk River with approximately 105 miles within Noatak NP (**Map 2**, ADF&G 2017a).

In 1990, the Noatak CUA was adopted under Federal regulations. In 1995, the Board adopted Proposal P95-50 to expand the time period and area of the CUA to Aug. 25-Sept. 15 and the mouth of the Noatak River upstream to the mouth of Sapun Creek, respectively, which aligned with current State regulations. In 2008, Proposals WP08-50 and 51 requested modifications to the Noatak CUA dates. These proposals were submitted in response to caribou migration occurring later in the season, to improve caribou harvest for subsistence users, and to decrease conflicts between local and nonlocal hunters. The Board deferred these proposals to the next regulatory cycle. In 2010, Proposals WP10-82, 83, and 85 requested similar date changes. The Board adopted WP10-85 to expand the time period during which aircraft are restricted in the Noatak CUA to Aug. 15-Sept. 30, which aligned with the current State regulations.

In 2011, Selawik National Wildlife Refuge (NWR) designated refuge lands in the northwest portion of the refuge as closed to big game hunting by commercial guides and transporters through their comprehensive

conservation plan (FWS 2011, 2014). These refuge lands are intermingled with private lands near the villages of Noorvik and Selawik (**Map 2**). The purpose of this closure was to minimize trespass on private lands and to reduce user conflicts (FWS 2011).

In 2012, the NPS established a Special Commercial Use Area or "delayed entry zone" in the western portion of the Noatak NP (Halas 2015, Fix and Ackerman Fix 2015). Within this zone, transporters can only transport nonlocal caribou hunters after September 15 unless otherwise specified by the Western Arctic Parklands (WEAR) superintendent in consultation with commercial operators, other agencies and local villages (Halas 2015). The purpose of this zone is to allow a sufficient number of caribou to cross the Noatak River and establish migration routes, to limit interactions between local and nonlocal hunters, and to allow local hunters the first opportunity to harvest caribou in that area (**Map 2**, FWS 2014, Halas 2015). To date, the Superintendent has not used his/her authority to alter the closure dates in response to changes in caribou herd migration or to meet the needs of local hunters (Halas 2015).



Map 1. Customary and Traditional (C&T) Use Determination for caribou in Unit 23. C&T Determinations indicate which Alaska rural residents are Federally qualified subsistence users. The WACH range indicates which residents are considered local in State management reports.

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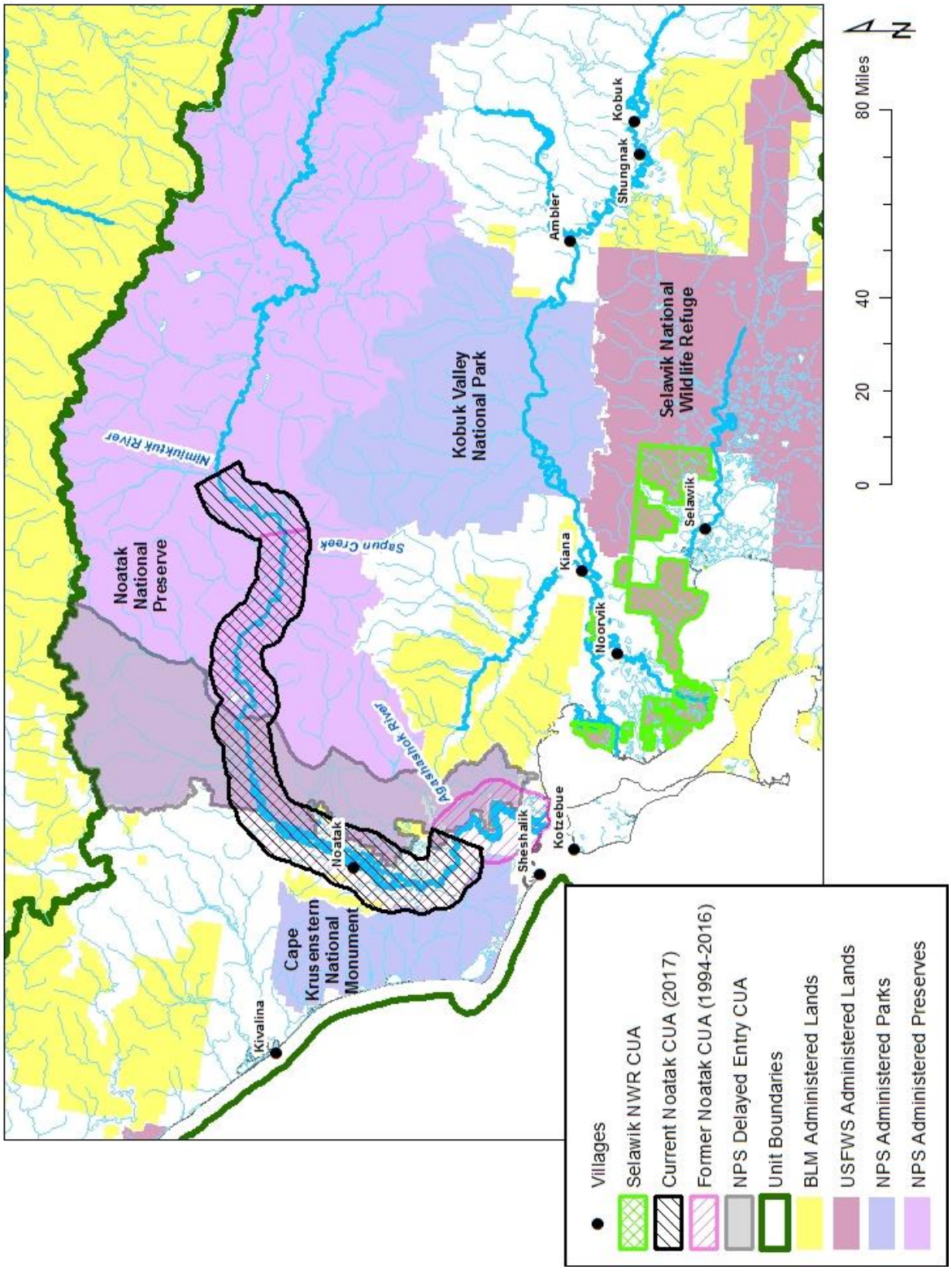


Map 2. Controlled Use Areas (CUAs) in Unit 23.

Current Events

Several other proposals concerning Federal caribou harvest regulations in Unit 23 and the WACH were submitted for the 2018-2020 wildlife regulatory cycle (WP18-32, 46/47, 48/49, and 57). The outcome of these related proposals could impact the effects of this proposal (i.e. closures).

At the WACH Working Group meeting in December 2016, the group voted to submit two wildlife proposals. Proposal WP18-46 is to close Federal public lands in Unit 23 to caribou hunting by NFQUs. Proposal WP18-48 is to require registration permits for caribou hunting in Units 22, 23, and 26A, which are also required under State regulations. Louis Cusack also submitted Proposal WP18-49 to require registration permits in these units.

At the Western Interior Council meeting in February 2017, the Council voted to submit Proposal WP18-32 to align caribou seasons across the ranges of the WACH, TCH, and CACH. The intent of this proposal is to protect cows during migration. The Council intends to submit a similar proposal to the BOG.

At the North Slope Council meeting in March 2017, the Council voted to submit Proposal WP18-57 to close Federal public lands to caribou hunting by NFQUs in Units 26A and 26B (similar to WSA17-04). This is in response to declines in the WACH, TCH, and CACH, which are seasonally present in the area.

Enoch Mitchell also submitted Proposal WP18-47 to close Federal public lands in Unit 23 to caribou hunting by NFQUs for the 2018/19- 2020/21 regulatory years. The Native Village of Noatak, Cape Krusenstern National Monument Subsistence Resource Commission (SRC), Kobuk Valley National Park SRC, and the Noatak/Kivalina Fish and Game Advisory Committee co-sponsored the proposal.

Biological Background

Caribou abundance naturally fluctuates over decades (Gunn 2001, WACH Working Group 2011). Gunn (2001) reports the mean doubling rate for Alaskan caribou as 10 ± 2.3 years. Although the underlying mechanisms causing these fluctuations are uncertain, climatic oscillations (i.e. Arctic and Pacific Decadal Oscillations) may play an important role (Gunn 2001, Joly et al. 2011). Climatic oscillations can influence factors such as snow depth, icing, forage quality and growth, wildfire occurrence, insect levels, and predation, which all contribute to caribou population dynamics (Joly et al. 2011). Density-dependent reduction in forage availability, resulting in poorer body condition may exacerbate caribou population fluctuations (Gunn 2001).

Caribou calving generally occurs from late May to mid-June (Dau 2013). Weaning generally occurs in late October and early November before the breeding season (Taillon et al. 2011). Calves stay with their mothers through their first winter, which improves calves' access to food and body condition (Holand et al. 2012). Calves orphaned after weaning (October) have greater chances of survival than calves orphaned before weaning (Holand et al. 2012, Joly 2000, Russell et al. 1991, Rughetti and Fest-Bianchet 2014).

The TCH, WACH, and CACH have ranges that overlap in Unit 26A (**Map 3**), and there can be considerable mixing of herds during the fall and winter. During the 1970s, there was little overlap between these herds,

but the degree of mixing seems to be increasing. Currently, the WACH, TCH, and CACH populations are all declining (Dau 2011, 2015a, Lenart 2011, Parrett 2011, 2015c, 2015d).

The WACH has historically been the largest caribou herd in Alaska and has a home range of approximately 157,000 square miles in northwestern Alaska. In the spring, most mature cows move north to calving grounds in the Utukok Hills, while bulls and immature cows lag behind and move toward summer range in the Wulik Peaks and Lisburne Hills (**Map 4**, Dau 2011, WACH Working Group 2011).

Dau (2013) determined the calving dates for the WACH to be June 9–13. This is based upon long-term movement and distribution data obtained from radio-collared caribou (these are the dates cows ceased movements). After the calving period, cows and calves move west toward the Lisburne Hills where they mix with the bulls and non-maternal cows. During the summer, the herd moves rapidly to the Brooks Range.

In the fall, the herd moves south toward wintering grounds in the northern portion of the Nulato Hills. Rut occurs during fall migration (Dau 2011, WACH Working Group 2011). Dau (2013) determined the WACH rut dates to be October 22–26 based on back-calculations from calving dates using a 230 day gestation period. Since about 2000, the timing of fall migration has been less predictable, often occurring later than in previous decades (Dau 2015a). From 2010-2015, the average date that GPS collared caribou crossed the Noatak River ranged from Sep. 30 – Oct. 23 (Joly and Cameron 2017). The proportion of caribou using certain migration paths varies each year (**Figure 1**, Joly and Cameron 2017). In recent years (2012-2014), the path of fall migration has shifted east (Dau 2015a).

The WACH Working Group developed a WACH Cooperative Management Plan in 2003, and revised it in 2011 (WACH Working Group 2011). The WACH Management Plan identifies seven plan elements: cooperation, population management, habitat, regulations, reindeer, knowledge, and education as well as associated goals, strategies, and management actions. As part of the population management element, the WACH Working Group developed a guide to herd management determined by population size, population trend, and harvest rate. Population sizes guiding management level determinations were based on recent (since 1970) historical data for the WACH (WACH Working Group 2011). Revisions to recommended harvest levels under liberal and conservative management (+/- 100 - 2,850 caribou) were made in December 2015 (WACH Working Group 2015, **Table 1**). The State of Alaska manages the WACH to protect the population and its habitat, provide for subsistence and other hunting opportunities on a sustained yield basis, and provide for viewing and other uses of caribou (Dau 2011). State management objectives for the WACH are the same as the goals specified in the WACH Management Plan (Dau 2011, WACH Working Group 2011) and include:

- Encourage cooperative management of the WACH among State, Federal, local entities, and all users of the herd.
- Manage for healthy populations using management strategies adapted to fluctuating population levels and trends.
- Assess and protect important habitats.
- Promote consistent and effective State and Federal regulations for the conservation of the WACH.

- Seek to minimize conflict between reindeer herders and the WACH.
- Integrate scientific information, traditional ecological knowledge of Alaska Native users, and knowledge of all users into management of the herd.
- Increase understanding and appreciation of the WACH through the use of scientific information, traditional ecological knowledge of the Alaska Native users, and knowledge of all other users.

The WACH population declined rapidly in the early 1970s, bottoming out at about 75,000 animals in 1976. Aerial photo censuses have been used since 1986 to estimate population size. The WACH population increased throughout the 1980s and 1990s, peaking at 490,000 animals in 2003 (**Figure 2**). Since 2003, the herd has declined at an average annual rate of 7.1% from approximately 490,000 caribou to 200,928 caribou in 2016 (Caribou Trails 2014; Dau 2011, 2014, Parrett 2016a).

Between 1982 and 2011, the WACH population was within the liberal management level prescribed by the WACH Working Group (**Figure 2, Table 1**). In 2013, the herd population estimate fell below the population threshold for liberal management of a decreasing population (265,000), slipping into the conservative management level. ADF&G conducted a successful photocensus of the WACH on July 1, 2016. This census resulted in a minimum count of 194,863 caribou with a point estimate of 200,928 (Standard Error = 4,295), suggesting the WACH is still within the conservative management level, although close to the threshold for preservative management (**Figure 2, Table 1**). Results of this census indicate an average annual decline of 5% per year since 2013, representing a much lower rate than the 15% annual decline between 2011 and 2013. The large cohorts of 2015 and 2016, which currently comprise a substantial proportion of the herd, contributed to the recent decreased rate of decline, but remain vulnerable to difficult winter conditions due to their young age (Parrett 2016a). ADF&G is planning to conduct another photocensus in the summer of 2017 and is also transitioning from film to digital cameras, which will enhance their ability to complete successful and timely censuses (Parrett 2016a, Parrett 2017, pers. comm.).

Between 1970 and 2016, the bull:cow ratio exceeded critical management levels in all years except 1975, 2001, and 2014 (**Figure 3**). Reduced sampling intensity in 2001 likely biased the 2001 bull:cow ratio low (Dau 2013). Since 1992, the bull:cow ratios has trended downward (Dau 2015a). The average annual number of bulls:100 cows was greater during the period of population growth (54:100 between 1976–2001) than during the recent period of decline (44:100 between 2004–2016). Additionally, Dau (2015a) states that while trends in bull:cow ratios are accurate, actual values should be interpreted with caution due to sexual segregation during sampling and the inability to sample the entire population, which likely account for more annual variability than actual changes in composition.

Although factors contributing to the decline are not known with certainty, increased adult cow mortality, and decreased calf recruitment and survival played a role (Dau 2011). Since the mid-1980s, adult mortality has slowly increased while recruitment has slowly decreased (Dau 2013, **Figure 4**). In a population model developed specifically for the WACH, Prichard (2009) found adult survival to have the largest impact on population size.

Calf production has likely had little influence on the population trajectory (Dau 2013, 2015a). Between 1990 and 2003, the June calf:cow ratio averaged 66 calves:100 cows/year. Between 2004 and 2016, the June calf:cow ratio averaged 71 calves:100 cows/year (**Figure 5**). In June 2016, 85 calves:100 cows were observed, which approximates the highest parturition level ever recorded for the herd (86 calves:100 cows in 1992) (Dau 2016a).

Decreased calf survival through summer and fall and recruitment into the herd are likely contributing to the current population decline (Dau 2013, 2015a). Fall calf:cow ratios indicate calf survival over summer. Between 1976 and 2016, the fall calf:cow ratio ranged from 35 to 59 calves:100 cows/year, averaging 46 calves:100 cows/year (**Figure 5**). Fall calf:cow ratios declined from an average of 46 calves:100 cows/year between 1990-2003 to an average of 42 calves:100 cows/year between 2004-2016 (Dau 2015a, **Figure 5**). Since 2008, ADF&G has recorded calf weights at Onion Portage as an index of herd nutritional status. In September 2015, calf weights averaged 100 lbs., the highest average ever recorded (Parrett 2015b).

Similarly, the ratio of short yearlings (SY, 10-11 months old caribou) to adults provides a measure of overwintering calf survival and recruitment. Between 1990 and 2003, SY:adult ratios averaged 20 SY:100 adults/year. Since the decline began in 2003, SY:adult ratios have averaged 16 SY:100 adults/year (2004-2016, **Figure 5**). However, 23 SY:100 adults were observed during spring 2016 surveys, the highest ratio recorded since 2007 (Dau 2016b). The overwinter calf survival for the 2015 cohort (Oct. 2015-Jun. 2016) was 84% (Parrett 2016b). While 2016 indices suggest improvements in recruitment, the overall trend since the early 1980s has been downward (Dau 2015a, 2016b).

Increased cow mortality is likely affecting the trajectory of the herd as well (Dau 2011, 2013). The annual mortality rate of radio-collared adult cows increased from an average of 15% between 1987 and 2003 to 23% from 2004–2014 (Dau 2011, 2013, 2014, 2015a, **Figure 4**). Estimated mortality includes all causes of death including hunting (Dau 2011). Dau (2015a) states that cow mortality estimates are conservative due to exclusion of unhealthy (i.e. diseased) and yearling cows. Dau (2013) attributed the high mortality rate for 2011–2012 (33%, **Figure 4**) to a winter with deep snows, which weakened caribou and enabled wolves to prey on them more easily. Prior to 2004, estimated adult cow mortality only exceeded 20% twice, but has exceeded 20% in 7 out of 9 regulatory years between 2004 and 2012 (**Figure 4**). The annual mortality rate was 8% as of April 2016 (Dau 2016b). This may fluctuate substantially throughout the year based on changing local conditions and harvest levels. Dau (2015a) indicates that mortality rates may also change in subsequent management reports as the fate of collared animals is determined, and that these inconsistencies are most pronounced for the previous 1–3 years.

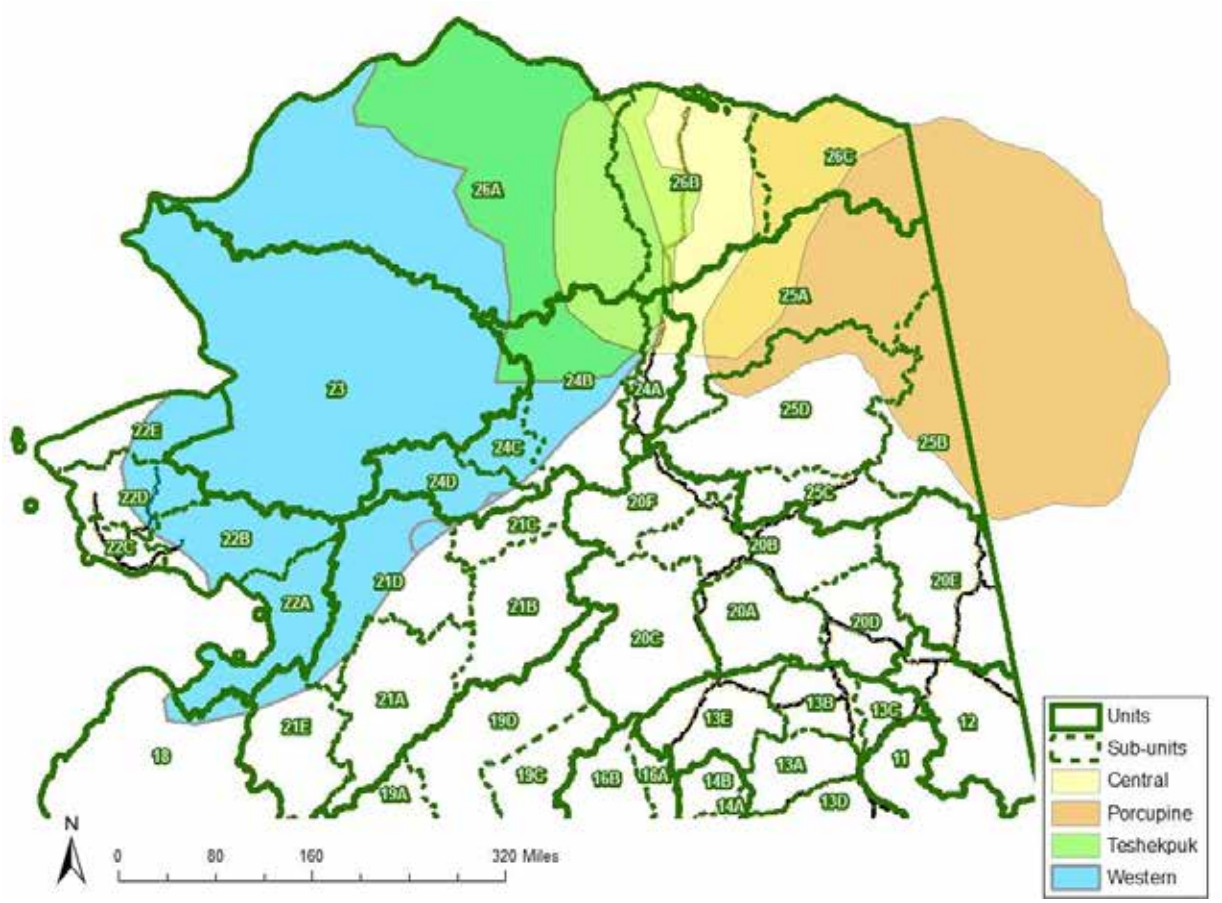
Far more caribou died from natural causes than from hunting between 1992 and 2012 (Dau 2013). Cow mortality remained constant throughout the year, but natural and harvest mortality for bulls spiked during the fall. Predation, particularly by wolves, accounted for the majority of natural mortality (Dau 2013). However as the WACH has declined and estimated harvest has remained relatively stable, the percentage of mortality due to hunting has increased relative to natural mortality. For example, during the period October 1, 2013 to September 30, 2014, estimated hunting mortality was approximately 42% and estimated natural mortality about 56% (Dau 2014). In previous years (1983–2013), the estimated hunting mortality

exceeded 30% only once in 1997-1998 (Dau 2013). Additionally, Prichard (2009) and Dau (2015a) suggest that harvest levels and rates of cows can greatly impact population trajectory. If bull:cow ratios continue to decline, harvest of cows may increase, exacerbating the current population decline.

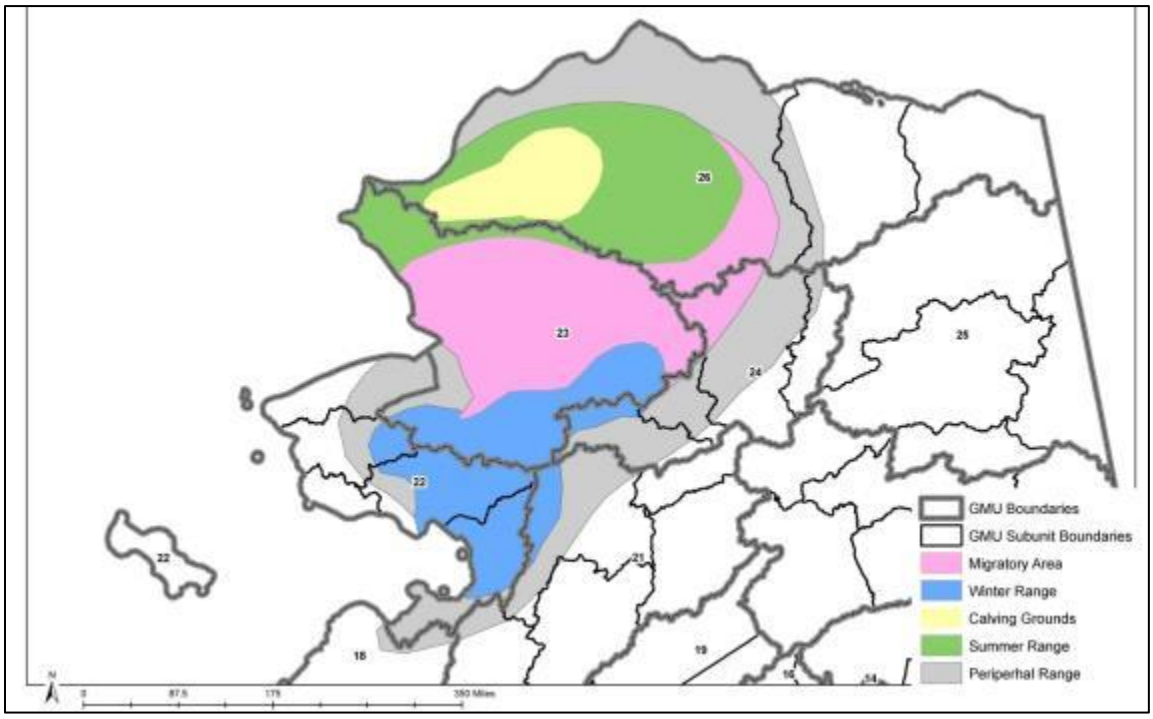
Dau (2015a) cites fall and winter icing events as the primary factor initiating the population decline in 2003. Increased predation, hunting pressure, deteriorating range condition (including habitat loss and fragmentation), climate change, and disease may also be contributing factors (Dau 2015a, 2014). Joly et al. (2007) documented a decline in lichen cover in portions of the wintering areas of the WACH. Dau (2011, 2014) reported that degradation in range condition is not thought to be a primary factor in the decline of the herd because animals have generally maintained good body condition since the decline began. Body condition is assessed on a subjective scale from 1-5. The fall body condition of adult females in 2015 was characterized as "fat" (mean= 3.9/5) with no caribou being rated as skinny or very skinny (Parrett 2015b). However, the body condition of the WACH in the spring may be a better indicator of the effects of range condition versus the fall when the body condition of the herd is routinely assessed and when caribou are in prime condition (Joly 2015, pers. comm.).

Habitat

Caribou feed on a wide variety of plants including lichens, fungi, sedges, grasses, forbs, and twigs of woody plants. Arctic caribou depend primarily on lichens during the fall and winter, but during summer they feed on leaves, grasses and sedges (Miller 2003).



Map 3. Herd overlap and ranges of the WACH, TCH, CACH, and PCH.



Map 4. Range of the WACH.

Table 1. Western Arctic Caribou Herd management levels using herd size, population trend, and harvest rate (WACH Working Group 2011, 2015).

Management and Harvest Level	Population Trend			Harvest Recommendations May Include:
	Declining Low: 6%	**Stable Med: 7%**	**Increasing High: 8%**	
Liberal	Pop: 265,000+	Pop: 230,000+	Pop: 200,000+	• Reduce harvest of bulls by nonresidents to maintain at least 40 bulls: 100 cows • No restriction of bull harvest by resident hunters unless bull:cow ratios fall below 40 bulls:100 cows
	Harvest: 16,000-22,000	Harvest: 16,000-22,000	Harvest: 16,000-22,000	
Conservative	Pop: 200,000-265,000	Pop: 170,000-230,000	Pop: 150,000-200,000	• No harvest of calves • No cow harvest by nonresidents • Restriction of bull harvest by nonresidents • Limit the subsistence harvest of bulls only when necessary to maintain a minimum 40:100 bull:cow ratio
	Harvest: 12,000-16,000	Harvest: 12,000-16,000	Harvest: 12,000-16,000	
Preservative	Pop: 130,000-200,000	Pop: 115,000-170,000	Pop: 100,000-150,000	• No harvest of calves • Limit harvest of cows by resident hunters through permit hunts and/or village quotas • Limit the subsistence harvest of bulls to maintain at least 40 bulls:100 cows • Harvest restricted to residents only, according to state and federal law. Closure of some federal public lands to nonqualified users may be necessary
	Harvest: 8,000-12,000	Harvest: 8,000-12,000	Harvest: 8,000-12,000	
Critical Keep Bull:Cow ratio ≥ 40 Bulls:100 Cows	Pop: < 130,000	Pop: < 115,000	Pop: < 100,000	• No harvest of calves • Highly restrict the harvest of cows through permit hunts and/or village quotas • Limit the subsistence harvest of bulls to maintain at least 40 bulls:100 cows • Harvest restricted to residents only, according to state and federal law. Closure of some federal public lands to nonqualified users may be necessary
	Harvest: 6,000-8,000	Harvest: 6,000-8,000	Harvest: 6,000-8,000	

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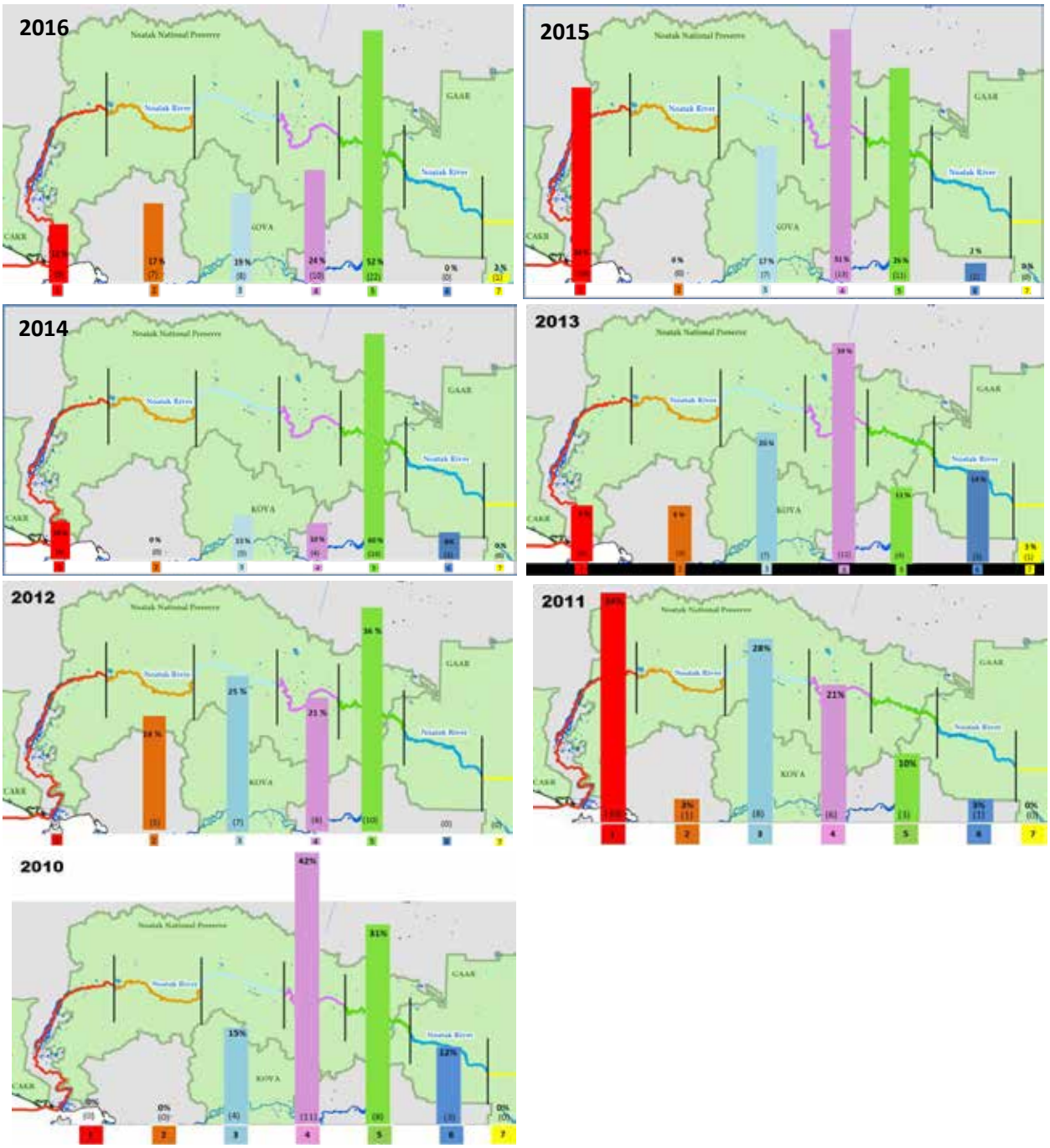

Figure 1. Distribution of caribou crossing the Noatak River during fall. Histograms depict where collared female caribou crossed the Noatak River, generally from north to south, on their fall migration. Relative percentages (top number) and the absolute number (middle number) of caribou are provided. The river is divided into seven (lowest number) color-coded segments which are displayed in the background. The middle five segments are 100 river kilometers long, while the westernmost segment (red) is 200 km (before extending into the Chukchi Sea) and the easternmost (yellow) runs as far east as WAH caribou are known to migrate. The number of caribou with GPS collars ranged from 39-79 caribou/year with later years having more collared caribou than earlier years (Joly and Cameron 2017).

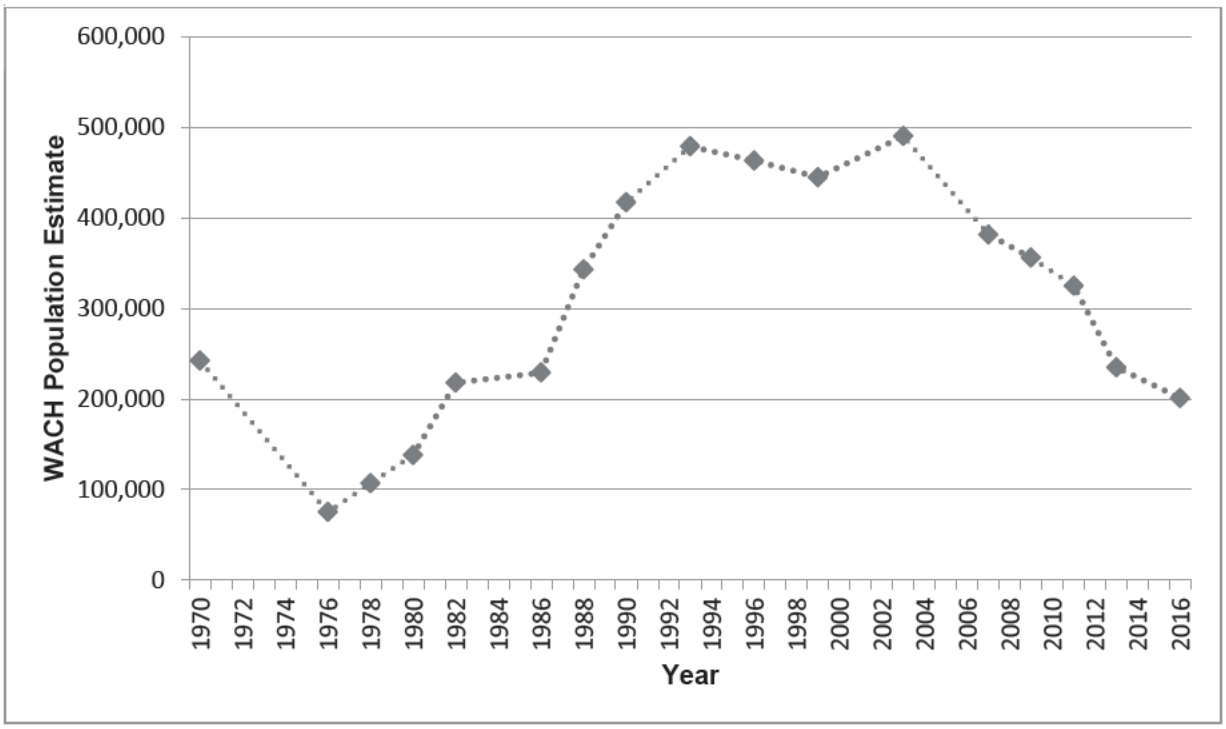

Figure 2. The WACH population estimates from 1970–2015. Population estimates from 1986–2016 are based on aerial photographs of groups of caribou that contained radio-collared animals (Dau 2011, 2013, 2014, Parrett 2016a).

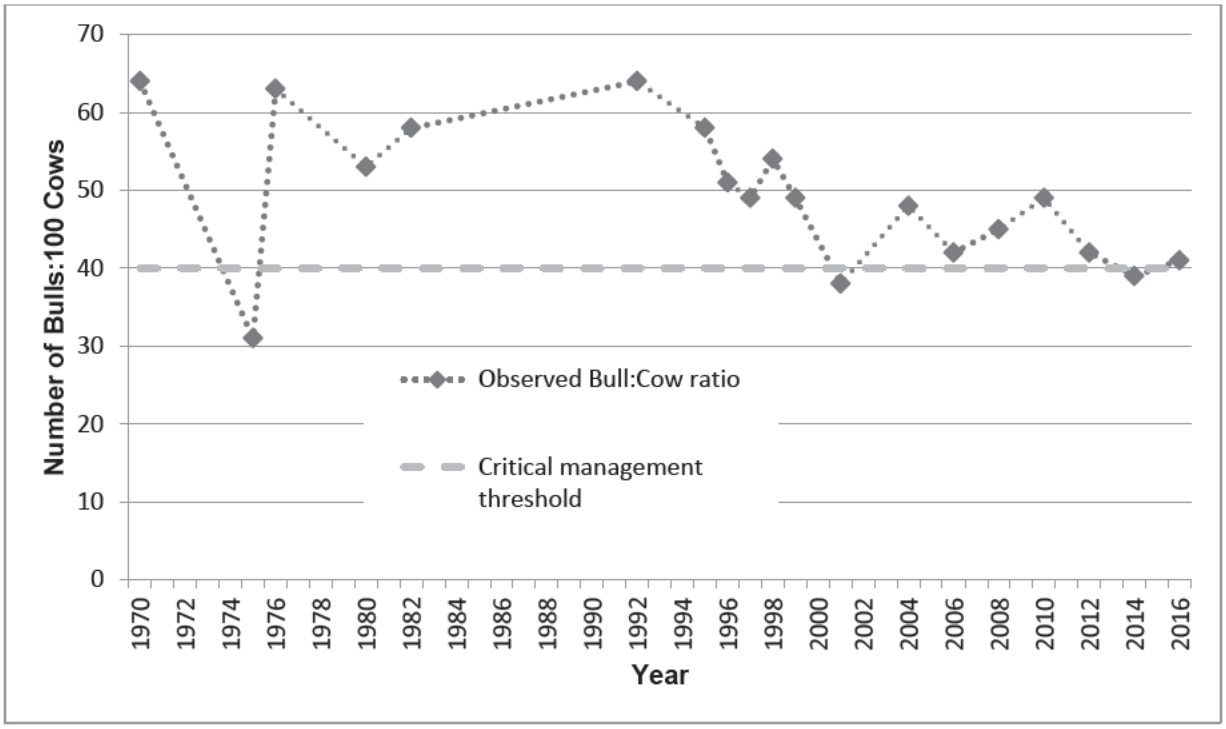

Figure 3. Bull:Cow ratios for the WACH (Dau 2015a, ADF&G 2017c).

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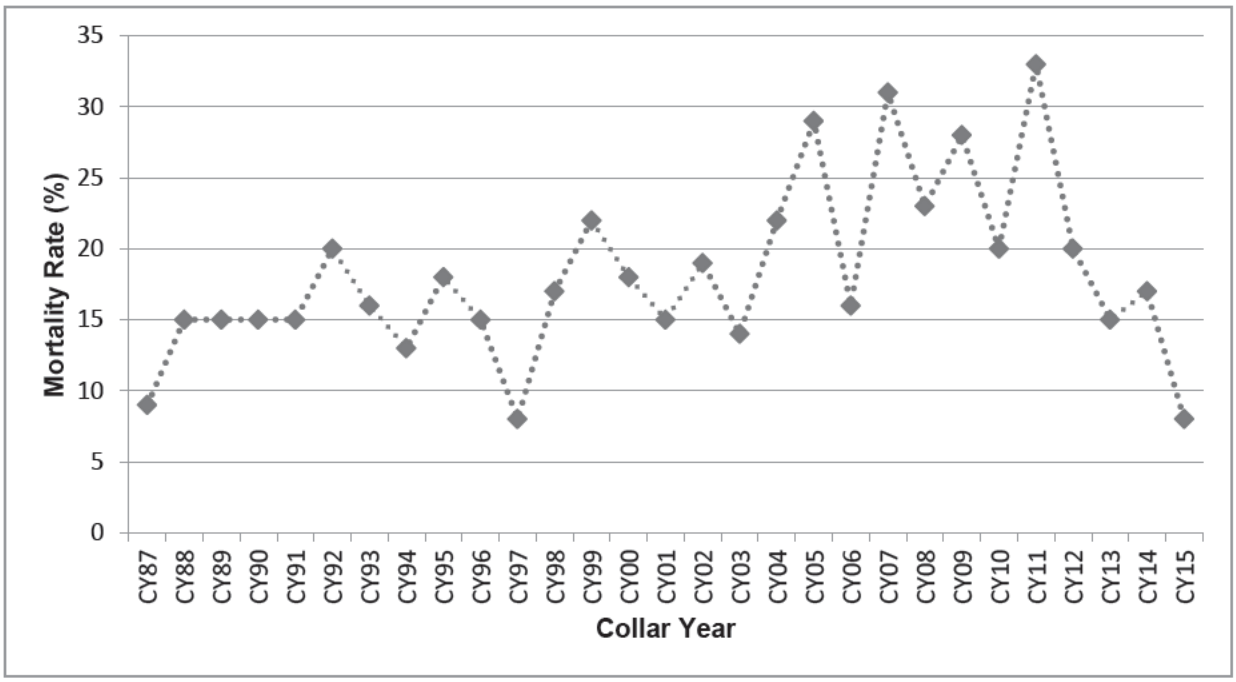

Figure 4. Mortality rate of radio-collared caribou in the Western Arctic caribou herd (Dau 2013, 2015a, 2016b). Collar Year = 1 Oct-30 Sept. 2015 collar year is Oct. 2015-Apr. 2016.

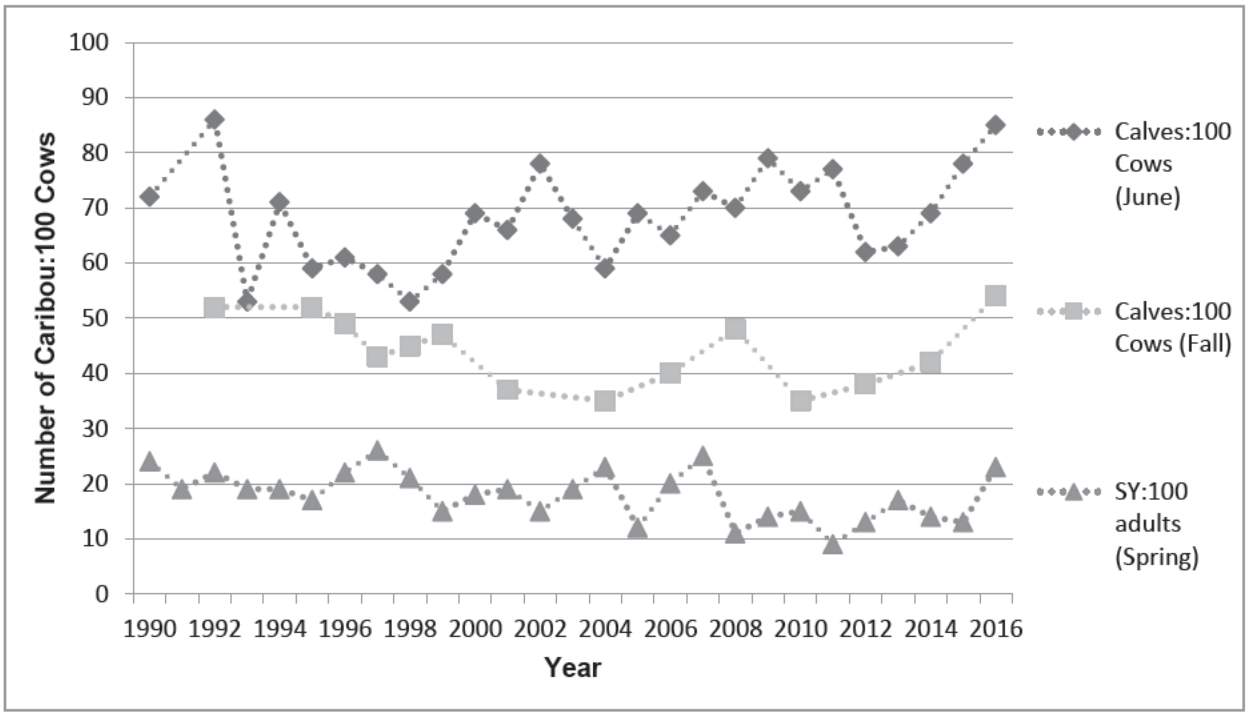

Figure 5. Calf:cow and short yearling (SY):adult ratios for the WACH (Dau 2013, 2015a, 2016a, ADF&G 2017c). Short yearlings are 10-11 months old caribou.

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Cultural Knowledge and Traditional Practices

Meeting the nutritional and caloric needs of Arctic communities is vitally important and is the foundation of subsistence activities. Still, the meaning of subsistence extends far beyond human nutrition for Alaska's native peoples. Holthaus (2012) describes subsistence as the base on which Alaska Native culture establishes its identity though "philosophy, ethics, religious belief and practice, art, ritual, ceremony, and celebration." Fienup-Riordan (1990) also describes subsistence in terms of the cultural cycles of birth and death representing the close human relationship and reciprocity between humans and the natural world. Concerning caribou specifically, Ms. Esther Hugo – a lifelong resident of Anaktuvuk Pass - describes the human-caribou relationship as a "way of life."

Caribou have been a primary resource for the Inupiat of the Northwest Arctic Region for thousands of years. Caribou bones dating from 8,000 to 10,000 years ago have been excavated from archeological sites on the Kobuk River (ADF&G 1992). Foote (1959, 1961) wrote about caribou hunting in the Noatak region forty years ago, noting that life would not be possible in Noatak without this source of meat. Caribou were traditionally a major source of both food and clothing and continues today to be the most important land animal consumed in this region (Burch 1984, 1994, 1998, ADF&G 1992). Uhl and Uhl (1979) documented the importance of caribou as a main source of red meat for Noatak residents as well as other communities in the region. Betcher (2016) also documents the critical contemporary importance of caribou to people residing throughout the Northwest Arctic.

Historically, during fall and spring caribou migrations, people built "drive fences" out of cairns, bundles of shrubs, or upright logs. These fences were sometimes several miles long and two to three miles wide. Ideally, the closed end of the fence crossed a river, and caribou were harvested while crossing the river and retrieved later; or the fence would end in a corral where caribou were snared and killed with spears (Burch 2012). Burch (2012:40) notes, "The landscape of Northwest Arctic, especially in hills and mountains, is littered with the remains of drive fences that were in every stage of construction when they were abandoned."

The WACH population declined rapidly in the Northwest Arctic beginning in the late 1800s. At its low point, its range had shrunk to less than half its former size. Famine ensued, primarily due to the absence of caribou. In the early 1900s, reindeer were introduced to fill the need for food and hides. The WACH began to rebound in the 1940s. Currently, among large terrestrial mammals, caribou are among the most abundant; however, the population in any specific area is subject to wide fluctuations from year to year as caribou migration routes change (Burch 2012).

Caribou were traditionally harvested any month of the year they were available in the Northwest Arctic Region. The objective of the summer hunt was to obtain the hides of adult caribou with their new summer coats. They provided the best clothing material available to the Inupiat. The fall hunt was to acquire large quantities of meat to freeze for winter (Burch 1994). The timing and routing of migration determined caribou hunting. Hunting seasons change from year to year according to the availability of caribou (ADF&G 1991). The numbers of animals and the duration of their stays varies from one year to the next (Burch 1994) and harvest varies from community to community depending on the availability of caribou.

Generally, communities in the southern portion of Unit 23 (Buckland, Deering) take caribou in the winter and spring, while the other communities in Unit 23 take caribou in the fall, winter, and spring. Kivalina and Point Hope also take caribou in the summer in July (ADF&G 1992) and Selawik residents regularly hunt in the fall (Georgette 2016, pers. comm.).

Currently, caribou hunting by Federally qualified subsistence users in the Northwest Arctic Region is most intensive from September through November. Caribou can be harvested in large numbers, when available, and can be transported back to villages by boat before freeze-up. Hunters search for caribou and attempt to intercept them at known river crossings. Ideally, caribou harvesting occurs when the weather is cool enough to prevent spoilage of meat. If not, meat is frozen for later use. Prior to freeze-up, bulls are preferred because they are fatter than cows (Braem et al. 2015, Georgette and Loon 1993).

Small groups of caribou that have over-wintered may be taken by hunters in areas that are accessible by snowmachine. Braem et al. (2015:141) explain, "Hunters harvest cows during the winter because they are fatter than bulls . . . . Caribou harvested during the winter can be aged completely without removing the skin or viscera . . . . Then in the spring, the caribou is thawed. Community members cut it into strips to make dried meat, or they package and freeze it." In spring, caribou start their northward migration. The caribou that are harvested are "lean and good for making dried meat (*paniqtuq*) during the warm, sunny days of late spring" (Georgette and Loon 1993:80).

Today, the human population in Unit 23 is comprised primarily of 11 regional Inupiaq groups (Burch 1998). Kotzebue is the regional hub of transportation and commerce and is the home to the majority of non-Natives in the region. The population of Unit 23 was approximately 7,500 in 2010, according to the U.S. Census (ADOLWD 2016). Caribou dominate the subsistence harvest of the region. In household harvest surveys conducted between 1964 and 2012, caribou were often the most harvested species, more than any other wild resource, in lbs. of edible weight (**Appendix 1**, ADF&G 2016a). Based on these surveys, in a typical study year, the harvest of caribou was between 100 and 200 lbs. per person in northwest Alaska (**Appendix 1**, ADF&G 2016a).

User Conflicts

User conflicts are likely to intensify when resources are scarce and when food security is threatened (Homer-Dixon 1994, Cohen and Pinstrup-Andersen 1999, Pomeroy et al. 2016). Such conflicts between local and nonlocal hunters have been well documented in Unit 23, specifically in the Noatak NP, the Squirrel River area, and along the upper Kobuk River (Georgette and Loon 1988, Jacobson 2008, Harrington and Fix 2009 *in* Fix and Ackerman 2015, Halas 2015, NWARAC 2015, Braem et al. 2015), even during times of high caribou abundance. Local hunters have expressed concerns over aircraft and "non-local" hunters disrupting caribou migration by "scaring" caribou away from river crossings, landing and camping along migration routes, and shooting lead caribou (Halas 2015, Fix and Ackerman 2015, NWARAC 2015).

Northwest Arctic Council members have testified that user conflicts have confounded their ability to successfully harvest caribou for subsistence purposes in some areas, and that these conflicts have caused degradation to their subsistence lifestyle through landscape modifications (e.g. abandoned structures and

trash; landing strips; ATV trails), herd diversion and positioning (e.g. pushing or scaring caribou with low-flying aircraft for hunting, sightseeing, photography and other purposes; creating camp structures along migratory paths), and hunting of lead caribou. Aircraft activity was of particular concern and includes operations by transporters, guides, "nonlocal" hunters utilizing personal aircraft, and recreational users. Specifically, aircraft in the vicinity of the Squirrel River has been cited as particularly problematic (NWARAC 2015).

Halas (2015), in a case study of Noatak caribou hunters and their interactions with transported hunters, examined the links between caribou behavior and migration, user group interactions, and changes to subsistence caribou hunting. In describing observations by Noatak hunters in 2012 and 2014 Halas (2015:81) explained,

> Observations of caribou behavior ("spooked" caribou, deflected caribou groups from river crossings) due to aircraft are likely witnessed as a dramatic event not easily forgotten by a waiting Noatak hunter. Whether the aircraft intentionally or unintentionally may be "influencing" caribou movement, observing "scared" caribou can be a powerful experience for hunters.

Repeated observations of airplanes affecting individual or group caribou behavior have been documented, and cumulative observations of this over time could lead an observer to conclusions about herd deflection (Halas 2015). Some studies and local observations of WACH caribou response to aircraft have suggested that animal response is limited in temporal and spatial scale (Fullman et al. 2017, BHA Alaska 2017) and that many factors contribute to larger scale shifts in migration. Fullman et al. (2017) studied the effects of environmental features and sport hunting on caribou migration in northwestern Alaska. These authors found that caribou tended to avoid rugged terrain and that the migration of caribou through Noatak NP does not appear to be hindered by sport hunting activity. They indicated that their results do not preclude the possibility of short-term effects (< 8 hours) altering the availability of caribou for individual hunters, and that the lack of observed influence of hunting activity could be related to limitations in the telemetry and sport hunter datasets used in the study (i.e. caribou locations were only recorded every 8 hours, not every sport hunter camp was included, and only landings events from transporter aircraft were considered).

Concerns were expressed by residents of Ambler, Shungnak, Noatak and Kobuk, as well as by members of the Northwest Arctic Council, that many nonlocal hunter practices clash with local hunting traditions such as shooting caribou for trophies or sport instead of food and wasting meat by letting it spoil in the field (Braem et al. 2015, NWARAC 2015, Halas 2015). Additional conflicts between user groups include competition for and overcrowding of campsites, litter, human waste, lack of law enforcement, degradation of the landscape from four-wheelers, and displacement from traditional hunting sites (Braem et al. 2015, Fix and Ackerman 2015, NWARAC 2015).

In 2008, the Unit 23 Working Group was established to address fall hunting related issues and to develop solutions to cooperatively solve hunting conflicts and to preserve traditional Inupiaq values, while also allowing for reasonable opportunities for non-local hunters (ADF&G 2016b). It is made up of 20 members, including representatives of regional and tribal governments and organizations, land and wildlife

management agencies, the Big Game Commercial Services Boards, the Alaska Professional Hunters Association (including representatives from hunting guide and transport industries), Fish and Game Advisory Committees, the Northwest Arctic Council, the BOG, and the Federal Subsistence Board (ADF&G 2016b). In 2010, the group proposed a mandatory orientation session for all pilots transporting big game in Unit 23. ADF&G implemented this, developed and distributed outreach materials, and established conflict planning processes (**Map 2**, Dau 2015a). The orientation suggests maintaining a minimum altitude of 2000 feet in the vicinity of camps (Betchkal 2015). Flight restrictions were also implemented by both State and Federal agencies (see Regulatory History).

Shifts in caribou migration paths, regardless of the reason for these shifts, have created difficulty for Noatak, Kivalina, and Kotzebue hunters, among others (Dau 2015a). Local WACH harvest has been relatively stable in Unit 23 since the 1990s, but residents of some communities have had to "greatly increase their expenditure of money and effort to maintain these harvest levels" (Dau 2015a:14-30). This is due in part to having to travel farther, more frequently, and for longer durations to find caribou (Halas 2015). In addition, many have had to switch from taking bulls to cows because of temporal shifts in access.

Harvest History

The State manages the WACH on a sustained yield basis (i.e. managing current harvests to ensure future harvests). The harvestable surplus when the WACH population is declining is calculated as 6% of the estimated population (WACH working group 2011, Parrett 2017, pers. comm.). In recent years, as the WACH population has declined, the total harvestable surplus for the WACH has also declined (Dau 2011, Parrett 2015a). In 2016, the WACH harvestable surplus was 12,056 caribou (6% of 200,928 caribou). This is down from a harvestable surplus of 14,085 caribou in 2013 when the WACH numbered approximately 234,757 caribou. While there is substantial uncertainty in harvestable surplus estimates, it is likely that sustainable harvest will soon be exceeded (Parrett 2015a, Dau 2015a). Of particular concern is the overharvest of cows, which has probably occurred since 2010/11 (Dau 2015a). Dau (2015a:14-29) states, "even modest increases in the cow harvest above sustainable levels could have a significant effect on the population trajectory of the WACH."

Harvest from the WACH, which has remained fairly consistent since 1990, now represents a larger proportion of the annual mortality. This is one of the factors that prompted the BOG and the Board to enact restrictions on WACH harvest in March 2015 and April 2016, respectively. These regulatory restrictions addressed recommendations in the WACH working group's management plan under conservative management (i.e. prohibiting the take of calves, shortening seasons, decreasing harvest limits) (**Table 1**).

Caribou harvest by local hunters is estimated from community harvest surveys, if available, and from models developed by A. Craig with ADF&G's Division of Wildlife Conservation Region V. These models incorporate factors such as community size, availability of caribou, and per capita harvests for each community (Dau 2015a). In 2015, Craig's models replaced models developed by Sutherland (2005), resulting in changes to local caribou harvest estimates from past years. While Craig's models accurately reflect harvest trends, they do not accurately reflect actual harvest numbers (Dau 2015a). (Note: no model

accurately reflects harvest numbers). This analysis only considers the updated harvest estimates using Craig's new model as cited in Dau (2015a). Caribou harvest by nonlocal residents and nonresidents are based on harvest ticket reports (Dau 2015a).

Local and nonlocal hunters are defined in ADF&G management reports as living within and outside the range of the WACH, respectively. Federally qualified subsistence users and NFQU are close, but not identical, to local and nonlocal hunters, respectively. Residents of Galena, Wiseman, and several communities on the western Seward Peninsula are Federally qualified subsistence users, but are not within the range of the WACH by definition (**Map 1**).

From 2000–2014, the average estimated total harvest from the WACH was 11,984 caribou/year, ranging from 10,666-13,537 caribou/year (Dau 2015a, **Figure 6**). These harvest levels are within or below the conservative harvest level specified in the WACH Management Plan (**Table 1**). However, harvest estimates do not include wounding loss, which may be hundreds of caribou (Dau 2015a).

Local hunters account for approximately 95% of the total WACH harvest and residents of Unit 23 account for approximately 58% of the total harvest on average (**Figure 7**, ADF&G 2017c). Comparison of caribou harvest by community from household survey data (**Appendix 1)** with **Figure 1** demonstrates that local community harvests parallel WACH availability rather than population trends. For example, Ambler only harvested 325 caribou when the WACH population peaked in 2003, but harvested 685 caribou in 2012 when most of the WACH migrated through eastern Unit 23. Similarly, Noatak only harvested 66 caribou in 2010 when no GPS-collared caribou migrated through western Unit 23. Harvest increased substantially (360 caribou) the following year when 37% of the GPS-collared caribou (and thus, a greater proportion of the WACH) migrated through western Unit 23.

On average, 76% of WACH caribou harvested by nonlocals are taken in Unit 23. From 2001-2013, total and Unit 23 nonlocal WACH harvest averaged 598 caribou/year and 456 caribou/year, respectively (**Figure 8**). In recent regulatory years (2012/13–2013/14), numbers of nonlocal hunters are slightly lower, partially because transporters have had to travel further to find caribou and thus, could not book as many clients (Dau 2015a).

Between 1998 and 2014, the number of NFQU hunting caribou and the number of caribou harvested by NFQU in Unit 23 averaged 487 hunters (range: 404-662) and 511 caribou (range: 248-669), respectively (**Figure 9,** ADF&G 2016c, FWS 2016). In 2015, after the BOG enacted restrictions, the number of NFQU and caribou harvested by NFQU decreased appreciably (340 hunters and 230 caribou). In 2016, during the closure of Federal lands to NFQU, the number of NFQU and caribou harvested by NFQU decreased even further (149 hunters and 111 caribou), although there may still be some outstanding 2016 harvest reports from nonlocal residents (**Figure 9,** WINFONET 2017).

The major and minor river drainages in which people hunt and harvest caribou are included in harvest reporting data (WINFONET 2017). This data can be used to compare caribou harvest and hunting intensity (measured as the number of hunters) by NFQU across Unit 23 at both coarse (major river

drainage) and fine (minor river drainages) scales. On a coarse scale, cumulative caribou harvest by NFQU from 2005-2014 was highest in the Noatak River drainage. On a fine scale, caribou harvest over the same time period was highest in the Squirrel River drainage and on the Baldwin Peninsula. Hunting intensity paralleled harvest on both coarse and fine scales. While the total number of nonlocal hunters and harvest decreased in 2016 due to the Federal lands closure, the Noatak and Squirrel River Drainages still experienced the highest relative hunting intensity at the coarse and fine scales, respectively (WINFONET 2017).

From 1999-2013, 72% of nonlocal hunters on average accessed the WACH by plane. Most nonlocal harvest (85-90%) occurs between Aug. 25 and Oct. 7. In contrast, most local, subsistence hunters harvest WACH caribou whenever they are available using boats, 4-wheelers, and snowmachines (Dau 2015a, Fix and Ackerman 2015). In Unit 23, caribou are generally available during fall migration. The temporal concentration of nonlocal hunters during times of intensive subsistence hunting is responsible for user conflicts in Unit 23 (Dau 2015a).

Commercially licensed transporters and guides assist approximately 60% and 10% of nonlocal hunters in Unit 23, respectively (Unit 23 Working Group 2016). In the Noatak NP, nonlocal transporter clients primarily consist of nonresidents and Alaska residents from urban areas such as Anchorage, Fairbanks, and communities on the Kenai Peninsula (Fix and Ackerman 2015, ADF&G 2016c).

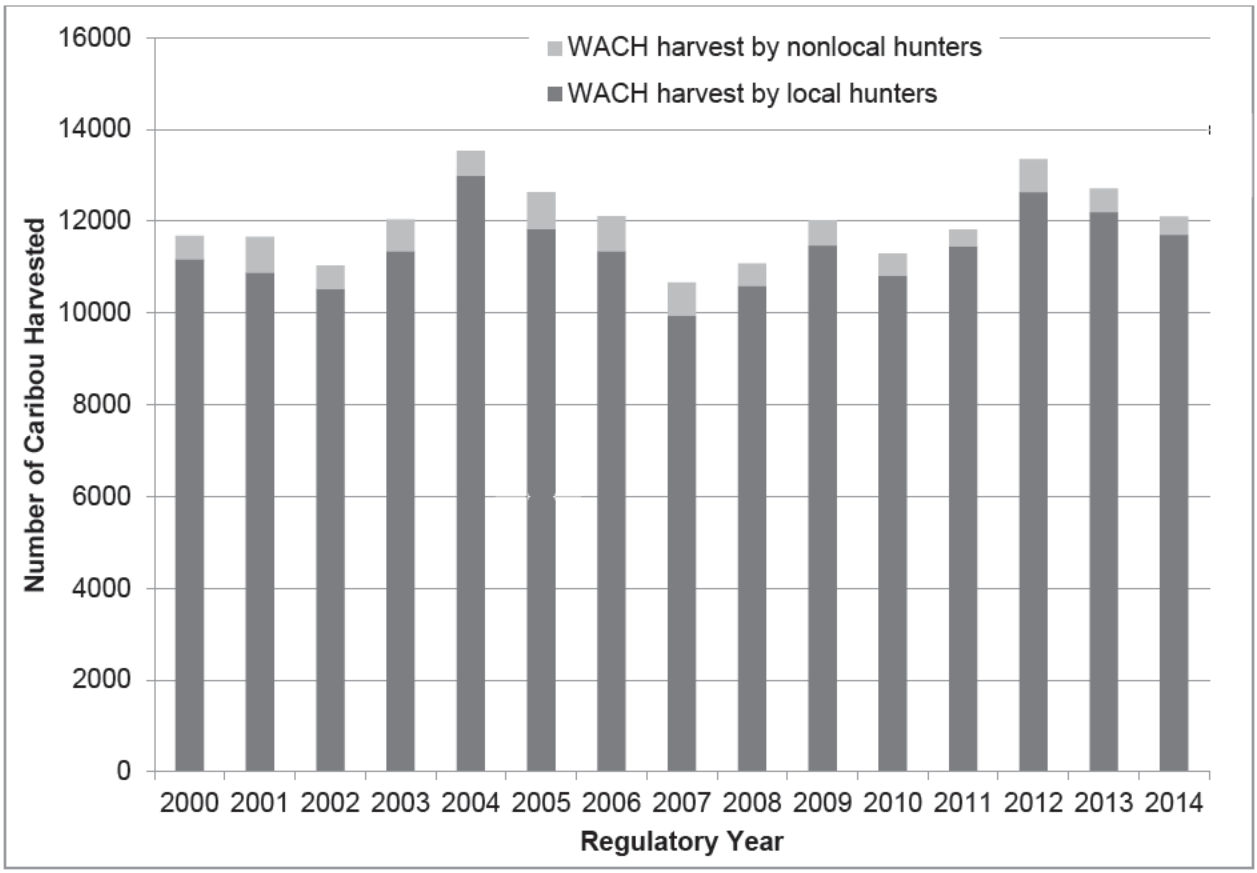

Figure 6. Estimated number of caribou harvested from the WACH by residency (Dau 2015a).

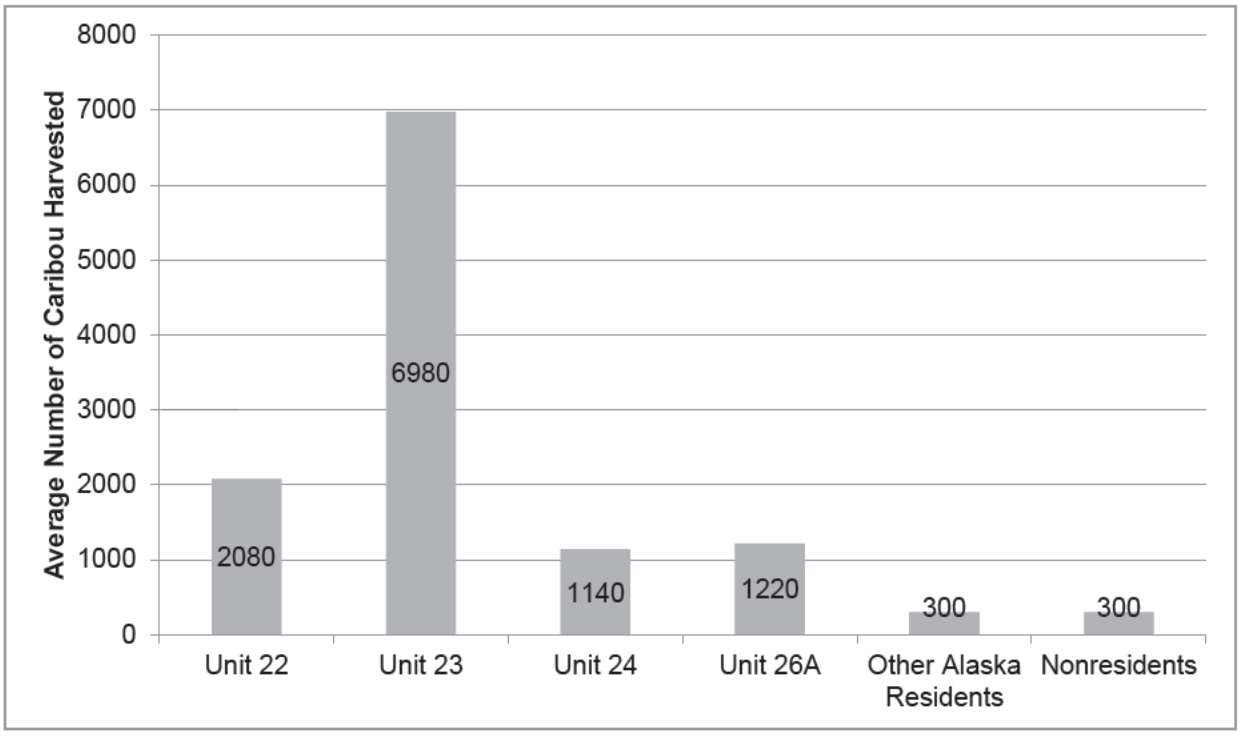

Figure 7. Average number of caribou harvested by unit and residency from 1998-2015 (ADF&G 2017c).

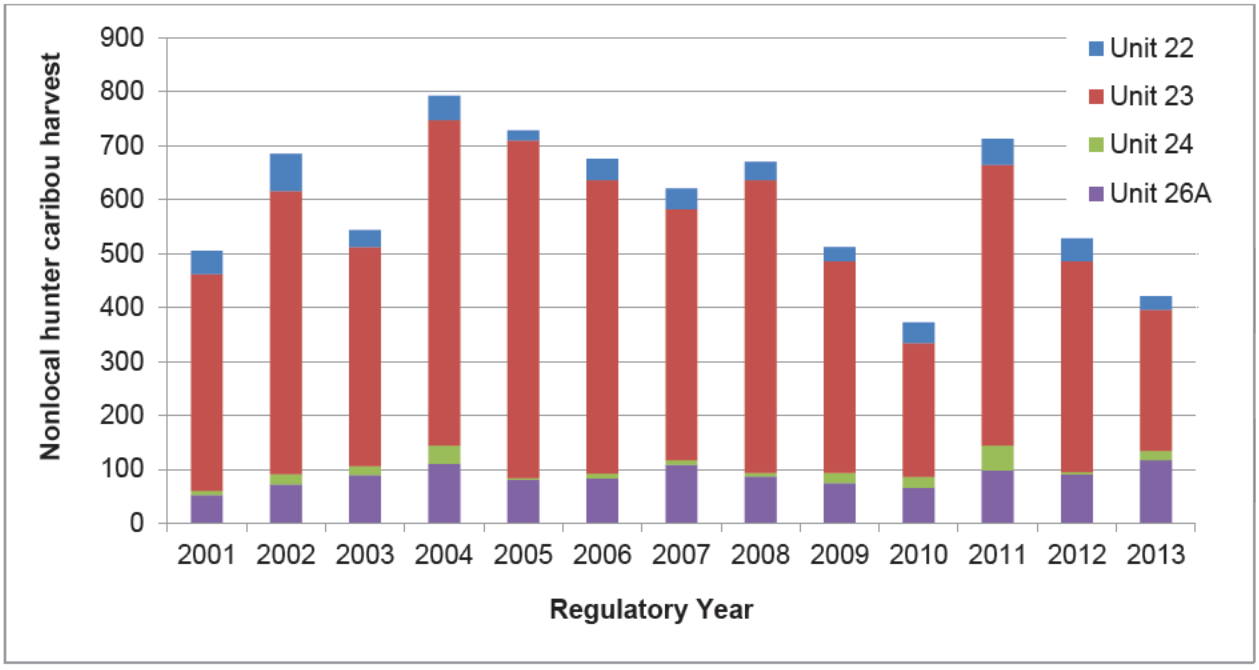

Figure 8. Nonlocal WACH harvest by unit (Dau 2015a, Dau 2013). Unit 21D was not included as only 0-2 caribou have been harvested from this unit each year.

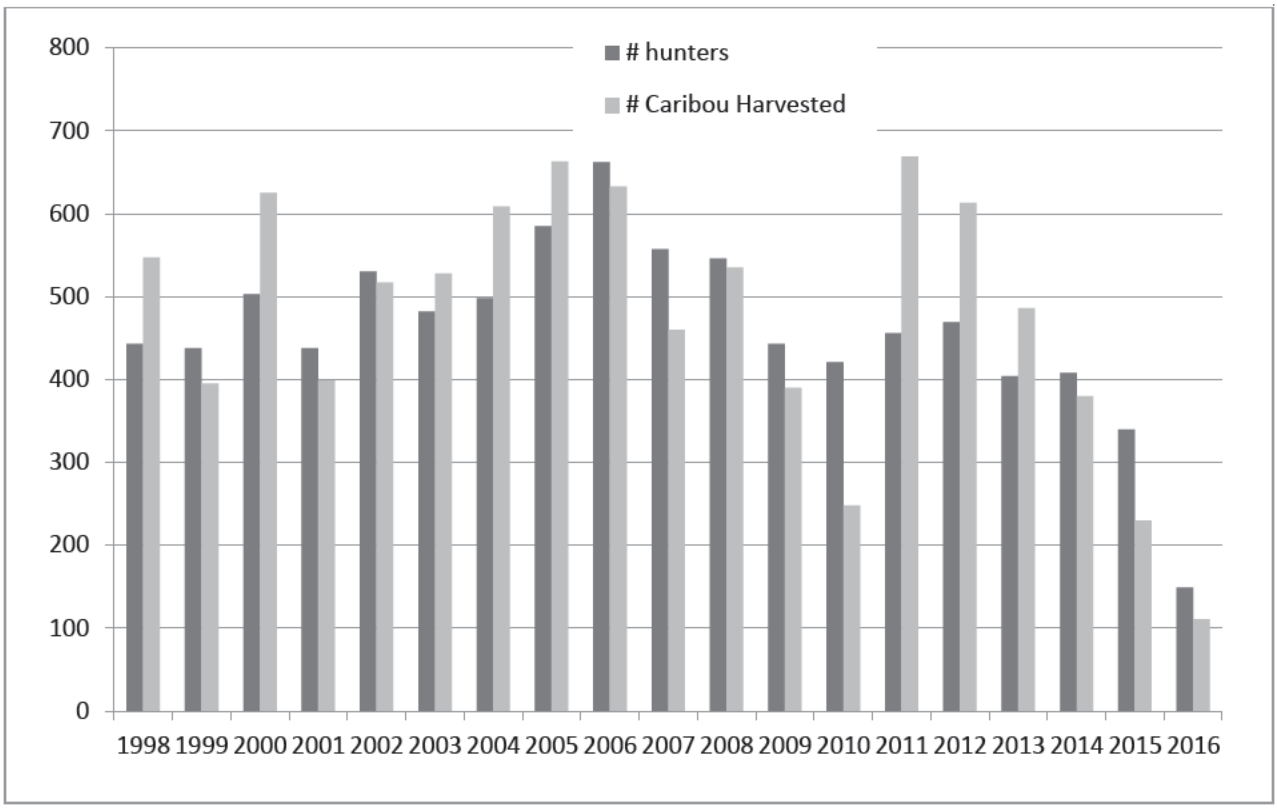

Figure 9. Number of non-Federally qualified users (NFQU) and number of caribou harvested by NFQU in Unit 23 (ADF&G 2016c, FWS 2016, WINFONET 2017).

Other Alternatives Considered

One alternative considered was to defer this proposal in order to allow for additional time to evaluate the effectiveness of the 2016 regulatory changes and to obtain additional information (e.g. population estimates) on the WACH. However, unless the State reduces the caribou harvest limit in Unit 23, this proposal would have no conservation effect and would restrict subsistence use in National Parks and areas open only to Federally qualified subsistence users.

Effects

If this proposal is adopted, the caribou harvest limit in Unit 23 would be reduced from 5 to 3 caribou per day, which reduces opportunity for Federally qualified subsistence users. This would also cause Federal regulations to be more restrictive than State regulations, contrary to the subsistence priority mandated by Title VIII of the Alaska National Interest Lands Conservation Act. State and Federal regulations would be further misaligned, which increases regulatory complexity and could add to user confusion.

While the WACH population is declining, reducing the Federal daily harvest limit is not expected to impact population recovery or reduce overall WACH harvest as all residents would still be able to harvest 5 caribou per day in Unit 23 under State regulations. Harvest in national parks and monuments may be reduced (i.e. Kobuk Valley and portions of Gates of the Arctic National Parks), but is not expected to

impact WACH conservation as these areas are not targeted by Federally qualified subsistence users for caribou hunting. In 2016, the harvest limit for caribou in Unit 23 was reduced from 15 to 5 caribou per day. Time is needed to evaluate the effectiveness of recent regulatory restrictions before enacting further restrictions. The outcomes of Proposals WP18-32, 46/47, and 48/49 may influence the effects of this proposal, if adopted.

OSM PRELIMINARY CONCLUSION

Oppose Proposal WP18-45.

Justification

Adoption of this proposal reduces opportunity for Federally qualified subsistence users, could negatively affect continuation of subsistence uses, and eliminates the subsistence priority. Additionally, impact to conservation of the WACH would be minimal. More time is needed to evaluate the regulatory changes which took effect in 2016 before further reducing the harvest limit under Federal regulations.

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Appendix 1

Estimated total caribou harvest by community, per capita caribou harvest by community, and data sources for Unit 23: Western Arctic caribou herd (ADF&G 2015).

Unit 23

Community	Year/Period	Est Caribou Harv.	# caribou per capita	Source
Ambler	2003	325	1.12	Georgette et al. 2005, unpublished data
	2009	456	1.75	Braem 2012
	2012	685	2.54	Braem et al. 2015
Buckland	2003	637	1.56	Magdanz et al. 2011
	2009	561	1.30	Braem 2012
Deering	1994	142	0.96	Magdanz et al. 2002
	2007-2008	182	1.37	Braem 2011
	2011-2012	237	1.91	Braem 2011
	2013	393	2.85	ADF&G unpublished data
Kiana	1999	488	1.23	ADF&G unpublished data
	2006	306	0.77	Magdanz et al. 2011
	2009	440	1.18	Braem 2012
Kivalina	1982	346	0.48	CSIS
	1983	564	0.78	CSIS
	1992	351	0.49	CSIS
	2007	268	0.67	Magdanz et al. 2010
	2010-2011	86	0.23	Braem et al. 2014
Kobuk	2004-2005	134	1.06	ADF&G unpublished data
	2009	210	1.72	Braem 2012
	2012	119	0.84	Braem et al. 2015
Kotzebue	1986	1917	0.71	Georgette and Loon 1993
	1991	3782	1.04	CSIS
	2001	2376	0.77	Whiting 2003
	2002	1719	0.56	Whiting 2003
	2003	1915	0.61	Whiting 2003
	2012-2013	1804	0.56	CSIS
	2013-2014	1629	0.51	ADF&G unpublished data
Noatak	1994	615	1.62	Magdanz et al. 2002
	1999	683	1.61	Georgette et al 2000., unpubd data
	2002	410	0.90	Georgette et al. 2004, unpubd data
	2007	441	0.90	Magdanz et al. 2010
	2010	66	0.13	Braem et al. 2014
	2011	360	0.66	Mikow et al. 2014
Noorvik	2002	988	1.46	Georgette et al. 2004, unpubd data
	2008	767	1.19	Braem et al. 2012
	2012	851	1.36	CSIS

-continued-

Unit 23, continued

Community	Year/Period	Est Caribou Harv.	# caribou per capita	Source
Point Hope	1994-1995	355	0.49	Bacon et al. 2009, rev. 2011
	2000-2001	219	0.31	Bacon et al. 2009, rev. 2011
Selawik	1999	1289	1.68	CSIS
	2006	934	1.11	CSIS
	2011	683	0.79	Braem et al. 2013
Shungnak	1998	561	2.17	Georgette 1999, unpubd data
	2002	403	1.62	Magdanz et al. 2004
	2008	416	1.53	Braem 2012
	2012	396	1.47	Braem et al. 2015

WP18–46/47 Executive Summary	
General Description	Proposal WP18-46 requests that Federal public lands in Unit 23 be closed to caribou hunting except by Federally qualified subsistence users. *Submitted by: Western Arctic Caribou Herd Working Group.* Proposal WP18-47 requests that Federal public lands in Unit 23 be closed to caribou hunting except by Federally qualified subsistence users from 2018/19 to 2020/21 only. *Submitted by: Enoch Mitchell of Noatak.*
Proposed Regulation	WP16-46 **Unit 23—Caribou** *Unit 23—that portion which includes all drainages north and west of, and including, the Singoalik River drainage* *5 caribou per day as follows:* *Calves may not be taken* *Bulls may be harvested* — *July 1–Oct. 14*, *Feb. 1–June 30* *Cows may be harvested. However, cows accompanied by calves may not be taken July 15–Oct. 14.* — *July 15–Apr. 30* ***Federal public lands in Unit 23 are closed to caribou hunting except by Federally qualified subsistence users.*** *Unit 23, remainder* *5 caribou per day as follows:* *Calves may not be taken* *Bulls may be harvested* — *July 1–Oct. 31*, *Feb.1–June 30* *Cows may be harvested. However, cows accompanied by calves may not be taken July 31–Oct. 14.* — *July 31–March 31*

WP18–46/47 Executive Summary

		Federal public lands in Unit 23 are closed to caribou hunting except by Federally qualified subsistence users.	
	WP18-47		
	Unit 23—Caribou		
	Unit 23—that portion which includes all drainages north and west of, and including, the Singoalik River drainage	*5 caribou per day as follows:* *Calves may not be taken* *Bulls may be harvested*	 *July 1–Oct. 14* *Feb. 1–June 30*
		Cows may be harvested. However, cows accompanied by calves may not be taken July 15–Oct. 14.	*July 15–Apr. 30*
		Beginning July 1, 2018, Federal public lands in Unit 23 are closed to caribou hunting by non-Federally qualified subsistence users for two years. The closure shall end on June 30, 2020.	
	Unit 23, remainder	*5 caribou per day as follows:* *Calves may not be taken* *Bulls may be harvested*	 *July 1–Oct. 31* *Feb.1–June 30*
		Cows may be harvested. However, cows accompanied by calves may not be taken July 31–Oct. 14.	*July 31–March 31*
		Beginning July 1, 2018, Federal public lands in Unit 23 are closed to caribou hunting by non-Federally qualified subsistence users for two years. The closure shall end on June 30, 2020.	

WP18–46/47 Executive Summary	
OSM Preliminary Conclusion	**Support** Proposal WP18-46 **with modification** to close all Federal public lands within a 10 mile wide corridor (5 miles either side) along the Noatak River from the western boundary of Noatak National Preserve upstream to the confluence with the Cutler River; north of the Noatak River between, and including, the Kelly and Nimiuktuk River drainages; within the northern and southern boundaries of the Eli and Agashashok River drainages, respectively; and within the Squirrel River drainage to caribou hunting except by Federally qualified subsistence users and **Take No Action** on Proposal WP18-47. The modified regulation should read: **Unit 23—Caribou** *Unit 23—that portion which includes all drainages north and west of, and including, the Singoalik River drainage* — *5 caribou per day as follows:* *Calves may not be taken* — *Bulls may be harvested* — *July 1–Oct. 14*; *Feb. 1–June 30* *Cows may be harvested. However, cows accompanied by calves may not be taken July 15–Oct. 14.* — *July 15–Apr. 30* *Unit 23, remainder* — *5 caribou per day as follows:* *Calves may not be taken* — *July 1–Oct. 31*; *Feb.1–June 30* *Cows may be harvested. However, cows accompanied by calves may not be taken July 31–Oct. 14.* — *July 31–March 31* ***Federal public lands within a 10 mile wide corridor (5 miles either side) along the Noatak River from the western boundary of Noatak National Preserve upstream to***

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WP18–46/47 Executive Summary	
	the confluence with the Cutler River; north of the Noatak River between, and including, the Kelly and Nimiuktuk River drainages; within the northern and southern boundaries of the Eli and Agashashok River drainages, respectively; and within the Squirrel River drainage are closed to caribou hunting except by Federally qualified subsistence users hunting under these regulations.
Southeast Alaska Subsistence Regional Advisory Council Recommendation	
Southcentral Alaska Subsistence Regional Advisory Council Recommendation	
Kodiak/Aleutians Subsistence Regional Advisory Council Recommendation	
Bristol Bay Subsistence Regional Advisory Council Recommendation	
Yukon-Kuskokwim Delta Subsistence Regional Advisory Council Recommendation	
Western Interior Alaska Subsistence Regional Advisory Council Recommendation	

WP18–46/47 Executive Summary	
Seward Peninsula Subsistence Regional Advisory Council Recommendation	
Northwest Arctic Subsistence Regional Advisory Council Recommendation	
Eastern Interior Alaska Subsistence Regional Advisory Council Recommendation	
North Slope Subsistence Regional Advisory Council Recommendation	
Interagency Staff Committee Comments	
ADF&G Comments	
Written Public Comments	**None**

DRAFT STAFF ANALYSIS
WP18-46/47

ISSUES

Proposal WP18-46, submitted by the Western Arctic Caribou Herd Working Group (WACH Working Group), and Proposal WP18-47, submitted by Enoch Mitchell of Noatak, request that Federal public lands in Unit 23 be closed to caribou hunting except by Federally qualified subsistence users. Proposal WP18-47 specifically requests that the closure extend from 2018/19 to 2020/21 only.

DISCUSSION

The proponent for WP18-46 is concerned about the decline of the WACH population. Working group members noted that the 2016/17 Federal public lands closure to caribou hunting by non-Federally qualified users (NFQU) in Unit 23 helped local hunters meet their subsistence needs by reducing user conflicts and hunting activity from nonlocal hunters. Members also commented that caribou migrated closer to villages (i.e. Noatak) and spoke to the cultural and nutritional importance of caribou to Unit 23 residents.

The proponent for WP18-47 states that the proposed closure will promote conservation of the WACH and food security for Federally qualified subsistence users (FQSU) and that it is consistent with Title VIII of the Alaska National Interest Lands Conservation Act (ANILCA) and the WACH Working Group's management plan as the WACH population is on the brink of preservative management. The proponent emphasizes that caribou are a vital subsistence resource to FQSU in Unit 23 and that store-bought food and fuel prices in the unit are very high. The proponent also states that the proposed change will minimize user conflicts by improving the ability of FQSU to harvest caribou and meet their subsistence needs. He notes that FQSU have reported changes in caribou migration patterns whereby caribou are traveling further from villages, which burdens local communities by increasing the time and fuel costs of caribou hunting. He also states that FQSU have reported that noise from aircraft used by transporters and guides can disrupt caribou migration and that this issue has been a longstanding source of user conflict. Noatak residents reported positive effects from the 2016/17 closure, including improved hunter success and reduced user conflicts. The Native Village of Noatak, the Cape Krusenstern National Monument Subsistence Resource Commission, the Kobuk Valley National Park Subsistence Resource Commission, and the Noatak/Kivalina Fish and Game Advisory Committee are co-sponsors of this proposal and submitted letters of support.

The applicable statutory guidance is found in the Alaska National Interest Lands Conservation Act (ANLICA) Title VIII §815.3, which states that:

> *Nothing in this title shall be construed as . . . authorizing a restriction on the taking of fish and wildlife for nonsubsistence uses on the public lands (other than national parks and park monuments) unless necessary for the conservation of healthy populations of fish and wildlife, for the reasons set forth in §816, to continue subsistence uses of such populations, or pursuant to other applicable law;*

Existing Federal Regulations

Unit 23—Caribou

Unit 23—that portion which includes all drainages north and west of, and including, the Singoalik River drainage	*5 caribou per day as follows:* *Calves may not be taken* *Bulls may be harvested*	 *July 1–Oct. 14* *Feb. 1–June 30*
	Cows may be harvested. However, cows accompanied by calves may not be taken July 15–Oct. 14.	*July 15–Apr. 30*
Unit 23, remainder	*5 caribou per day as follows:* *Calves may not be taken* *Bulls may be harvested*	 *July 1–Oct. 31* *Feb.1–June 30*
	Cows may be harvested. However, cows accompanied by calves may not be taken July 31–Oct. 14.	*July 31–March 31*

Proposed Federal Regulations

WP18-46

Unit 23—Caribou

Unit 23—that portion which includes all drainages north and west of, and including, the Singoalik River drainage	*5 caribou per day as follows:* *Calves may not be taken* *Bulls may be harvested*	 *July 1–Oct. 14* *Feb. 1–June 30*
	Cows may be harvested. However, cows accompanied by calves may not be taken July 15–Oct. 14.	*July 15–Apr. 30*
	Federal public lands in Unit 23 are closed to caribou hunting except by Federally qualified subsistence users.	

Unit 23, remainder	*5 caribou per day as follows:* *Calves may not be taken* *Bulls may be harvested*	 *July 1–Oct. 31* *Feb.1–June 30*
	Cows may be harvested. However, cows accompanied by calves may not be taken July 31–Oct. 14.	*July 31–March 31*
	Federal public lands in Unit 23 are closed to caribou hunting except by Federally qualified subsistence users.	

WP18-47

Unit 23—Caribou

Unit 23—that portion which includes all drainages north and west of, and including, the Singoalik River drainage	*5 caribou per day as follows:* *Calves may not be taken* *Bulls may be harvested*	 *July 1–Oct. 14* *Feb. 1–June 30*
	Cows may be harvested. However, cows accompanied by calves may not be taken July 15–Oct. 14.	*July 15–Apr. 30*
	Beginning July 1, 2018, Federal public lands in Unit 23 are closed to caribou hunting by non-Federally qualified subsistence users for two years. The closure shall end on June 30, 2020.	
Unit 23, remainder	*5 caribou per day as follows:* *Calves may not be taken* *Bulls may be harvested*	 *July 1–Oct. 31* *Feb.1–June 30*
	Cows may be harvested. However, cows accompanied by calves may not be taken July 31–Oct. 14.	*July 31–March 31*
	Beginning July 1, 2018, Federal public lands in Unit 23 are closed to caribou hunting by non-Federally qualified subsistence users for two years. The closure shall end on June 30, 2020.	

Existing State Regulations

Unit 23—Caribou

23, north of and including Singoalik River drainage	*Residents—Five caribou per day; however, calves may not be taken.*	*Bulls*	*RC907*	*July 1-Oct. 14* *Feb. 1-June 30*
		Cows	*RC907*	*Jul. 15-Apr. 30*
	Nonresidents—One bull; however, calves may not be taken		*HT*	*Aug. 1-Sept. 30*
23 remainder	*Residents—Five caribou per day; however, calves may not be taken.*	*Bulls*	*RC907*	*July 1-Oct. 14* *Feb. 1-June 30*
		Cows	*RC907*	*Sept. 1-Mar. 31*
	Nonresidents—One bull; however, calves may not be taken		*HT*	*Aug. 1-Sept. 30*

Extent of Federal Public Lands

Federal public lands comprise approximately 71% of Unit 23 and consist of 40% National Park Service (NPS) managed lands, 22% Bureau of Land Management (BLM) managed lands, and 9% U.S. Fish and Wildlife Service (USFWS) managed lands.

Customary and Traditional Use Determinations

Residents of Unit 21D west of the Koyukuk and Yukon Rivers, Galena, 22, 23, 24 including residents of Wiseman but not including other residents of the Dalton Highway Corridor Management Area, and 26A have a customary and traditional use determination for caribou in Unit 23 (**Map 1**).

Regulatory History

In 1990, the caribou hunting season in Unit 23 was open year round with a 5 caribou per day harvest limit and a restriction on the take of cows May 16-June 30.

In 1995, the Federal Subsistence Board (Board) adopted Proposal P95-51 to increase the caribou harvest limit from 5 to 15 caribou per day so that subsistence hunters could maximize their hunting efforts when caribou were available (FWS 1995a).

In 1997, the Board adopted Proposal P97-66 with modification to provide a customary and traditional use determination for caribou in Unit 23 for rural residents of Unit 21D west of the Koyukuk and Yukon rivers,

Galena, Units 22, 23, 24 including residents of Wiseman, but not other residents of the Dalton Highway Corridor Management Area and Unit 26A (**Map 1**, FWS 1995b, 1997).

In 2000, the Board adopted Proposal WP00-53 with modification, allowing the use of snowmachines to position a hunter to select individual caribou for harvest in Units 22 and 23. This was done to recognize a customary and traditional practice in the region (FWS 2000a).

In 2013, an aerial photocensus indicated significant declines in the Teshekpuk Caribou herd (TCH), WACH, and possibly the Central Arctic Caribou Herd (CACH) populations (Caribou Trails 2014). In response, the Alaska Board of Game (BOG) adopted modified Proposal 202 (RC76) in March 2015 to reduce harvest opportunities for both Alaska residents and nonresidents within the range of the WACH and the TCH. These regulation changes – which included lowering harvest limits for nonresidents from two caribou to one bull, reductions in bull and cow season lengths, the establishment of new hunt areas, and prohibiting calf harvest – were adopted to slow or reverse the population decline. The regulatory changes took effect on July 1, 2015.

In 2015, four temporary special actions, WSA15-03/04/05/06, requesting changes to caribou regulations in Units 23, 24, and 26, were submitted by the North Slope Subsistence Regional Advisory Council (North Slope Council) and approved with modification by the Board, effective July 1, 2015. Temporary Special Action WSA15-03 requested designation of a new hunt area for caribou in the northwest corner of Unit 23 where the harvest limit would be reduced from 15 to 5 caribou per day, the harvest season would be shortened for bulls and cows, and the take of calves would be prohibited. The Board did not establish a new hunt area, applying the restrictions to all of Unit 23 and also prohibited the take of cows with calves. These State and Federal regulatory changes were the first time that harvest restrictions had been implemented for the WACH in over 30 years.

Five proposals (WP16-37, WP16-48, WP16-49/52, and WP16-61) concerning caribou regulations in Unit 23 were submitted to the Board for the 2016-2018 wildlife regulatory cycle. The Board adopted WP16-48 with modification to allow the positioning of a caribou, wolf, or wolverine for harvest on BLM lands only. Proposal WP16-37 requested that Federal caribou regulations mirror the new State regulations across the ranges of the WACH and TCH (Units 21D, 22, 23, 24, 26A, and 26B). The Board adopted Proposal WP16-37 with modification to reduce the harvest limit to 5 caribou per day, restrict bull season during rut and cow season around calving, prohibit the harvest of calves and the harvest of cows with calves before weaning (mid-Oct.), and to create a new hunt area in the northwest corner of Unit 23. The Board took no action on the remaining proposals (WP16-49/52, and WP16-61) because of action taken on WP16-37.

In 2015, the Northwest Arctic Subsistence Regional Advisory Council (Northwest Arctic Council) submitted a temporary special action request (WSA16-01) to close caribou hunting on Federal public lands in Unit 23 to NFQU for the 2016/17 regulatory year. The Council stated that their request was necessary for conservation purposes but also needed because nonlocal hunting activities were negatively affecting subsistence harvests. In April 2016, the Board approved WSA16-01, basing its decision on the strong support of the Northwest Arctic and North Slope Councils, public testimony in favor of the request, as well as concerns over conservation and continuation of subsistence uses (FSB 2016).

In June 2016, the State submitted a special action request (WSA16-03) to reopen caribou hunting on Federal public lands in Unit 23 to NFQU, providing new biological information (e.g. calf recruitment, weight, body

condition) on the WACH. The State specified that there was no biological reason for the closure and that it could increase user conflicts. In January 2017, the Board rejected WSA16-03 due to the position of all four affected Councils (Northwest Arctic, North Slope, Seward Peninsula, and Western Interior) as well as public testimony and Tribal consultation comments opposing the request. Additionally, the Board found the new information provided by the State to be insufficient to rescind the closure.

In November 2016, the Northwest Arctic Council voted to submit a special action request (WSA17-02) to close Federal public lands in Unit 23 to moose hunting by NFQU. The Council submitted the request due to a declining moose population in Unit 23 and because more local people are depending on moose to meet their subsistence needs in light of the current WACH population decline. In April 2017, the Board rejected WSA17-02 because moose harvest by FQSU has remained stable over the past decade, indicating these users' needs are still being met; NFQU harvest accounted for the minority of Unit 23 moose harvest, so eliminating them would have limited impact on the moose population; NFQU hunting activity could become concentrated on State lands, increasing user conflicts; and recent changes to State regulations (i.e. elimination of antlerless and nonresident hunts) already addressed the issue and time is needed to evaluate their effectiveness.

In January 2017, the BOG adopted Proposal 2, requiring registration permits for residents hunting caribou within the range of the Western Arctic and Teshekpuk herds in Units 23 and 26A (a similar proposal was passed for Unit 22 in 2016). The Alaska Department of Fish and Game (ADF&G) submitted the proposal in order to better monitor harvest and improve management flexibility. Also in January 2017, the BOG rejected Proposal 45, which proposed requiring big game hunting camps to be spaced at least three miles apart along the Noatak, Agashashok, Eli, and Squirrel Rivers. The Noatak/Kivalina & Kotzebue Fish and Game Advisory Committee (AC) submitted the proposal to allow caribou to migrate through those areas with less disruption and barriers. The proposal failed as it would be difficult to enforce.

In March 2017, the Northwest Arctic and North Slope Councils submitted temporary special action requests (WSA17-03 and -04, respectively) to close caribou hunting on Federal public lands in Unit 23 and in Units 26A and 26B, respectively to NFQU for the 2017/18 regulatory year. Both Councils stated that the intent of the proposed closures was to ensure subsistence use in the 2017/18 regulatory year, to protect declining caribou populations, and to reduce user conflicts. The Board approved WSA17-03 with modification to close all Federal public lands within a 10 mile wide corridor (5 miles either side) along the Noatak River from the western boundary of Noatak National Preserve upstream to the confluence with the Cutler River; within the northern and southern boundaries of the Eli and Agashashok River drainages, respectively; and within the Squirrel River drainage to caribou hunting except by FQSU for the 2017/18 regulatory year. The Board considered the modification a reasonable compromise for all users and that closure of the specified area was warranted in order to continue subsistence uses. The Board rejected WSA17-04 stating that recent changes to State regulations aimed at reducing caribou harvest should be given time to determine if they are effective before additional restrictions are enacted.

Controlled Use Areas

In 1988, the Traditional Council of Noatak submitted a proposal to the BOG to create the Noatak Controlled Use Area (CUA) in order to restrict the use of aircraft in any manner for big game hunting Aug. 15 - Sept. 20 due to user conflicts (Fall 1990:86). The proposed CUA extended five miles on either side of the

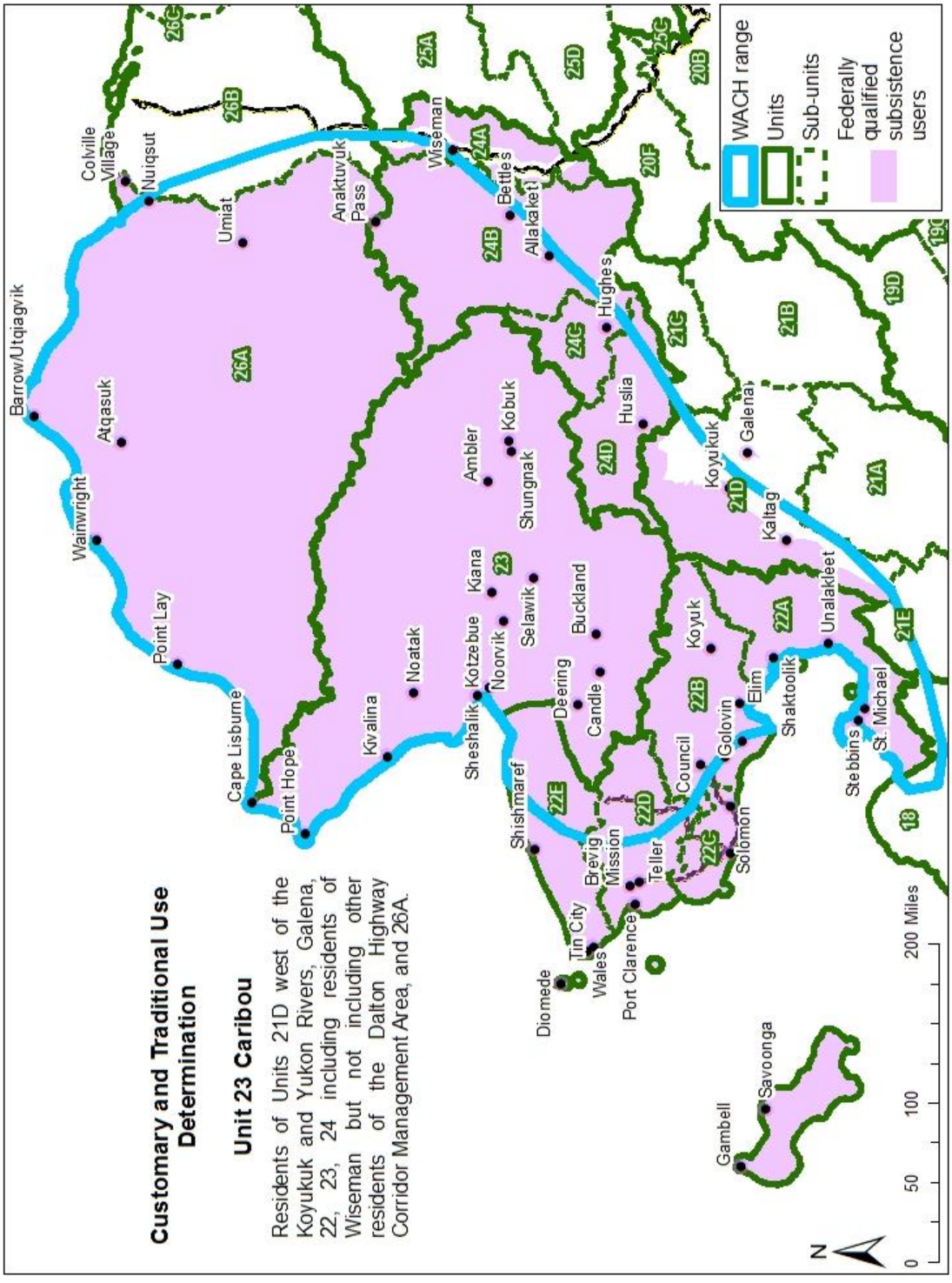
Noatak River, from the mouth of the Eli River upstream to the mouth of the Nimiuktuk River, including the north side of Kivivik Creek (ADF&G 1988:47). The BOG adopted the proposal with modification to close a much smaller area extending from the Kugururok River to Sapun Creek from Aug. 20-Sept. 20.

The CUA was expanded in 1994 and modified in 2017 (Betchkal 2015, Halas 2015, ADF&G 2017a). From 1994-2016, the Noatak CUA consisted of a 10-mile wide corridor (5 miles either side) along the Noatak River from its mouth to Sapun Creek with approximately 80 miles of the CUA within Noatak National Preserve (NP) (**Map 2**, Betchkal 2015). The closure dates from 1994-2009 were Aug. 25-Sept. 15. In 2009 (effective 2010), the BOG adopted Proposal 22 to expand the closure dates to Aug. 15-Sept. 30 in response to the timing of caribou migration becoming less predictable (ADF&G 2009). During the 2016/17 BOG regulatory cycle, the Noatak/Kivalina & Kotzebue AC proposed (Proposal 44) extending the upriver boundary of the Noatak CUA to the Cutler River, citing increased user conflicts as their rationale (ADF&G 2017b). In January 2017, the BOG approved amended Proposal 44 to shift the boundaries of the Noatak CUA to start at the mouth of the Agashashok River and end at the mouth of the Nimiuktuk River with approximately 105 miles within Noatak NP (**Map 2**, ADF&G 2017a).

In 1990, the Noatak CUA was adopted under Federal regulations. In 1995, the Board adopted Proposal P95-50 to expand the time period and area of the CUA to Aug. 25-Sept. 15 and the mouth of the Noatak River upstream to the mouth of Sapun Creek, respectively, which aligned with current State regulations. In 2008, Proposals WP08-50 and 51 requested modifications to the Noatak CUA dates. These proposals were submitted in response to caribou migration occurring later in the season, to improve caribou harvest for subsistence users, and to decrease conflicts between local and nonlocal hunters. The Board deferred these proposals to the next regulatory cycle. In 2010, Proposals WP10-82, 83, and 85 requested similar date changes. The Board adopted WP10-85 to expand the time period during which aircraft are restricted in the Noatak CUA to Aug. 15-Sept. 30, which aligned with the current State regulations.

In 2011, Selawik National Wildlife Refuge (NWR) designated refuge lands in the northwest portion of the refuge as closed to big game hunting by commercial guides and transporters through their comprehensive conservation plan (FWS 2011, 2014). These refuge lands are intermingled with private lands near the villages of Noorvik and Selawik (**Map 2**). The purpose of this closure was to minimize trespass on private lands and to reduce user conflicts (FWS 2011).

In 2012, the NPS established a Special Commercial Use Area or "delayed entry zone" in the western portion of the Noatak NP (Halas 2015, Fix and Ackerman 2015). Within this zone, transporters can only transport nonlocal caribou hunters after September 15 unless otherwise specified by the Western Arctic Parklands superintendent in consultation with commercial operators, other agencies and local villages (Halas 2015). The purpose of this zone is to allow a sufficient number of caribou to cross the Noatak River and establish migration routes, to limit interactions between local and nonlocal hunters, and to allow local hunters the first opportunity to harvest caribou in that area (**Map 2**, FWS 2014, Halas 2015). To date, the Superintendent has not used his/her authority to alter the closure dates in response to changes in caribou herd migration or to meet the needs of local hunters (Halas 2015).



Map 1. Customary and Traditional (C&T) Use Determination for caribou in Unit 23. C&T Determinations indicate which Alaska rural residents are Federally qualified subsistence users. The WACH range indicates which residents are considered local in State management reports.

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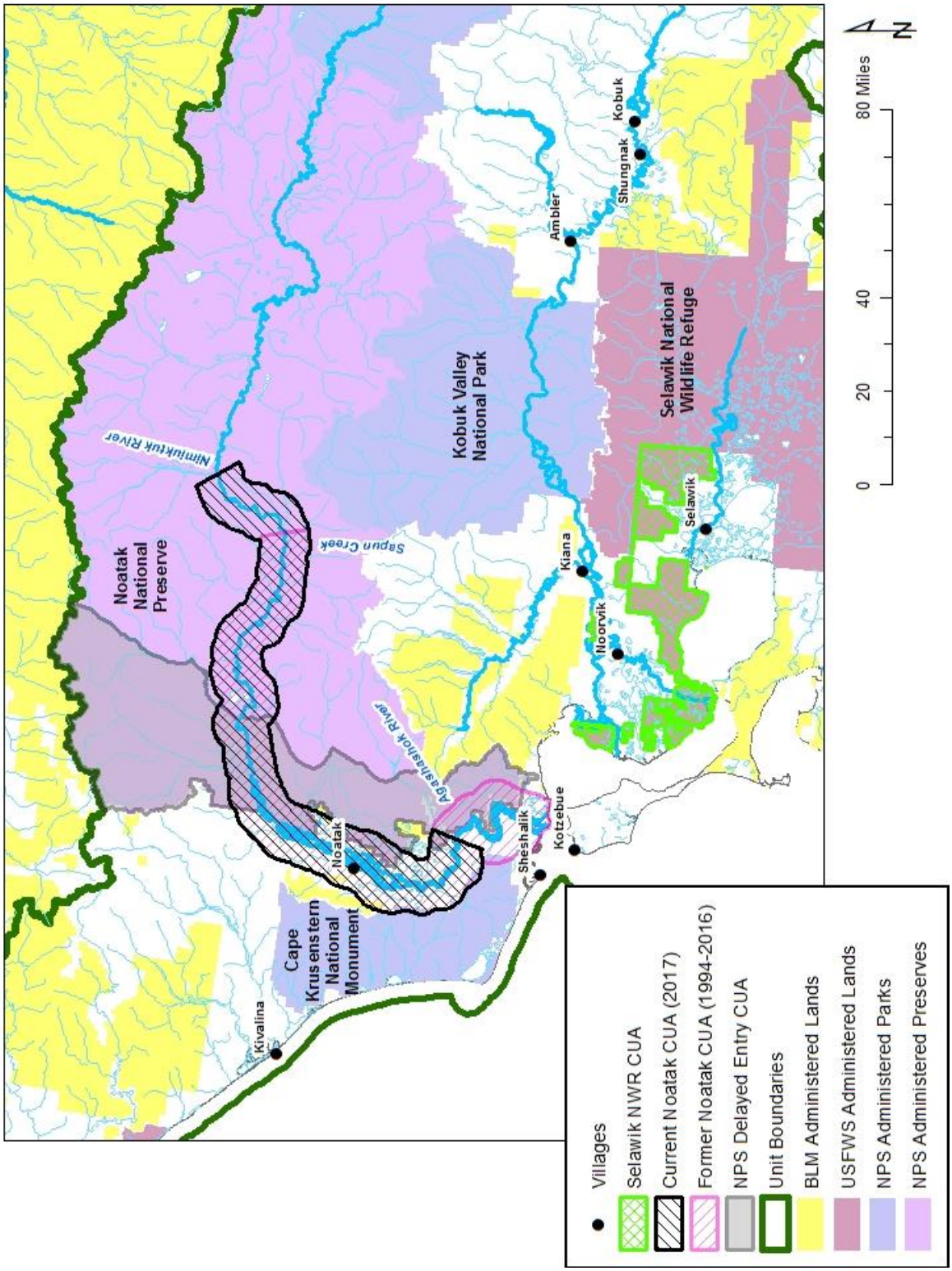

Map 2. Federal and State Hunting Management Areas in Unit 23.

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Current Events

In January 2017, the Board directed the Office of Subsistence Management (OSM) to form an interagency group to discuss possible solutions to user conflict issues in Unit 23 such as targeted closures (FSB 2017). This group, consisting of representatives from OSM, BLM, NPS, USFWS, and ADF&G, met for the first time in April 2017 to discuss user conflicts in Unit 23 and develop suggestions to mitigate them. The group suggested closing Federal public lands within a 10 mile wide corridor (5 miles either side) along the Noatak River from the western boundary of Noatak National Preserve upstream to the confluence with the Cutler River; north of the Noatak River between, and including, the Kelly and Nimiuktuk River drainages; within the northern and southern boundaries of the Eli and Agashashok River drainages, respectively; and within the Squirrel River drainage to caribou hunting except by FQSU.

Several other proposals concerning Federal caribou harvest regulations in Unit 23 and the WACH were submitted for the 2018-2020 wildlife regulatory cycle (WP18-32, 45, 48/49, and 57). At the WACH Working Group meeting in December 2016, the group voted to submit two wildlife proposals. The group also voted to submit this proposal (WP18-46) as well as Proposal WP18-48 to require registration permits for caribou hunting in Units 22, 23, and 26A in order to align with State permitting requirements and better monitor harvest. Louis Cusack also submitted Proposal WP18-49 to require registration permits in these units.

At the Western Interior Council meeting in February 2017, the Council voted to submit Proposal WP18-32 to align Federal caribou seasons across the ranges of the WACH, TCH, and CACH. The intent of this proposal is to protect cows during migration. The Council expressed its intentions to submit a similar proposal to the BOG so that State and Federal seasons could be aligned.

At the Northwest Arctic Council meeting in March 2017, the Council voted to submit Proposal WP18-45 to decrease the harvest limit for caribou in Unit 23 from 5/day to 3/day. The Council also considered submitting a proposal to close Federal public lands to caribou hunting to NFQU (same as the WACH working group proposal), but the motion failed due to concerns about making the closure permanent and for family and tribal members currently living in urban areas who would be restricted by the closure.

At the North Slope Council meeting in March 2017, the Council voted to submit Proposal WP18-57 to close Federal public lands to caribou hunting by NFQU in Units 26A and 26B (similar to WSA17-04). This is in response to declines in the WACH, TCH, and CACH, which are seasonally present in the area.

Biological Background

Caribou abundance naturally fluctuates over decades (Gunn 2001, WACH Working Group 2011). Gunn (2001) reports the mean doubling rate for Alaskan caribou as 10 ± 2.3 years. Although the underlying mechanisms causing these fluctuations are uncertain, climatic oscillations (i.e. Arctic and Pacific Decadal Oscillations) may play an important role (Gunn 2001, Joly et al. 2011). Climatic oscillations can influence factors such as snow depth, icing, forage quality and growth, wildfire occurrence, insect levels, and predation, which all contribute to caribou population dynamics (Joly et al. 2011). Density-dependent

reduction in forage availability, resulting in poorer body condition may exacerbate caribou population fluctuations (Gunn 2001).

Caribou calving generally occurs from late May to mid-June (Dau 2013). Weaning generally occurs in late October and early November before the breeding season (Taillon et al. 2011). Calves stay with their mothers through their first winter, which improves calves' access to food and body condition (Holand et al. 2012). Calves orphaned after weaning (October) have greater chances of survival than calves orphaned before weaning (Holand et al. 2012, Joly 2000, Russell et al. 1991, Rughetti and Fest-Bianchet 2014).

The TCH, WACH, and CACH have ranges that overlap in Unit 26A (**Map 3**), and there can be considerable mixing of herds during the fall and winter. During the 1970s, there was little overlap between these herds, but the degree of mixing seems to be increasing. Currently, the WACH, TCH, and CACH populations are all declining (Dau 2011, 2015a, Lenart 2011, Parrett 2011, 2015c, 2015d).

The WACH has historically been the largest caribou herd in Alaska and has a home range of approximately 157,000 square miles in northwestern Alaska. In the spring, most mature cows move north to calving grounds in the Utukok Hills, while bulls and immature cows lag behind and move toward summer range in the Wulik Peaks and Lisburne Hills (**Map 4**, Dau 2011, WACH Working Group 2011).

Dau (2013) determined the calving dates for the WACH to be June 9–13. This is based upon long-term movement and distribution data obtained from radio-collared caribou (these are the dates cows ceased movements). After the calving period, cows and calves move west toward the Lisburne Hills where they mix with the bulls and non-maternal cows. During the summer, the herd moves rapidly to the Brooks Range.

In the fall, the herd moves south toward wintering grounds in the northern portion of the Nulato Hills. Rut occurs during fall migration (Dau 2011, WACH Working Group 2011). Dau (2013) determined the WACH rut dates to be October 22–26. This is based on back-calculations from calving dates using a 230 day gestation period. Since about 2000, the timing of fall migration has been less predictable, often occurring later than in previous decades (Dau 2015a). From 2010-2015, the average date that GPS collared caribou crossed the Noatak River ranged from Sep. 30 – Oct. 23 (Joly and Cameron 2017). The proportion of caribou using certain migration paths varies each year (**Figure 1**, Joly and Cameron 2017). Changes in migration paths are likely influenced by multiple factors including food availability, snow depth, rugged terrain, and dense vegetation (Fullman et al. 2017, Nicholson et al. 2016). If caribou travelled the same migration routes every year, their food resources would likely be depleted (NWARAC 2016). In recent years (2012-2014), the path of fall migration has shifted east (Dau 2015a).

The WACH Working Group developed a WACH Cooperative Management Plan in 2003, and revised it in 2011 (WACH Working Group 2011). The plan identifies seven plan elements: cooperation, population management, habitat, regulations, reindeer, knowledge, and education as well as associated goals, strategies, and management actions. As part of the population management element, the WACH Working Group developed a guide to herd management determined by population size, population trend, and harvest rate. Population sizes guiding management level determinations were based on recent (since 1970) historical data for the WACH (WACH Working Group 2011). Revisions to recommended harvest levels

under liberal and conservative management (+/- 100 to 2,850 caribou) were made in December 2015 (WACH Working Group 2015, **Table 1**). The State of Alaska manages the WACH to protect the population and its habitat, provide for subsistence and other hunting opportunities on a sustained yield basis, and provide for viewing and other uses of caribou (Dau 2011). State management objectives for the WACH are the same as the goals specified in the WACH Management Plan (Dau 2011, WACH Working Group 2011) and include:

- Encourage cooperative management of the WACH among State, Federal, local entities, and all users of the herd.
- Manage for healthy populations using management strategies adapted to fluctuating population levels and trends.
- Assess and protect important habitats.
- Promote consistent and effective State and Federal regulations for the conservation of the WACH.
- Seek to minimize conflict between reindeer herders and the WACH.
- Integrate scientific information, traditional ecological knowledge of Alaska Native users, and knowledge of all users into management of the herd.
- Increase understanding and appreciation of the WACH through the use of scientific information, traditional ecological knowledge of the Alaska Native users, and knowledge of all other users.

The WACH population declined rapidly in the early 1970s, bottoming out at about 75,000 animals in 1976. Aerial photocensuses have been used since 1986 to estimate population size. The WACH population increased throughout the 1980s and 1990s, peaking at 490,000 animals in 2003 (**Figure 2**). Since 2003, the herd has declined at an average annual rate of 7.1% from approximately 490,000 caribou to 200,928 caribou in 2016 (Caribou Trails 2014; Dau 2011, 2014, Parrett 2016a).

Between 1982 and 2011, the WACH population was within the liberal management level prescribed by the WACH Working Group (**Figure 2, Table 1**). In 2013, the herd population estimate fell below the population threshold for liberal management of a decreasing population (265,000), slipping into the conservative management level. In July 2015, ADF&G attempted an aerial photocensus of the herd. However, the photos taken could not be used due to poor light conditions that obscured unknown portions of the herd (Dau 2015b). ADF&G conducted a successful photocensus of the WACH on July 1, 2016. This census resulted in a minimum count of 194,863 caribou with a point estimate of 200,928 (Standard Error = 4,295), suggesting the WACH is still within the conservative management level, although close to the threshold for preservative management (**Figure 2, Table 1**). Results of this census indicate an average annual decline of 5% per year since 2013, a much lower rate than the 15% annual decline between 2011 and 2013. The large cohorts of 2015 and 2016 (calves born in these years), which currently comprise a substantial proportion of the herd, contributed to the recent decreased rate of decline, but remain vulnerable to difficult winter conditions due to their young age (Parrett 2016a). ADF&G plans to conduct another photocensus in the summer of 2017 and also transition from film to digital cameras, which will enhance their ability to complete successful and timely censuses (Parrett 2016a, Parrett 2017, pers. comm.).

Between 1970 and 2016, the bull:cow ratio exceeded critical management levels (40 bulls:100 cows) in all years except 1975, 2001, and 2014 (**Figure 3**). Reduced sampling intensity in 2001 likely biased the 2001

bull:cow ratio low (Dau 2013). Since 1992, the bull:cow ratios has trended downward (Dau 2015a). The average annual number of bulls:100 cows was greater during the period of population growth (54:100 between 1976–2001) than during the recent period of decline (44:100 between 2004–2016). Additionally, Dau (2015a) states that while trends in bull:cow ratios are accurate, actual values should be interpreted with caution due to sexual segregation during sampling and the inability to sample the entire population, which likely account for more annual variability than actual changes in composition.

Although factors contributing to the population decline are not known with certainty, fall and winter icing events likely initiated the decline (Dau 2015a). Increased adult cow mortality, and decreased calf recruitment and survival played a role (Dau 2011). Since the mid-1980s, adult mortality has slowly increased while recruitment has slowly decreased (Dau 2013, **Figure 4**). In a population model developed specifically for the WACH, Prichard (2009) found adult survival to have the largest impact on population size.

Calf production has likely had little influence on the population trajectory (Dau 2013, 2015a). Between 1990 and 2003, the June calf:cow ratio averaged 66 calves:100 cows/year. Between 2004 and 2016, the June calf:cow ratio averaged 71 calves:100 cows/year (**Figure 5**). In June 2016, 85 calves:100 cows were observed, which approximates the highest parturition level ever recorded for the herd (86 calves:100 cows in 1992) (Dau 2016a).

Decreased calf survival through summer and fall and recruitment into the herd are likely contributing to the current population decline (Dau 2013, 2015a). Fall calf:cow ratios indicate calf survival over summer. Between 1976 and 2016, the fall calf:cow ratio ranged from 35 to 59 calves:100 cows/year, averaging 46 calves:100 cows/year (**Figure 5**). Fall calf:cow ratios declined from an average of 46 calves:100 cows/year between 1990-2003 to an average of 42 calves:100 cows/year between 2004-2016 (Dau 2015a, **Figure 5**). Since 2008, ADF&G has recorded calf weights at Onion Portage as an index of herd nutritional status. In September 2015, calf weights averaged 100 lbs., the highest average ever recorded (Parrett 2015b).

Similarly, the ratio of short yearlings (SY, 10-11 months old caribou) to adults provides a measure of overwintering calf survival and recruitment. Between 1990 and 2003, SY:adult ratios averaged 20 SY:100 adults/year. Since the decline began in 2003, SY:adult ratios have averaged 16 SY:100 adults/year (2004-2016, **Figure 5**). However, 23 SY:100 adults were observed during spring 2016 surveys, the highest ratio recorded since 2007 (Dau 2016b). The overwinter calf survival for the 2015 cohort (Oct. 2015-Jun. 2016) was 84% (Parrett 2016b). While 2016 indices suggest improvements in recruitment, the overall trend since the early 1980s has been downward (Dau 2015a, 2016b).

Increased cow mortality is likely affecting the trajectory of the herd as well (Dau 2011, 2013). The annual mortality rate of radio-collared adult cows increased from an average of 15% between 1987 and 2003 to 23% from 2004–2014 (Dau 2011, 2013, 2014, 2015a, **Figure 4**). Estimated mortality includes all causes of death including hunting (Dau 2011). Dau (2015a) states that cow mortality estimates are conservative due to exclusion of unhealthy (i.e. diseased) and yearling cows. Dau (2013) attributed the high mortality rate for 2011–2012 (33%, **Figure 4**) to a winter with deep snows, which weakened caribou and enabled

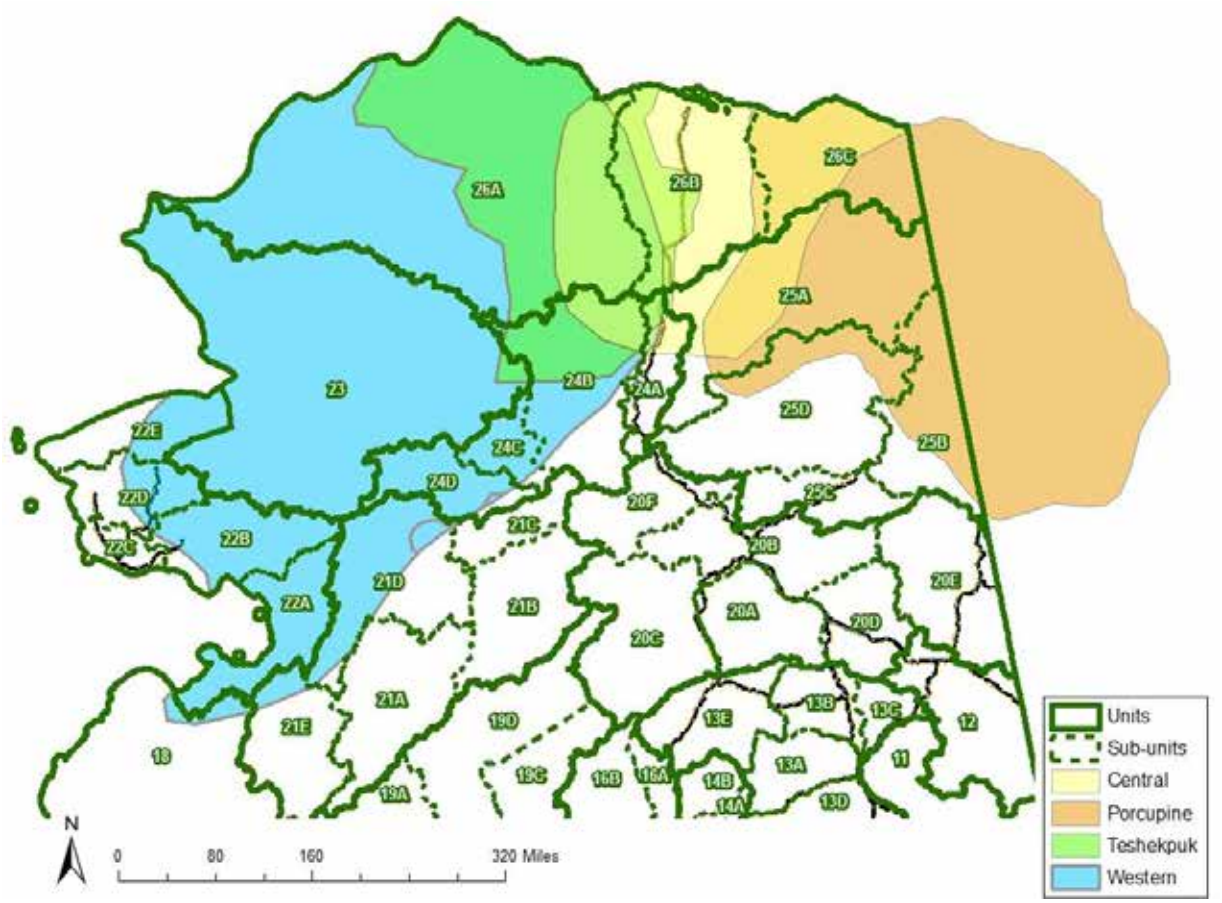
wolves to prey on them more easily. Prior to 2004, estimated adult cow mortality only exceeded 20% twice, but has exceeded 20% in 7 out of 9 regulatory years between 2004 and 2012 (**Figure 4**). The annual mortality rate was 8% as of April 2016 (Dau 2016b). This may fluctuate substantially throughout the year based on changing local conditions and harvest levels. Dau (2015a) indicates that mortality rates may also change in subsequent management reports as the fate of collared animals is determined, and that these inconsistencies are most pronounced for the previous 1–3 years.

Far more caribou died from natural causes than from hunting between 1992 and 2012 (Dau 2013). Cow mortality remained constant throughout the year, but natural and harvest mortality for bulls spiked during the fall. Predation, particularly by wolves, accounted for the majority of natural mortality (Dau 2013). However as the WACH has declined and estimated harvest has remained relatively stable, the percentage of mortality due to hunting has increased relative to natural mortality. For example, during the period October 1, 2013 to September 30, 2014, estimated hunting mortality was approximately 42% and estimated natural mortality about 56% (Dau 2014). In previous years (1983–2013), the estimated hunting mortality exceeded 30% only once in 1997-1998 (Dau 2013). Additionally, Prichard (2009) and Dau (2015a) suggest that harvest levels and rates of cows can greatly impact population trajectory. If bull:cow ratios continue to decline, harvest of cows may increase, exacerbating the current population decline.

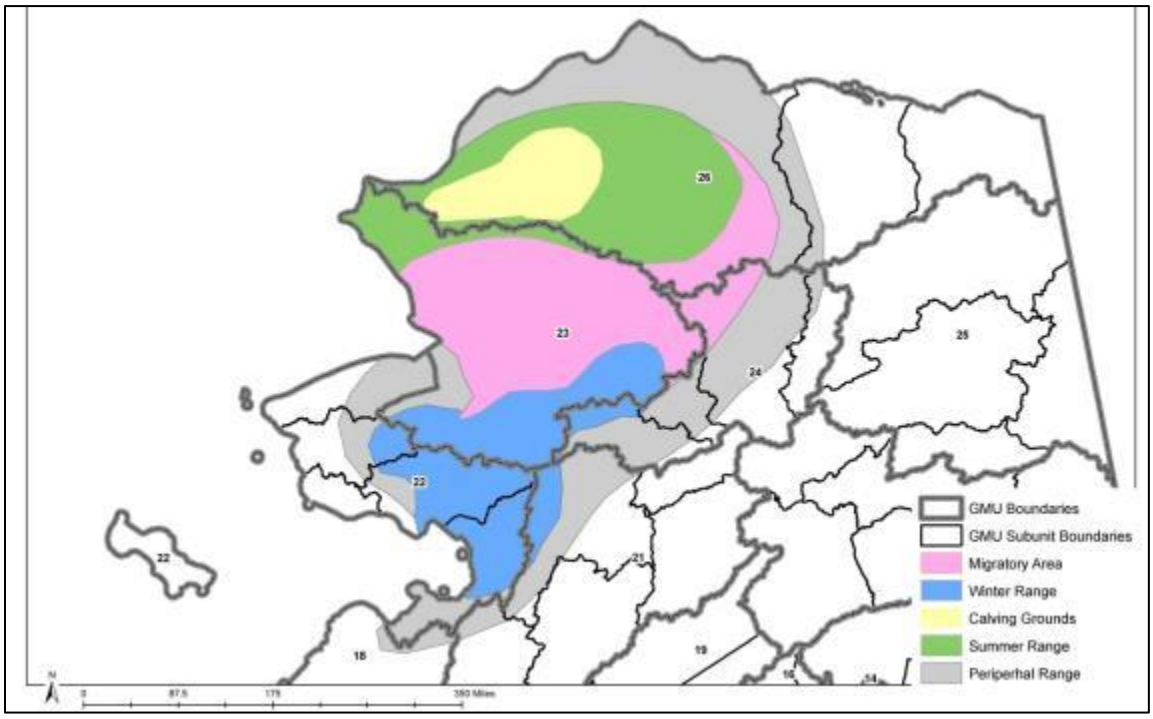
Although icing events likely precipitated the population decline, increased predation, hunting pressure, deteriorating range condition (including habitat loss and fragmentation), climate change, and disease may also be contributing factors (Dau 2015a, 2014). Joly et al. (2007) documented a decline in lichen cover in portions of the wintering areas of the WACH. Dau (2011, 2014) reported that degradation in range condition is not thought to be a primary factor in the decline of the herd because animals have generally maintained good body condition since the decline began. Body condition is assessed on a subjective scale from 1-5. The fall body condition of adult females in 2015 was characterized as "fat" (mean=3.9/5) with no caribou being rated as skinny or very skinny (Parrett 2015b). However, the body condition of the WACH in the spring may be a better indicator of the effects of range condition versus the fall when the body condition of the herd is routinely assessed and when caribou are in prime condition (Joly 2015, pers. comm.).

Habitat

Caribou feed on a wide variety of plants including lichens, fungi, sedges, grasses, forbs, and twigs of woody plants. Arctic caribou depend primarily on lichens during the fall and winter, but during summer they feed on leaves, grasses and sedges (Miller 2003).



Map 3. Herd overlap and ranges of the WACH, TCH, CACH, and PCH.



Map 4. Range of the WACH.

Table 1. Western Arctic Caribou Herd management levels using herd size, population trend, and harvest rate (WACH Working Group 2011, 2015).

Management and Harvest Level	Population Trend			Harvest Recommendations May Include:
	Declining Low: 6%	**Stable Med: 7%**	**Increasing High: 8%**	
Liberal	Pop: 265,000+	Pop: 230,000+	Pop: 200,000+	• Reduce harvest of bulls by nonresidents to maintain at least 40 bulls: 100 cows • No restriction of bull harvest by resident hunters unless bull:cow ratios fall below 40 bulls:100 cows
	Harvest: 16,000-22,000	Harvest: 16,000-22,000	Harvest: 16,000-22,000	
Conservative	Pop: 200,000-265,000	Pop: 170,000-230,000	Pop: 150,000-200,000	• No harvest of calves • No cow harvest by nonresidents • Restriction of bull harvest by nonresidents • Limit the subsistence harvest of bulls only when necessary to maintain a minimum 40:100 bull:cow ratio
	Harvest: 12,000-16,000	Harvest: 12,000-16,000	Harvest: 12,000-16,000	
Preservative	Pop: 130,000-200,000	Pop: 115,000-170,000	Pop: 100,000-150,000	• No harvest of calves • Limit harvest of cows by resident hunters through permit hunts and/or village quotas • Limit the subsistence harvest of bulls to maintain at least 40 bulls:100 cows • Harvest restricted to residents only, according to state and federal law. Closure of some federal public lands to nonqualified users may be necessary
	Harvest: 8,000-12,000	Harvest: 8,000-12,000	Harvest: 8,000-12,000	
Critical Keep Bull:Cow ratio ≥ 40 Bulls:100 Cows	Pop: < 130,000	Pop: < 115,000	Pop: < 100,000	• No harvest of calves • Highly restrict the harvest of cows through permit hunts and/or village quotas • Limit the subsistence harvest of bulls to maintain at least 40 bulls:100 cows • Harvest restricted to residents only, according to state and federal law. Closure of some federal public lands to nonqualified users may be necessary
	Harvest: 6,000-8,000	Harvest: 6,000-8,000	Harvest: 6,000-8,000	

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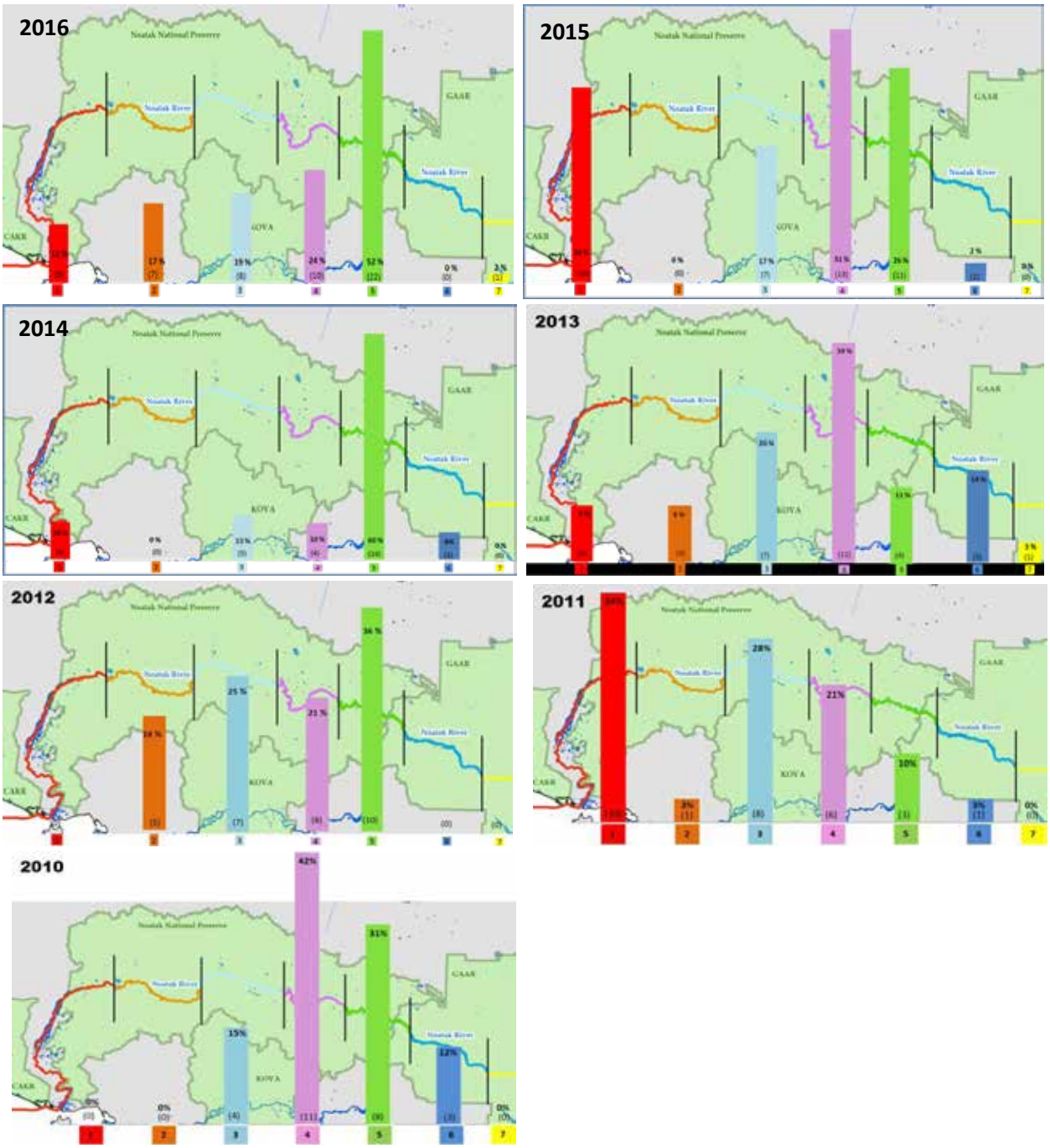

Figure 1. Distribution of caribou crossing the Noatak River during fall. Histograms depict where collared female caribou crossed the Noatak River, generally from north to south, on their fall migration. Relative percentages (top number) and the absolute number (middle number) of caribou are provided. The river is divided into seven (lowest number) color-coded segments which are displayed in the background. The middle five segments are 100 river kilometers long, while the westernmost segment (red) is 200 km (before extending into the Chukchi Sea) and the easternmost (yellow) runs as far east as WACH caribou are known to migrate. The number of caribou with GPS collars ranged from 39-79 caribou/year with later years having more collared caribou than earlier years (Joly and Cameron 2017).

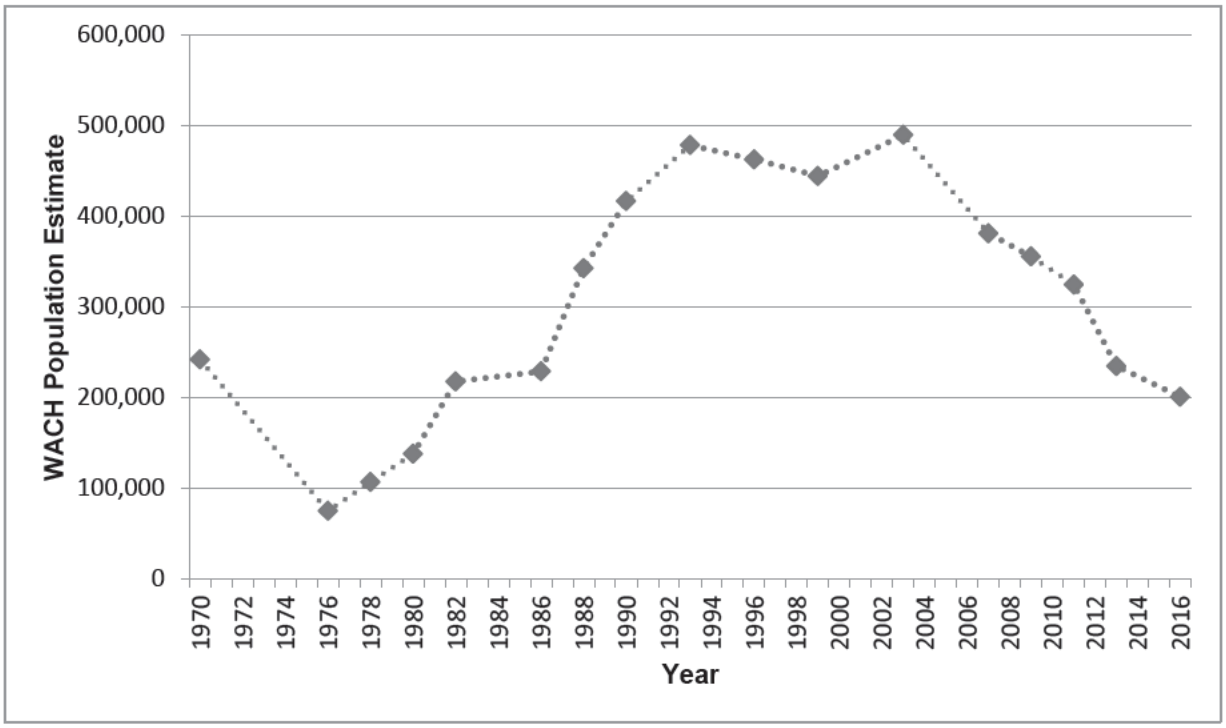

Figure 2. The WACH population estimates from 1970–2015. Population estimates from 1986–2016 are based on aerial photographs of groups of caribou that contained radio-collared animals (Dau 2011, 2013, 2014, Parrett 2016a).

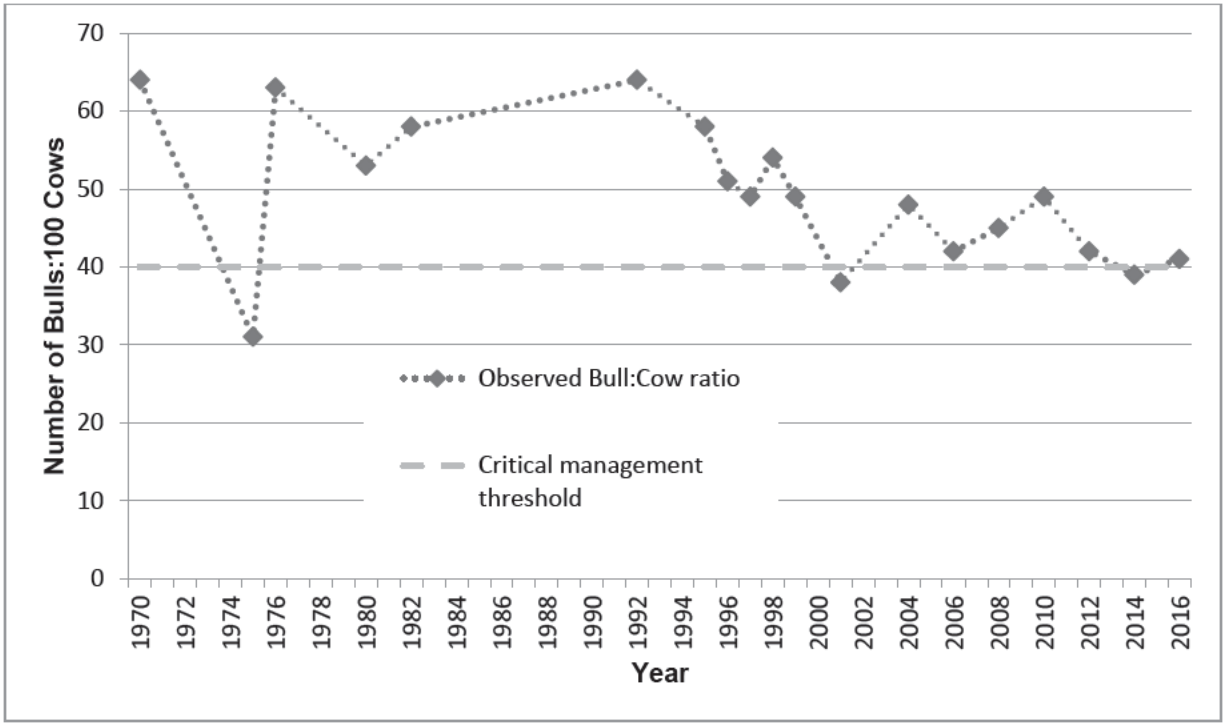

Figure 3. Bull:Cow ratios for the WACH (Dau 2015a, ADF&G 2017c).

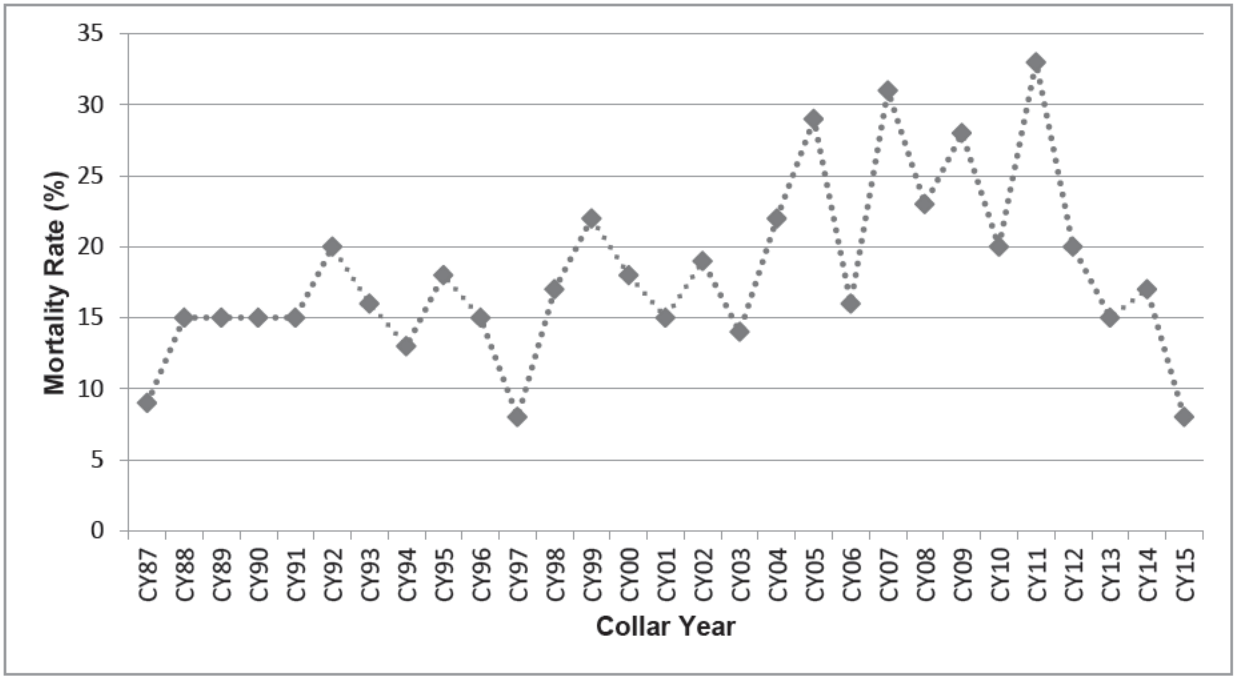

Figure 4. Mortality rate of radio-collared caribou in the Western Arctic caribou herd (Dau 2013, 2015a, 2016b). Collar Year (CY)= Oct. 1-Sept. 30. CY15 is Oct. 2015-Apr. 2016.

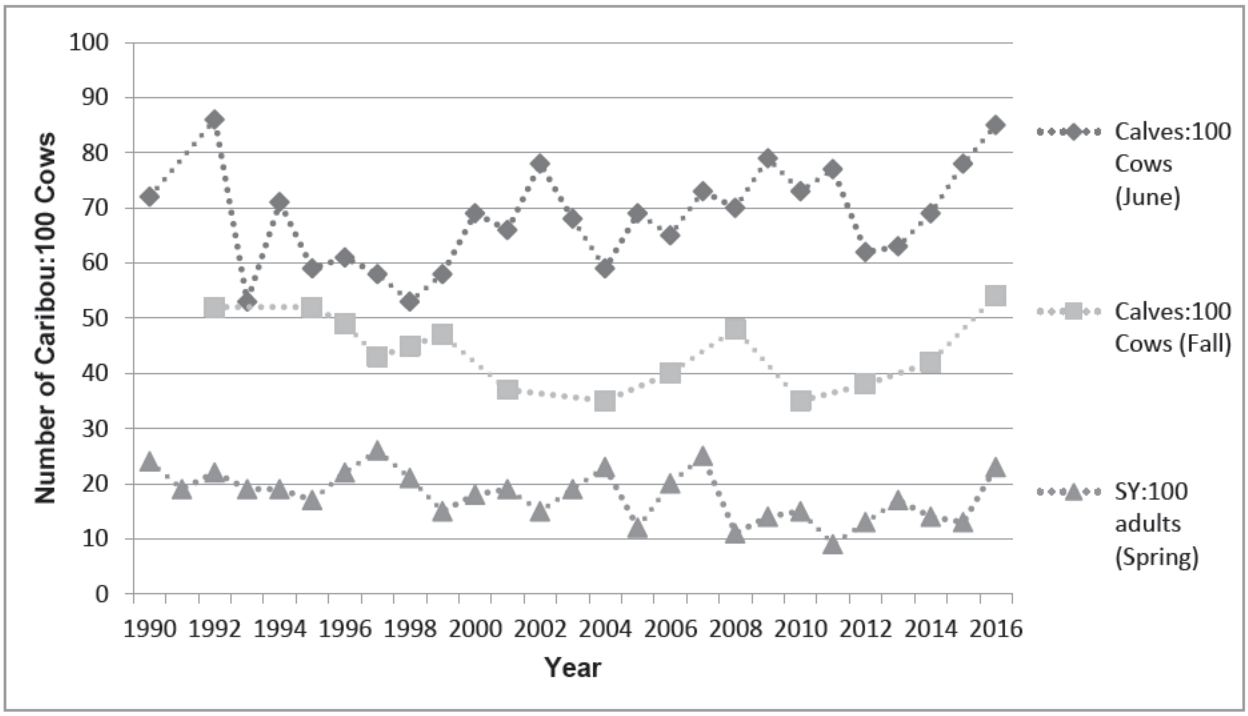

Figure 5. Calf:cow and short yearling (SY):adult ratios for the WACH (Dau 2013, 2015a, 2016a, ADF&G 2017c). Short yearlings are 10-11 months old caribou.

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Cultural Knowledge and Traditional Practices

Meeting the nutritional and caloric needs of Arctic communities is vitally important and is the foundation of subsistence activities. Still, the meaning of subsistence extends far beyond human nutrition for Alaska's native peoples. Holthaus (2012) describes subsistence as the basis on which Alaska Native culture establishes its identity though "philosophy, ethics, religious belief and practice, art, ritual, ceremony, and celebration." Fienup-Riordan (1990) also describes subsistence in terms of the cultural cycles of birth and death representing the close human relationship and reciprocity between humans and the natural world. Concerning caribou specifically, Ms. Esther Hugo – a lifelong resident of Anaktuvuk Pass - describes the human-caribou relationship as a "way of life."

Caribou have been a primary resource for the Inupiat of the Northwest Arctic Region for thousands of years. Caribou bones dating from 8,000 to 10,000 years ago have been excavated from archeological sites on the Kobuk River (ADF&G 1992, Anderson 1988). Foote (1959, 1961) wrote about caribou hunting in the Noatak region forty years ago, noting that life would not be possible in Noatak without this source of meat. Caribou were traditionally a major source of both food and clothing and continues today to be the most important land animal consumed in this region (Burch 1984, 1994, 1998, ADF&G 1992). Uhl and Uhl (1979) documented the importance of caribou as a main source of red meat for Noatak residents as well as other communities in the region. Betcher (2016) also documents the critical contemporary importance of caribou to people residing throughout the Northwest Arctic.

Historically, during fall and spring caribou migrations, people built "drive fences" out of cairns, bundles of shrubs, or upright logs. These fences were sometimes several miles long and two to three miles wide. Ideally, the closed end of the fence crossed a river, and caribou were harvested while crossing the river and retrieved later; or the fence would end in a corral where caribou were snared and killed with spears (Burch 2012). Burch (2012:40) notes, "The landscape of Northwest Arctic, especially in hills and mountains, is littered with the remains of drive fences that were in every stage of construction when they were abandoned."

The WACH population declined rapidly in the Northwest Arctic beginning in the late 1800s. At its low point, its range had shrunk to less than half its former size. Famine ensued, primarily due to the absence of caribou. In the early 1900s, reindeer were introduced to fill the need for food and hides. The WACH began to rebound in the 1940s. Currently, among large terrestrial mammals, caribou are among the most abundant; however, the population in any specific area is subject to wide fluctuations from year to year as caribou migration routes change (Burch 2012).

Caribou were traditionally harvested any month of the year they were available in the Northwest Arctic Region. The objective of the summer hunt was to obtain the hides of adult caribou with their new summer coats. They provided the best clothing material available to the Inupiat. The fall hunt was to acquire large quantities of meat to freeze for winter (Burch 1994). The timing and routing of migration determined caribou hunting. Hunting seasons change from year to year according to the availability of caribou (ADF&G 1991). The numbers of animals and the duration of their stays varies from one year to the next (Burch 1994) and harvest varies from community to community depending on the availability of caribou.

Generally, communities in the southern portion of Unit 23 (Buckland, Deering) take caribou in the winter and spring, while the other communities in the unit take caribou in the fall, winter, and spring. Kivalina and Point Hope also take caribou in the summer in July (ADF&G 1992) and Selawik residents regularly hunt in the fall (Georgette 2016, pers. comm.).

Currently, caribou hunting by FQSU in Unit 23 is most intensive from September through November. Caribou can be harvested in large numbers, when available, and can be transported back to villages by boat before freeze-up. Hunters search for caribou and attempt to intercept them at known river crossings. Ideally, caribou harvesting occurs when the weather is cool enough to prevent spoilage of meat. If not, meat is frozen for later use. Prior to freeze-up, bulls are preferred because they are fatter than cows (Braem et al. 2015, Georgette and Loon 1993).

Small groups of caribou that have over-wintered may be harvested by hunters in areas that are accessible by snowmachine. Braem et al. (2015:141) explain, "Hunters harvest cows during the winter because they are fatter than bulls . . . . Caribou harvested during the winter can be aged completely without removing the skin or viscera . . . . Then in the spring, the caribou is thawed. Community members cut it into strips to make dried meat, or they package and freeze it." In spring, caribou start their northward migration. The caribou that are harvested are "lean and good for making dried meat (*paniqtuq*) during the warm, sunny days of late spring" (Georgette and Loon 1993:80).

Today, the human population in Unit 23 is comprised primarily of 11 regional Inupiaq groups (Burch 1998). Kotzebue is the regional hub of transportation and commerce and is home to the majority of non-Natives in the region. The population of Unit 23 was approximately 7,500 in 2010, according to the U.S. Census (ADOLWD 2016). Caribou dominate the subsistence harvest of the region. In household harvest surveys conducted between 1964 and 2012, caribou were often the most harvested species, more than any other wild resource, in pounds of edible weight (**Appendix 1**, ADF&G 2016a). Based on these surveys, in a typical study year, the harvest of caribou was, on average, between 100 and 200 lbs. per person in northwest Alaska (**Appendix 1**, ADF&G 2016a).

User Conflicts

Throughout most of this analysis, local and nonlocal hunters are defined as those residing within and outside the range of the WACH, respectively. However, some authors cited in this section use the terms "local" and "nonlocal" without defining them. When definitions were provided they were included in this section. Otherwise, the terms are used in quotations.

User conflicts are likely to intensify when resources are scarce and when food security is threatened (Homer-Dixon 1994, Cohen and Pinstrup-Andersen 1999, Pomeroy et al. 2016). Such conflicts between local and nonlocal hunters have been well documented in Unit 23, specifically in the Noatak NP, the Squirrel River area, and along the upper Kobuk River (Georgette and Loon 1988, Jacobson 2008, Harrington and Fix 2009 *in* Fix and Ackerman 2015, Halas 2015, NWARAC 2015, Braem et al. 2015), even during times of high caribou abundance. Local hunters have expressed concerns over aircraft and "non-local" hunters disrupting caribou migration by "scaring" caribou away from river crossings, landing and

camping along migration routes, and shooting lead caribou (Halas 2015, Fix and Ackerman 2015, NWARAC 2015).

Halas (2015; **Map 5**), in a case study of Noatak caribou hunters and their interactions with transported hunters, examined the links between caribou behavior and migration, user group interactions, and changes to subsistence caribou hunting. In describing observations by Noatak hunters in 2012 and 2014 Halas (2015:81) explained,

> Observations of caribou behavior ("spooked" caribou, deflected caribou groups from river crossings) due to aircraft are likely witnessed as a dramatic event not easily forgotten by a waiting Noatak hunter. Whether the aircraft intentionally or unintentionally may be "influencing" caribou movement, observing "scared" caribou can be a powerful experience for hunters.

In 1988 a proposal was submitted to the BOG to create the Noatak CUA (see regulatory history). Included within the proposal was the following justification from the Traditional Council of Noatak (Fall 1990:86, ADF&G 1988:47):

> In the Noatak valley, aircraft supported hunters are directly competing with, and displacing subsistence hunters from traditional hunting sites along the Noatak River. The village most affected is Noatak, although families from Kotzebue are also affected. These families are having a great deal of difficulty obtaining their fall meat supply due to heavy aircraft traffic, rude aircraft operators, and displacement from traditional camping and hunting sites.
>
> Aircraft operators have the opportunity to use many other areas than the main Noatak valley, in the vicinity of traditional hunting areas. Good management practices indicate that the two groups of users should be separated.
>
> Experienced hunters from the village of Noatak point out that heavy aircraft traffic in the Noatak valley causes disruption of the fall caribou migration. The caribou are particularly sensitive near river crossings, which is stressful for the animals. Experience and good judgment is required to avoid disruption of the caribou migration. The village hunters' experience with aircraft supported hunters has been poor. The aircraft supported hunter; lack of experience and commercial interests has led to abuse of the resource. Noatak hunters point out that the normal migration routes of caribou through the Noatak valley in the fall have changed over the last several years of heavy aircraft use. Village hunters have noticed increased levels of waste of caribou and moose by aircraft supported hunters.

In response to the proposal, the State Division of Subsistence interviewed 21 caribou hunting households in Noatak, 22 private pilots from Kotzebue, 10 Kotzebue-based air taxi services, two hunting guides, and the Federal Aviation Administration in Kotzebue (Fall 1990:86). This study found that fall caribou hunting in the proposed area was a traditional and meaningful activity for Noatak residents, that the major source of air

traffic in 1987 was from commercial air taxi operators, and that respondents tended to agree that air traffic significantly increased in the 1980s (Fall 1990, Georgette and Loon 1988).

BOG members indicated that they were not convinced that aircraft were disrupting subsistence caribou hunting but acknowledged an increase in outfitter operations along the Noatak River (Fall 1990:87). Fall (1990:87) suggests that because the BOG failed to support two similar proposals from Noatak previously, and because the current proposal had the support of both the Kotzebue Fish and Game Advisory Committee and the Arctic Fish and Game Regional Council (now Committee), there was pressure on the BOG to be responsive to the issue. The BOG unanimously adopted the proposal with modification to include approximately one third of the proposed land area (Fall 1990:87). The adopted boundaries of the CUA extended from Kugururok River to Sapun Creek and reflected the areas of greatest caribou hunting intensity and treeless habitats where caribou are most susceptible to noise (Wolfe 1988). Since 1988, the BOG has modified the dates and extent of the Noatak CUA several times in response to local concerns and user conflicts (see regulatory history, **Map 2**).

The BOG actions in 1988 and 1994 did not fully alleviate user conflicts along the Noatak River as local users continued to report similar observations in subsequent decades. In a 2014 survey of 19 Noatak hunters, 78% and 92% of respondents perceived "nonlocals" and planes to impact caribou migration, respectively. Similarly, 63% and 81% of respondents reported that "nonlocal" hunters and planes reduced hunting success, respectively (Halas 2015). Noatak respondents did differentiate between commercial transporter operators and "nonlocal" hunters, attributing a decrease in harvest success primarily to aircraft associated with commercial transporters (Halas 2015). Negative encounters between local and nonlocal hunters identified by respondents primarily focused on river crossings of migrating caribou (**Map 5**, Halas 2015).

A survey of 372 hunters identified as transporter clients in Noatak NP hunting between 2010 and 2013 indicated perceptions of conflict among this group differed from those expressed by "local" hunters (Fix and Ackerman 2015). Less than half of the transporter clients surveyed reported receiving information about issues of concern to "local" hunters. They did indicate that wilderness characteristics were important to them and that the quality of their experience was sensitive to encounters with others. Among encounter types in which the frequency exceeded hunter expectations were propeller planes (30% of respondents), other nonlocal hunters (27%), and hunting camps visible while hunting (25%, Fix and Ackerman 2015). Sixty percent of the groups who encountered caribou reported observing low flying aircraft near caribou.

Concerns regarding the lack of recent caribou population data (due to the failure of the 2015 photocensus), ongoing user conflicts and potential herd deflection by aircraft were discussed at length during the Northwest Arctic Council meeting in October 2015. While some Council members reported caribou harvest success for the year, many also reported ongoing concerns for herd deflection near the Squirrel and Agashashok Rivers in Unit 23, as well as concern for residents of Anaktuvuk Pass in Unit 24 who have been reporting an absence of animals from both the WACH and the TCH.

Repeated observations of airplanes affecting individual or group caribou behavior have been documented, and cumulative observations of this over time could lead an observer to conclusions about herd deflection (Halas 2015). Some studies and local observations of WACH caribou response to aircraft have suggested that animal response is limited in temporal and spatial scale (Fullman et al. 2017, BHA Alaska 2017) and that many factors contribute to larger scale shifts in migration. Fullman et al. (2017) studied the effects of environmental features and sport hunting on caribou migration in northwestern Alaska. These authors found that caribou tended to avoid rugged terrain and that the migration of caribou through Noatak NP does not appear to be hindered by sport hunting activity. They indicated that their results do not preclude the possibility of short-term effects (< 8 hours) altering the availability of caribou for individual hunters, and that the lack of observed influence of hunting activity could be related to limitations in the telemetry and sport hunter datasets used in the study (i.e. caribou locations were only recorded every 8 hours, not every sport hunter camp was included, and only landings events from transporter aircraft were considered).

Several studies have documented negative caribou responses and avoidance behavior toward aircraft, motorized equipment, and development (e.g., Valkenburg and Davis 1985, Wolfe et al. 2000, Vistnes and Nelleman 2008, Calef et al. 1976, Maier et al. 1998). Calef et al. (1976) observed panic reactions and strong escape responses in a high percentage of caribou, particularly when aircraft flew at altitudes of less than 60 meters (197 feet). Calef et al. (1976) also found that caribou response to small fixed-wing and helicopter overflights was strongest during early calving (late May to early June), post-calving (early June to late June), and winter.

Valkenburg and Davis (1983) specifically studied the reaction of the WACH to aircraft and compared this with their observations of the Delta Caribou Herd (DCH). They observed that WACH caribou ran from 82% of aircraft passes (compared to 35% of passes for DCH animals), and that escaping WACH caribou were more likely to continue running after the aircraft had passed as compared to DCH animals. They speculated that the higher intensity of WACH response to aircraft was due to insufficient exposure to non-detrimental aircraft activity (those not resulting in immediate hunting activities), the perception of aircraft as a threat, and the association of snowmachine noise with pursuit and a lack of differentiation with the noise of aircraft (Valkenburg and Davis 1983). These authors hypothesized that a greater number of benign or nonthreatening overflights may be necessary to habituate WACH animals and that same-day airborne hunting had exacerbated the situation (Valkenburg and Davis 1983). In comparison, DCH caribou occurred in areas where much of the aircraft and ground vehicle activity was nonthreatening (Valkenburg and Davis 1983). However, as these data are over 30 years old and same-day airborne is no longer permitted, WACH caribou may have become more habituated to aircraft traffic (i.e. Fullman et al. 2017). While empirical documentation is sparse, local observations (e.g. by residents, biologists, law enforcement officers) of caribou responses to aircraft have been variable. Variability in caribou responses is likely due to multiple factors such as past experiences of individual caribou, season, weather, type of plane and altitude, etc.

Incomplete camp location information has prevented a quantitative assessment of caribou deflection or displacement associated with commercial operators and their hunting clients (Dau 2015a). However, substantial transporter traffic in the Anisak drainage, which is within the Noatak NP, has not diverted migrating WACH caribou (Dau 2015a). A long-held cultural practice in the region requires that lead adult

female caribou be allowed to establish migratory paths unhindered by human activity. Dau (2015a) suggests that once lead caribou establish migration routes, the caribou behind them will follow regardless of hunting or other disturbances such as aircraft. In response to complaints from Anaktuvuk Pass residents about caribou migration being affected by non-subsistence hunter activity, ADF&G attempted to document such effects from 1991-93, but none were found (OSM 1995).

Avoidance behavior of caribou to human activity and development has also been documented to have other behavioral and physiological impacts. Some studies have shown that energy costs associated with repeated disturbance (including overflights) may decrease caribou reproduction rates (Luick et al. 1996, Bradshaw et al. 1997, Maier et al. 1998) and calf survival rates (Harrington and Veitch 1991). Studies have also reported reduction in the use of areas within 5 km from infrastructure and human activity (including aircraft) by 50–95% for weeks, months, or years (Vistnes and Nelleman 2008, Flydal et al. 2002).

Since the early 1980s, perceptions surrounding guides and transporters placing large numbers of nonlocal hunters (living outside of the range of the WACH) in fall caribou migration corridors and deflecting the herds from traditional hunting areas has been an issue of concern for local hunters (living within the range of the WACH) (Braem et al. 2015, Dau 2015a:34, Unit 23 Working Group 2016). In addition, the timing of hunting has caused conflicts between user groups because 85–95% of all caribou taken by nonlocal hunters are harvested between August 25 and October 7, the same period as intense subsistence hunting (Dau 2015a:31). While hunt timing often aligns among these user groups, methods of access do not. Most local hunters harvest caribou with snowmachines, boats, and 4-wheelers, and few use aircraft. In contrast, 76% of nonlocal hunters accessed hunt areas by plane in regulatory years 2012 and 2013 (Dau 2015a:31). This mode of access can provide nonlocal users with a greater range of access and speed in reaching ideal hunting locations, and also place them in front of a migrating herd.

Local hunters have stated that aircraft noise affects hunting success and migrating caribou. During the 2014 hunting season, average propeller aircraft noise events along the Noatak River ranged from 3.7 events per day at Kugururok River to 7.8 events per day at Sapun Creek. It is unknown whether the difference in propeller aircraft noise events is due to management areas (i.e. the NPS delayed entry zone and ADF&G controlled use area) or the recent easterly trend of primary caribou migration routes (Betchkal 2015). However, the recent propeller aircraft noise levels appear comparable to aircraft noise levels documented in Noatak NP in 1987 (Georgette and Loon 1988) and 1995-1996 (NPS) (Fix and Ackerman 2015). However, comparisons should be interpreted with caution due to different methodologies (i.e. human observations vs. continuous acoustic recordings and the establishment of the ‘delayed entry zone’ in 2012 (Fix and Ackerman 2015).

In 2008, the Unit 23 Working Group was established to address fall hunting related issues and to develop solutions to cooperatively solve hunting conflicts and to preserve traditional Inupiaq values, while also allowing for reasonable opportunities for non-local hunters (ADF&G 2016b). It is made up of 20 members, including representatives of regional and tribal governments and organizations, land and wildlife management agencies, the Big Game Commercial Services Boards, the Alaska Professional Hunters Association (including representatives from hunting guide and transport industries), Fish and Game

Advisory Committees, the Northwest Arctic Council, the BOG, and the Federal Subsistence Board (ADF&G 2016b). In 2010, the group proposed a mandatory orientation session for all pilots transporting big game in Unit 23. ADF&G implemented this, developed and distributed outreach materials, and established conflict planning processes (**Map 2**, Dau 2015a). The orientation suggests maintaining a minimum altitude of 2000 feet in the vicinity of camps (Betchkal 2015). Flight restrictions were also implemented by both State and Federal agencies (see Regulatory History).

The NPS Special Commercial Use Area in Noatak NP may have limited effect on the number and distribution of transported hunters because fewer caribou have been migrating through the affected area since 2011 and transporters generally already dropped clients east of the delayed entry zone (Dau 2015a). Additionally, the rule applies only to transporters with caribou hunting clients and not to those transporting other hunters, fishers, and recreational users. The rule also does not apply to personal aircraft that are commonly used for transportation by NFQU to and from the region. Furthermore, the timing of the delayed entry zone has not shifted in response to annual fluctuation in caribou migration, which has been less predictable in recent years.

Another area of intense user conflict was identified in the eastern portion of Unit 23 along a 25-mile long Kobuk River corridor located upstream of Kobuk, Ambler, and Shungnak, from the Mauneluk River to the Selby River (Braem et al. 2015). Much of this area is managed by the State and is relatively accessible for nonlocal hunters (**Map 6**; Braem et al. 2015). In 2001 and 2002, proposals were submitted to the BOG to create a controlled use corridor in this area, but they were not adopted (Braem et al. 2015). This area may be of particular importance in considering potential shifts in the distribution and density of nonlocal caribou hunters due to the 2016/17 closure of Federal public lands to caribou hunting by NFQU.

Shifts in caribou migration paths have created difficulty for Noatak, Kivalina, and Kotzebue hunters (Dau 2015a). Local WACH harvest has been relatively stable in Unit 23 since the 1990s, but residents of some communities have had to "greatly increase their expenditure of money and effort to maintain these harvest levels" (Dau 2015a:14-30). This is due in part to having to travel farther, more frequently, and for longer durations to find caribou (Halas 2015). Some communities such as Unalakleet and Noatak have "not met their subsistence needs in many recent years" (Dau 2015a:14-30). This was also expressed by Northwest Arctic Council members during meetings in October 2015 and March 2016 (NWARAC 2015, NWARAC and NSRAC 2016).

Northwest Arctic Council members reported ongoing concerns about extensive user conflicts in Unit 23 prior to the closure of Federal public lands (NWARAC 2015). Council members have testified that these conflicts have confounded their ability to successfully harvest caribou for subsistence purposes in some areas, and that these conflicts have caused degradation to their subsistence lifestyle through landscape modifications (e.g. abandoned structures and trash; landing strips; ATV trails), herd diversion and positioning (e.g. pushing or scaring caribou with low-flying aircraft for hunting, sightseeing, photography and other purposes; creating camp structures along migratory paths), and hunting of lead caribou. Aircraft activity was of particular concern and includes operations by transporters, guides, "nonlocal" hunters utilizing personal aircraft, and recreational users. Specifically, aircraft in the vicinity of the Squirrel River was cited as particularly problematic (NWARAC 2015).

Concerning nonlocal hunting and herd diversion near the Squirrel River, one Northwest Arctic Council member described the situation as follows (NWARAC 2015:217):

> We're getting more and more sport hunters. There's 80 percent of sport hunters—pretty much close to 80 percent of all sport hunters goes into Noatak and Squirrel Rivers. That Squirrel River is like a corridor connected to Aggie [Agashashok River] and there's Kiana and the caribou come right through there. Come through the flats, then through the Noatak River. That's when we get in close to the village. We don't have to buy two, three drums of gas, which is worth 10 gallons, 15 gallons gas. That really helps us.
>
> That's what we've been doing for decades, years, centuries. This problem is not natural. Natural probably we can do nothing about, like the weather, climate change, but this problem is manmade. It's on our land. We're hurting. Our subsistence is in jeopardy. Well, I want to depend on these caribou very much. Very much. Too high a density of non-local hunters. That's the problem. That's not natural problem. That's manmade that can be fixed and that's what we're trying to fix. It seems to go right through from ear to ear. What I say here is going to go right out the door again? No. We want something done. We ask that down from the Aggie River and the Eli River to protect our subsistence, to protect our traditional culture.

Another Council member indicated that the Squirrel River area experiences high user conflict and requested that the BLM take additional action to address the issue. The Squirrel River Management Plan Scoping Report issued in September of 2011 includes public commentary specifically in reference to "the impacts of transporters, transported hunters, and commercially-guided hunters on subsistence and general hunting." (BLM 2011:18). Meetings held in urban areas (Anchorage and Fairbanks) elicited mixed responses to this question while meetings held in rural areas elicited primarily negative views of "nonlocal" hunter influence on caribou. Commentary between subsistence users and commercial operators were largely conflicting, whereby the former group tended to prefer greater regulatory restrictions on the latter group (BLM 2011). The efforts to develop the management plan were stopped when institutional boundaries shifted staff assignments from Fairbanks to Anchorage in 2013 (NWARAC 2017). Due to a multitude of ecological, sociological, and regulatory changes since plan development was initiated, BLM will likely reinitiate the planning process from the beginning (NWARAC 2017).

While commercial aircraft may contribute to the perceived modifications in herd movement, private planes are also thought to exacerbate the problem. According to Chairman Shiedt of the Northwest Arctic Council (NWARAC 2015:210):

> I think the majority of the problem now is happening these smaller planes, private-owned planes, are coming to Buckland and Noatak and Kiana and we're all blaming the transporters and outfitters. I'm not favoring them, but the other year too when I was at Kelly they were there from Interior. There were four planes when I was there. So maybe that's the problem we're having here.

Concerns were expressed by residents of Ambler, Shungnak, Noatak and Kobuk, as well as by members of the Northwest Arctic Council, that many nonlocal hunter practices clash with local hunting traditions such as shooting caribou for trophies or sport instead of food and wasting meat by letting it spoil in the field (Braem et al. 2015, NWARAC 2015, Halas 2015).

Concerns by residents of communities within Unit 23 were also recorded in the recent documentary "Counting on Caribou: Inupiaq Way of Life in Northwest Alaska" (Betcher 2016). Respondents from several communities expressed concern regarding food security as it pertains to caribou herd diversion and changes in migration routes. Several indicated that both small and large scale changes to migration routes are linked to "nonlocal" hunting activities, particularly low-flying aircraft. According to Lucy Nordlum of Kotzebue (Betcher 2016):

> We have many influences that play into us not getting certain subsistence foods. Hunters from outside to get their trophy caribou or whatever, that has impacted our area of hunting a lot. I would say in the past ten years we don't have the big migrations that we used to have. They are chased further back into the backcountry. That makes it hard for those of us that don't have airplanes or can't afford the gas. The costs are a lot for fuel now and that influences a lot of people getting out there and doing their hunting. A lot of the people go up to Onion Portage from Kotzebue to get their caribou. That's 500 miles or so away. It is hard with the caribou because that is about the only staple I really have besides fish.

Some of these concerns were somewhat substantiated by a mailed survey of 372 "nonlocal" hunters that were transporter clients on the Noatak National Preserve (Fix and Ackerman 2015). Eighteen percent of respondents reported that someone in their group shot at the first caribou they saw and less than half reported receiving information regarding "traditional local subsistence use," "subsistence areas to avoid," and "local traditional hunting." Most nonresidents reported that hunting for trophies was more important than hunting for meat while most Alaska residents reported hunting for meat as more important than hunting for trophies. Additionally, 58% of respondents reported they were not sure if they salvaged all edible meat. Similar to local hunters, nonlocal hunters reported encounters with other nonlocal hunters and airplanes as the two biggest factors detracting from their trip (Fix and Ackerman 2015).

Noatak hunters suggested allowing 1,000 caribou to pass before shooting, closing the Agashashok River corridor to nonlocal hunters, and appropriately spacing nonlocal camps (Halas 2015). Many of these suggestions cannot be enacted through the Board given the limits of its authority. However, more can be done by other Federal agencies and the State (i.e. establish a CUA along the Agashashok River, flexible caribou season opening date in response to annual migration timing) to address user conflicts and local concerns.

The Northwest Arctic Council considered submitting WSA16-01 as a first step in protecting the WACH. The Council indicated that they would revisit the success of the closure after one year and, if new population numbers continue to indicate declines, a request for closures on State lands would be a potential next step.

At the Northwest Arctic Council meeting in October 2016, many Council members and attendees expressed their perceptions of improved hunting conditions and success, although some expressed concern about the ability of urban-dwelling family members to hunt in the area (NWARAC 2016). One member of the Council shared his observations of the perceived effects of the closure (NWARAC 2016:70):

> But to hear a lot of these villages start to be success [sic] and that the time of peace has arrived and hopefully has stayed. You know, I've seen so many people, local people, who harvested caribou are so much at ease, comfort, to be able to fill their freezers, especially in Noatak, Kivalina. Kiana's now starting to harvest a bunch of them, Noorvik, you know, people from Kotzebue. It's the time of peace.

At the Board meeting in January 2017, several members of the Northwest Arctic Council expressed their gratitude for the closure and observations pertaining to it (FSB 2017). They perceived the closure as effective, indicating that people were happy – it saved them money on gas, it put food on the table, and it eased the user conflicts. The Council Chair explained that there would likely be a new closure request for the following regulatory year and asked the Board to support the Council's efforts, adding that "if we don't do something today or tomorrow, this herd will be gone." Another Council member expressed his concerns for food security in the region, noting "Our Dall Sheep dropped off the radar … Now our moose is on the decline, our caribou is on the decline, once those are gone, I don't know what else we're going to have." (FSB 2017:293).

At the Northwest Arctic Council meeting in March 2017, Council members continued to express contentment with the closure, increased hunting success for some communities, and decreased user conflict (NWARAC 2017). Two Council members expressed concern for communities in the Kobuk River area that seemingly experienced decreased harvest success due to caribou migration routes during the 2016/17 season. Another Council member expressed his concern that law enforcement was believed to only patrol Federal public lands and enforce the caribou closure during the fall migration but not during the winter.

There was also discussion on targeted closures or only closing portions of Unit 23 to caribou hunting by NFQU. One Council member stated that the closure was instituted to deal with conflicts in one drainage: "90 percent of the conflicts are on the Noatak River" (NWARAC 2017:105). Although not supported by the entire Northwest Arctic Council, the Council chair suggested only closing portions of Noatak NP, stating (NWARAC 2017:123):

> That way our relatives that live in Anchorage could go hunt toward Kiana or towards Selawik in the State and Federal lands. That way they won't be against the regulation that's out there. What I'm trying to say is only do that Noatak. That way we won't have any problems because the main problem is Noatak and Kivalina, is where the conflict is at.

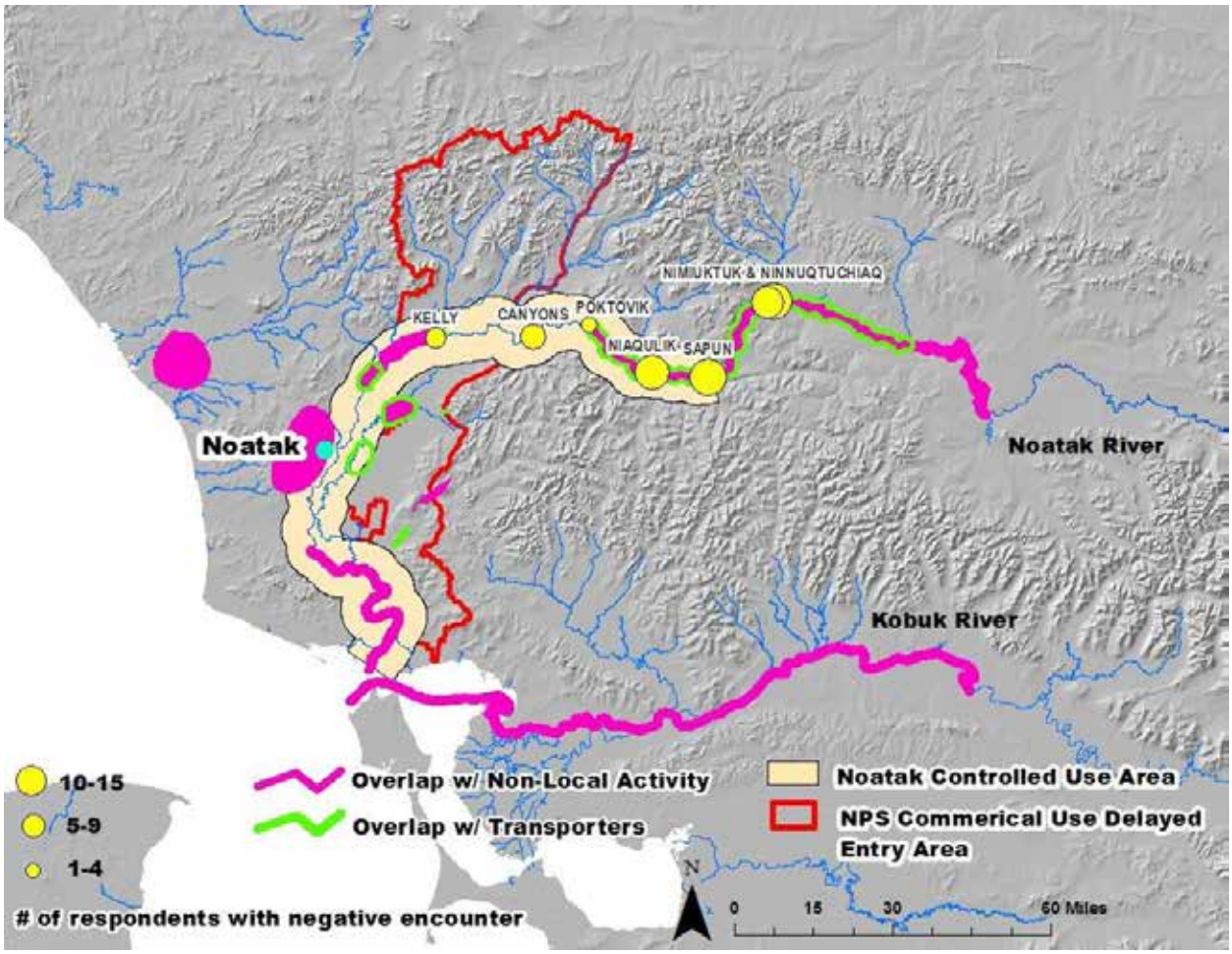
There is a long history of documented discussion on several important transmontane river corridors that are said to be crucial to supporting caribou migration along the western corridors of Unit 23. These drainages include the Noatak River, the Agashashok River, the Eli River, and the Squirrel River (NWARAC 2017). At the winter 2017 Northwest Arctic Council meeting, a motion was made to specifically close the passages through Agashashok, Eli, and Squirrel River drainages to NFQU since the current closure did not fully

close these drainages because of the checkerboard land status in these areas (**Map 6,** NWARAC 2017). The motion was later retracted because Federal public lands in these areas would be closed anyway under a unit-wide closure, and because the Board does not have authority to close hunting on State lands (NWARAC 2017). After retracting the motion, a Council member urged the Council to work with the BLM, NANA Regional Corporation, and the State to find a way to close these corridors to NFQU to ensure the successful migration of caribou (NWARAC 2017).

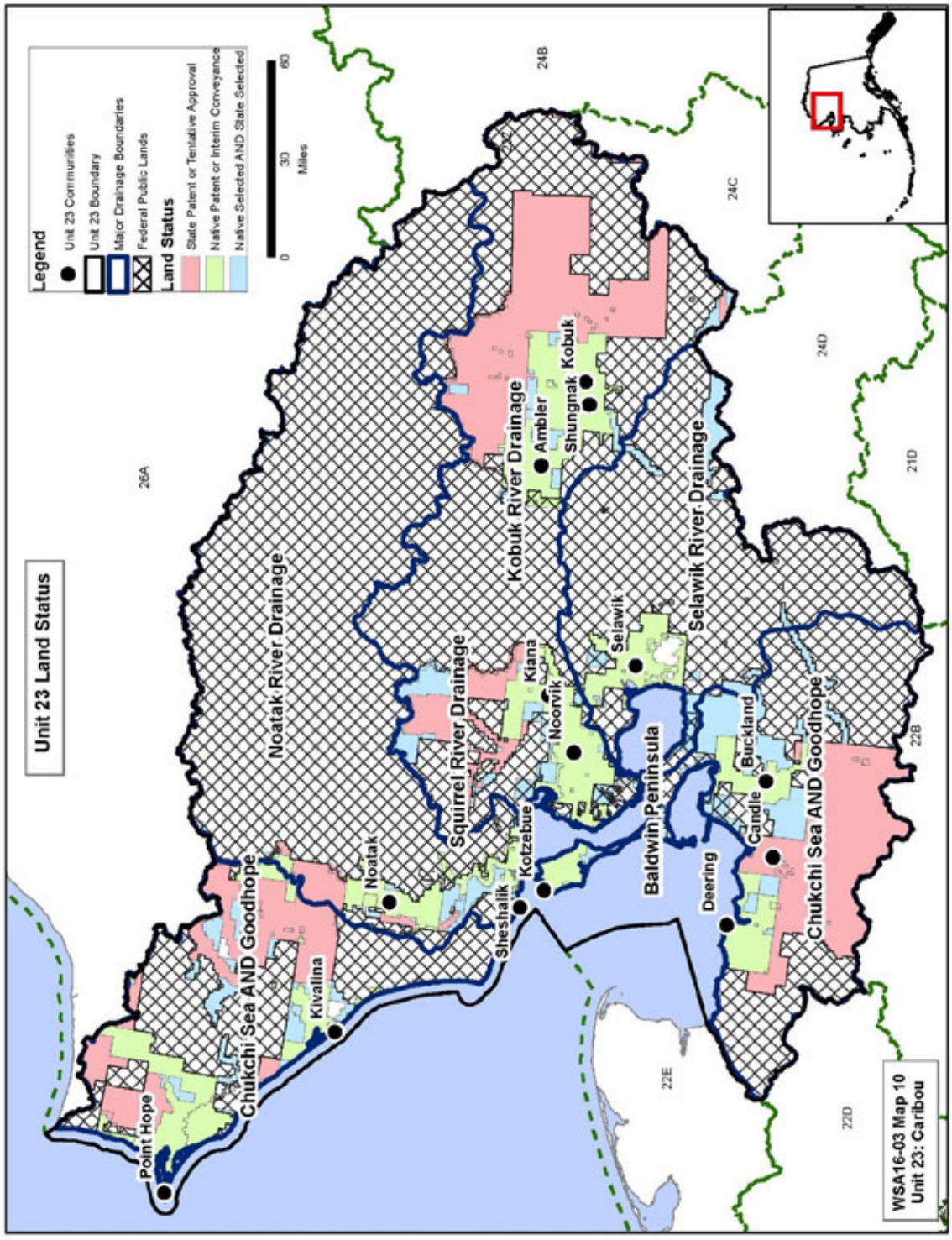
In response to WSA16-01, the Backcountry Hunters of Alaska created a video about nonlocal caribou hunting in Unit 23. In the video, Larry Bartlett (Chair of the Alaska Chapter) states that 90% of the caribou he has harvested in Unit 23 have been on gravel bars below the mean high water mark. The Federal lands closure does not apply to these areas, which are considered State lands. Bartlett observes several propeller planes fly near caribou and states that he is convinced airplanes do not disturb caribou. He also demonstrated the extreme amount of time and effort necessary to preserve harvested meat in a remote area for several days in warm weather (BHA Alaska 2017). Because some hunters may not have the skills necessary to preserve meat for extended periods in remote areas, this may have led to local resident observations of meat spoilage among some NFQU. The observations, hunting practices, and experiences contained within the video are those of a single user and do not represent all NFQU.

In response to WSA17-03, members of the public offered several observations, comments and concerns regarding the proposed closure at the public meetings held in Nome, Kotzebue, and Barrow (OSM 2017). Many Unit 23 residents testified in support of the closure while many people residing outside of the unit testified in opposition. Many comments in support of the request emphasized how vital caribou is for people's survival in the Northwest Arctic and how people cannot afford the extreme cost of store bought meat and fuel. Comments in opposition emphasized a lack of biological reason for closing to NFQU and that special actions are not the appropriate process for closures.

While the Board's endorsement of the WACH Management Plan is not legally binding, the Plan provides guidelines and recommendations for herd management that were developed and supported by a wide variety of stakeholders. Two of the WACH Management Plan's recommendations under preservative management are possible closure of some Federal public lands to NFQU and restricting harvest to Alaska residents only. However, the WACH population is currently on the line between conservative and preservative management (**Table 1**). Additionally, the Plan suggests closure of some Federal public lands, not all of them. However, the WACH Working Group voted to submit WP18-46, which seems to contradict its own plan. Currently, nonresidents may harvest caribou under State regulations. As the Board does not have authority to restrict only NFQU residing outside Alaska, any restrictions to only nonresident caribou hunting must be enacted by the BOG.



Map 5. Areas of overlap use between 19 Noatak interview respondents and "nonlocal users." Green lines and polygons delineate overlap areas with observed transporters. Notes: Pink lines and polygons are "nonlocal" users observed in the area that overlapped with local hunters. Yellow circles represent the number of respondents who had a negative encounter with ""nonlocals" in specified locations. Respondents could identify more than one location. Respondents were asked to report encounters over the last five years (Halas 2015).



Map 6. Land status within Unit 23 as per data obtained from the Bureau of Land Management on July 27, 2016.

Harvest History

The State manages the WACH on a sustained yield basis (i.e. managing current harvests to ensure future harvests). The harvestable surplus when the WACH population is declining is calculated as 6% of the estimated population (WACH working group 2011, Parrett 2017, pers. comm.). In recent years, as the WACH population has declined, the total harvestable surplus for the WACH has also declined (Dau 2011, Parrett 2015a). In 2016, the WACH harvestable surplus was 12,056 caribou (6% of 200,928 caribou). This is down from a harvestable surplus 14,085 caribou in 2013 when the WACH numbered approximately 234,757 caribou. While there is substantial uncertainty in harvestable surplus estimates, it is likely that sustainable harvest will soon be exceeded (Parrett 2015a, Dau 2015a). Of particular concern is the overharvest of cows, which has probably occurred since 2010/11 (Dau 2015a). Dau (2015a:14-29) states, "even modest increases in the cow harvest above sustainable levels could have a significant effect on the population trajectory of the WACH."

Harvest from the WACH, which has remained fairly consistent since 1990, now represents a larger proportion of the annual mortality. This is one of the factors that prompted the BOG and the Board to enact restrictions on WACH harvest in March 2015 and April 2016, respectively. These regulatory restrictions addressed recommendations in the WACH working group's management plan under conservative management (i.e. prohibiting the take of calves, shortening seasons, decreasing harvest limits) (**Table 1**). The recommendation most germane to this analysis is under preservative management and is to restrict harvest "to residents only, according to state and federal law. Closure of some federal lands to nonqualified users may be necessary," which is under preservative and critical management levels (WACH Working Group 2011: 46-47).

Caribou harvest by local hunters is estimated from community harvest surveys, if available, and from models developed by A. Craig with ADF&G's Division of Wildlife Conservation Region V. These models incorporate factors such as community size, availability of caribou, and per capita harvests for each community (Dau 2015a). In 2015, Craig's models replaced models developed by Sutherland (2005), resulting in changes to local caribou harvest estimates from past years. While Craig's models accurately reflect harvest trends, they do not accurately reflect actual harvest numbers (Dau 2015a). (Note: no model accurately reflects harvest numbers). This analysis only considers the updated harvest estimates using Craig's new model as cited in Dau (2015a). Caribou harvest by nonlocal residents and nonresidents are based on harvest ticket reports (Dau 2015a).

Local and nonlocal hunters are defined in ADF&G management reports as living within and outside the range of the WACH, respectively. FQSU and NFQU are close, but not identical, to local and nonlocal hunters, respectively. Residents of Galena, Wiseman, and several communities on the western Seward Peninsula are FQSU, but are not considered local hunters by ADF&G as they are outside the range of the WACH by definition (**Map 1**).

From 2000–2014, the average estimated total harvest from the WACH was 11,984 caribou/year, ranging from 10,666-13,537 caribou/year (Dau 2015a, **Figure 6**). These harvest levels are within or below the

conservative harvest level specified in the WACH Management Plan (**Table 1**). However, harvest estimates do not include wounding loss, which may be hundreds of caribou (Dau 2015a).

Local hunters account for approximately 95% of the total WACH harvest and residents of Unit 23 account for approximately 58% on average (**Figure 7**, ADF&G 2017c). Comparison of caribou harvest by community from household survey data (**Appendix 1)** with **Figure 1** demonstrates that local community harvests parallel WACH availability rather than population trends. For example, Ambler only harvested 325 caribou when the WACH population peaked in 2003, but harvested 685 caribou in 2012 when most of the WACH migrated through eastern Unit 23. Similarly, Noatak only harvested 66 caribou in 2010 when no GPS-collared caribou migrated through western Unit 23. Harvest increased substantially (360 caribou) the following year when 37% of the GPS-collared caribou (and thus, a greater proportion of the WACH) migrated through western Unit 23.

On average, 76% of WACH caribou harvested by nonlocals are taken in Unit 23. From 2001-2013, total and Unit 23 nonlocal WACH harvest averaged 598 caribou/year and 456 caribou/year, respectively (**Figure 8**). In recent regulatory years (2012/13–2013/14), numbers of nonlocal hunters are slightly lower, partially because transporters have had to travel further to find caribou and thus, could not book as many clients (Dau 2015a).

Between 1998 and 2014, the number of NFQU hunting caribou and the number of caribou harvested by NFQU in Unit 23 averaged 487 hunters (range: 404-662) and 511 caribou (range: 248-669), respectively (**Figure 9,** ADF&G 2016c, FWS 2016). In 2015, after the BOG enacted restrictions, the number of NFQU and caribou harvested by NFQU decreased appreciably (340 hunters and 230 caribou). In 2016, during the closure of Federal lands to NFQU, the number of NFQU and caribou harvested by NFQU decreased even further (149 hunters and 111 caribou), although there may still be some outstanding 2016 harvest reports from nonlocal residents (**Figure 9,** WINFONET 2017). Based on patterns in submission rates and timing of harvest reports, the State estimates a 50% reduction in the number of and harvest by nonlocal caribou hunters in Unit 23 during 2016/17 as a result of the closure (Parrett 2016b , ADF&G 2017d).

The major river drainages in which NFQU people hunt and harvest caribou are included in most (~90%) harvest reports (WINFONET 2017). This data can be used to compare caribou harvest and hunting intensity (measured as the number of hunters) by NFQU across Unit 23 at coarse (major river drainage) scales. At the coarse scale, cumulative caribou harvest and hunting intensity by NFQU from 2005-2014 was highest in the Noatak River drainage (**Maps 7, 8**). While the total number of nonlocal hunters and harvest decreased in 2016 due to the Federal lands closure, the Noatak River Drainage still experienced the highest relative hunting intensity (WINFONET 2017, **Map 9**).

From 1999-2013, 72% of nonlocal hunters on average accessed hunting locations for the WACH by plane (~435 hunters/year). Most nonlocal harvest (85-90%) occurs between Aug. 25 and Oct. 7. In contrast, most local, subsistence hunters harvest WACH caribou whenever they are available using boats, 4-wheelers, and snowmachines (Dau 2015a, Fix and Ackerman 2015). In Unit 23, caribou are generally

available during fall migration. The temporal concentration of nonlocal hunters during times of intensive subsistence hunting is responsible for user conflicts in Unit 23 (Dau 2015a).

In 2015, approximately 60% of nonlocal hunters in Unit 23 used a transporter service, 10% used a guide, and 30% used no commercial services (Unit 23 Working Group 2016). In the Noatak NP, nonlocal transporter clients primarily consist of nonresidents and Alaska residents from urban areas such as Anchorage, Fairbanks, and communities on the Kenai Peninsula (Fix and Ackerman 2015, ADF&G 2016c).

The number of transported hunters within Selawik NWR has decreased since 2000 (**Figure 10,** FWS 2017). Since 1993 the highest harvests of caribou by transported hunters occurred from 1997-2000 when an average of 118 caribou were taken each year. In the past 10 years (2007-2016), the number of caribou harvested by transported hunters has decreased to an average of 12 caribou per year (**Figure 11,** FWS 2017). According to the Refuge Manager, the decline in caribou harvest is "mainly the result of caribou no longer being reliably available on the Refuge in September due to delayed migration" (Georgette 2016, pers. comm.).

Conversely, the number of transported hunters in the Noatak NP increased from about 70 in 2004 to over 400 in 2014 (**Figure 12**, Ackerman 2015, Fix and Ackerman 2015). In 2015, approximately 319 hunters were transported into Noatak NP (Braem 2017, pers. comm.). From 2004-2014, transported hunters comprised 68% of all air arrivals in Noatak NP on average. If private planes are included, hunters comprise 78% of the Preserve's annual visitors on average. Additionally, hunters generally access the Preserve over a 70 day period (Aug 1-Oct. 10), compressing peak visitation to a few months (Ackerman 2015). In a survey of 372 sport hunters in the Noatak NP from 2010-2013, 62% of groups harvested caribou with the average harvest being 1.8 caribou per group member (Fix and Ackerman 2015).

In 2016, five guides and four transporters were permitted to operate on BLM lands in Unit 23 (Seppi 2017, pers. comm.) One guide transported moose and brown bear clients only. Two of the transporters did not operate in Unit 23 during 2016, and the remaining permit holders did not report any 2016 operations, likely because they did not operate on BLM lands in 2016 (Seppi 2017, pers. comm.). In 2015, eight guides and four transporters received permits. For the Squirrel River area, six guides and five transporters were permitted. Only five post-use reports were received and harvest totals included a single caribou (Seppi 2016, pers. comm.). In 2014, guides and outfitters brought in 22 clients and none harvested caribou; transporters brought in five clients who harvested 13 caribou (NWARAC 2015:207).

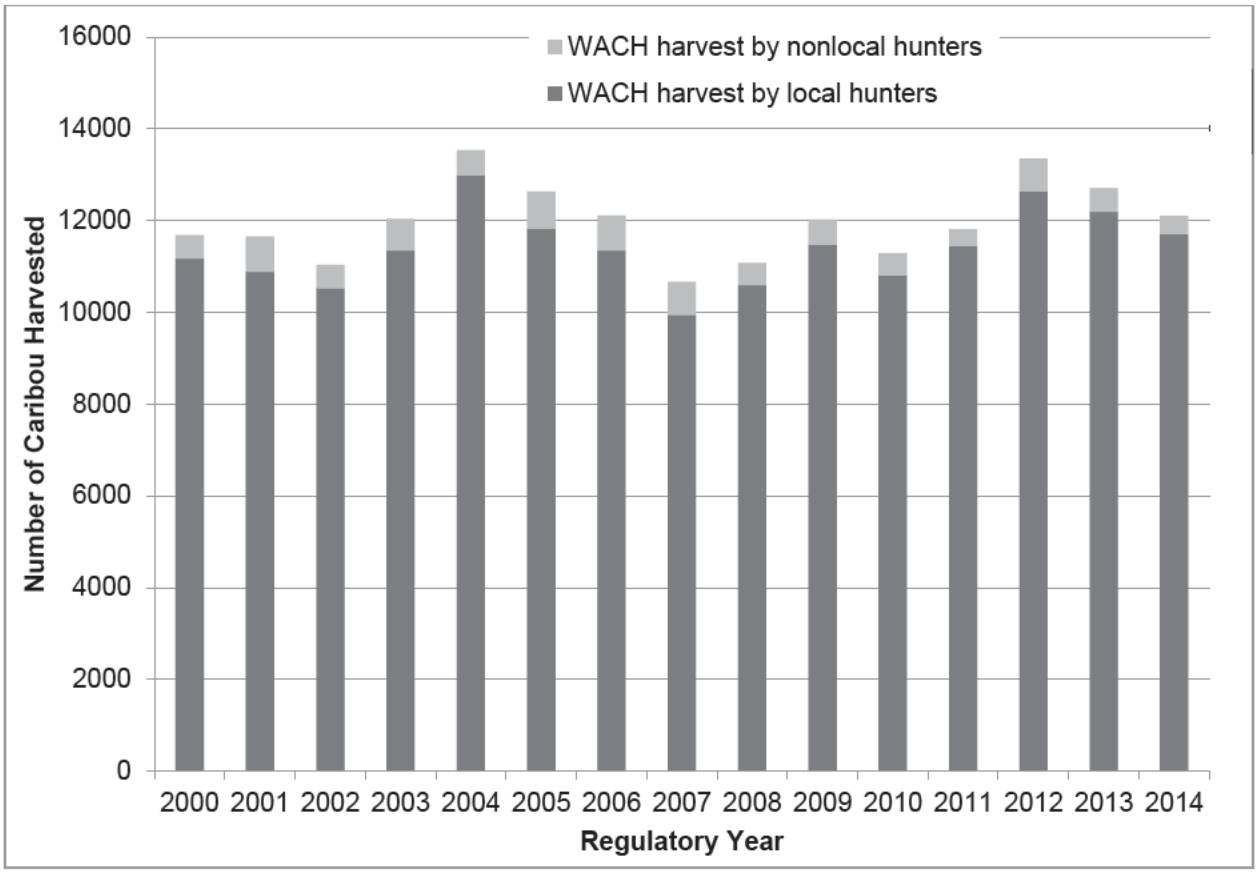


Figure 6. Estimated number of caribou harvested from the WACH by residency (Dau 2015a).

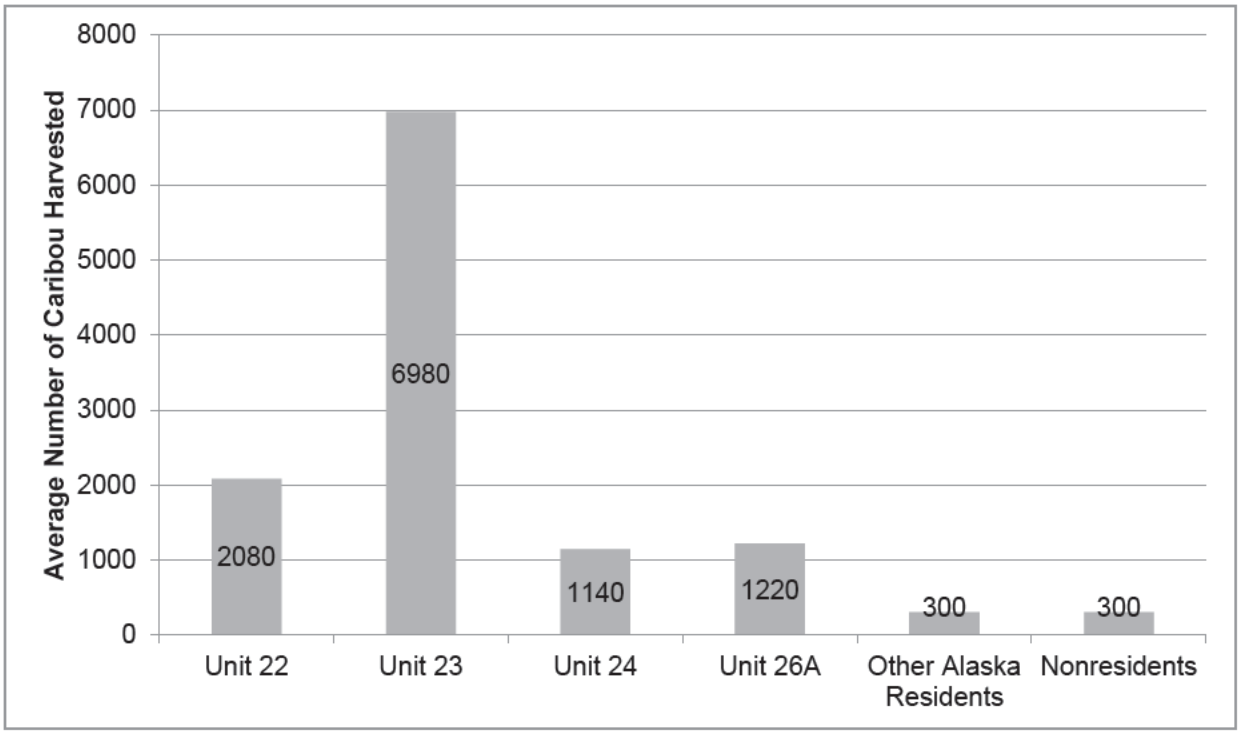


Figure 7. Average number of caribou harvested by unit and residency from 1998-2015 (ADF&G 2017c).

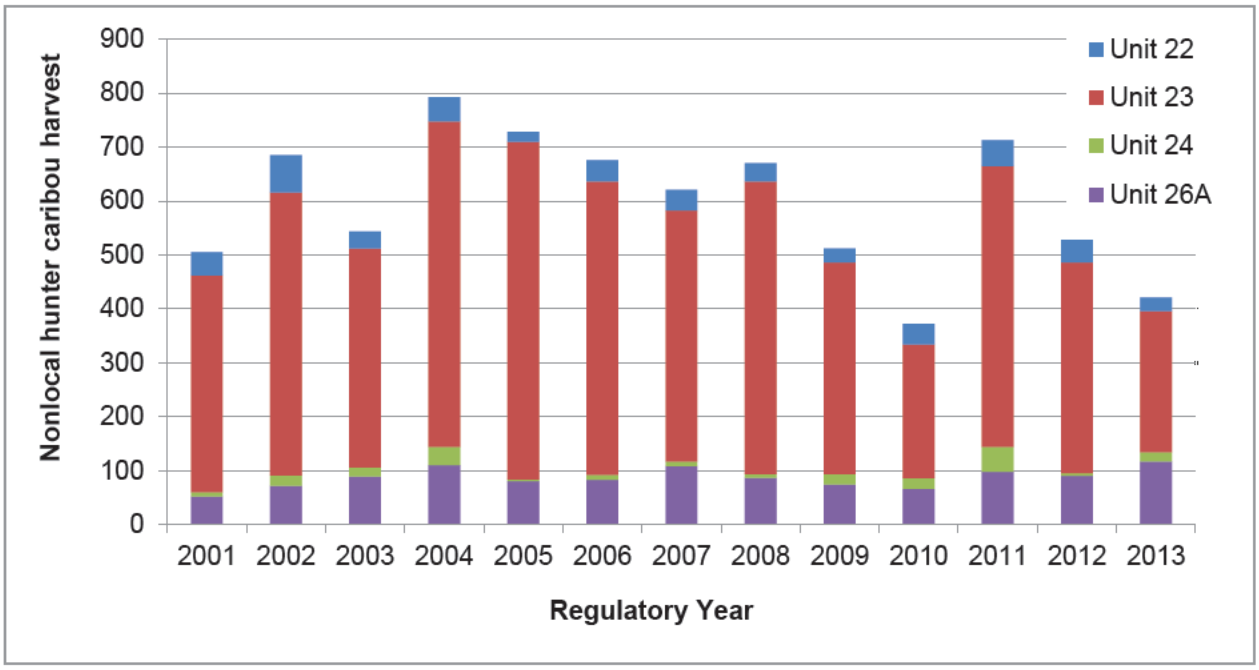


Figure 8. Nonlocal WACH harvest by unit (Dau 2015a, Dau 2013). Unit 21D was not included as only 0-2 caribou have been harvested from this unit each year.

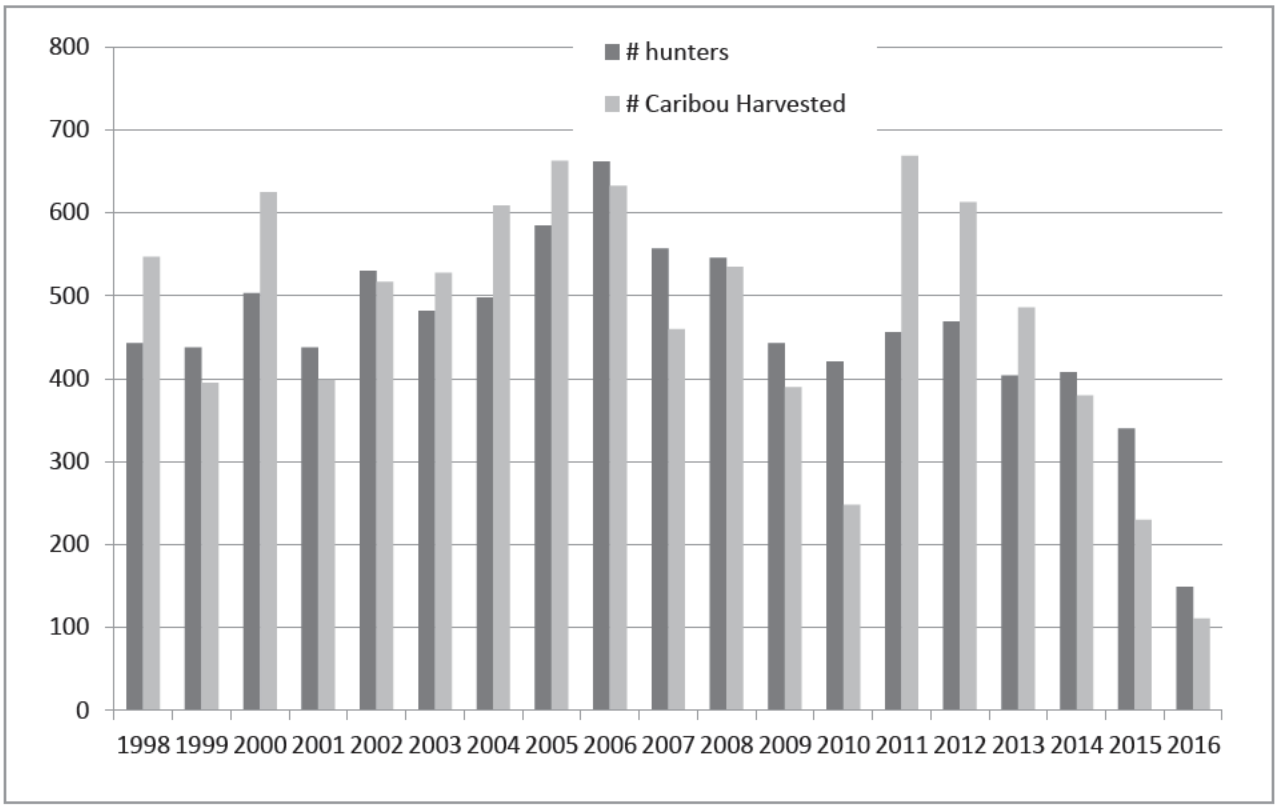


Figure 9. Number of non-Federally qualified users (NFQU) and number of caribou harvested by NFQU in Unit 23 (ADF&G 2016c, FWS 2016, WINFONET 2017).

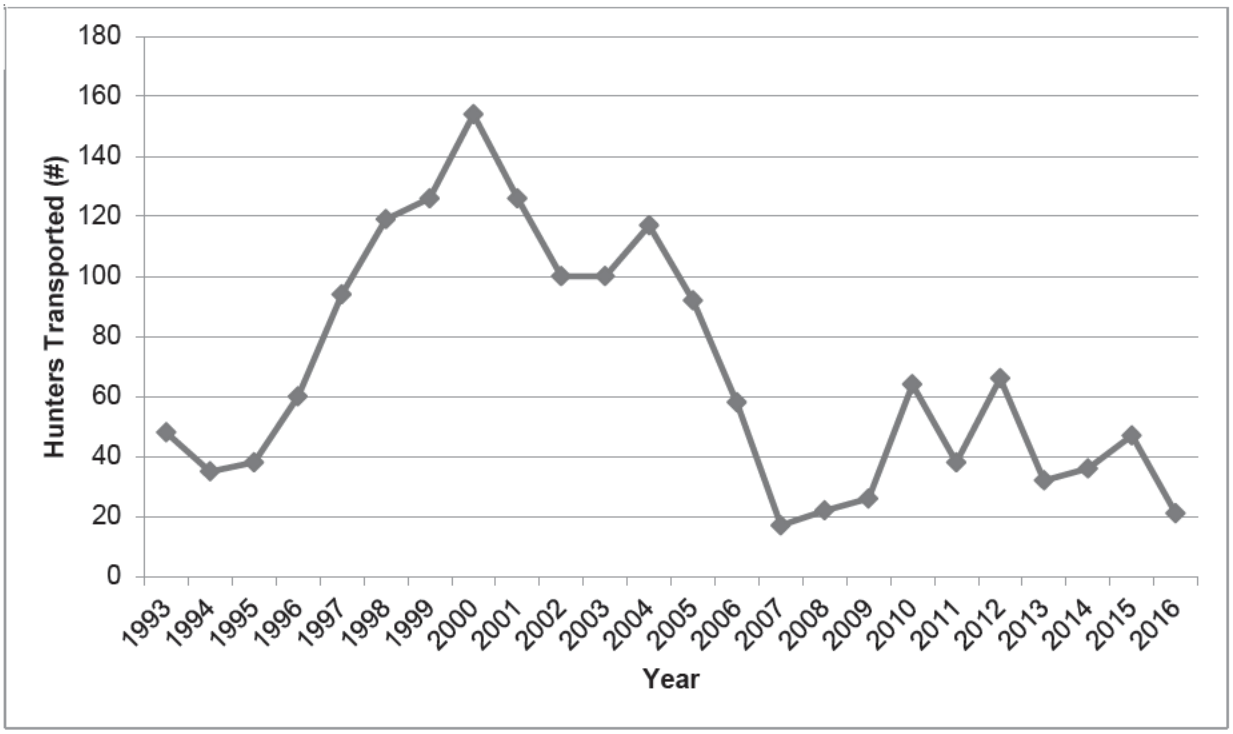


Figure 10. Number of hunters transported by aircraft transporters on Selawik National Wildlife Refuge (FWS 2017)

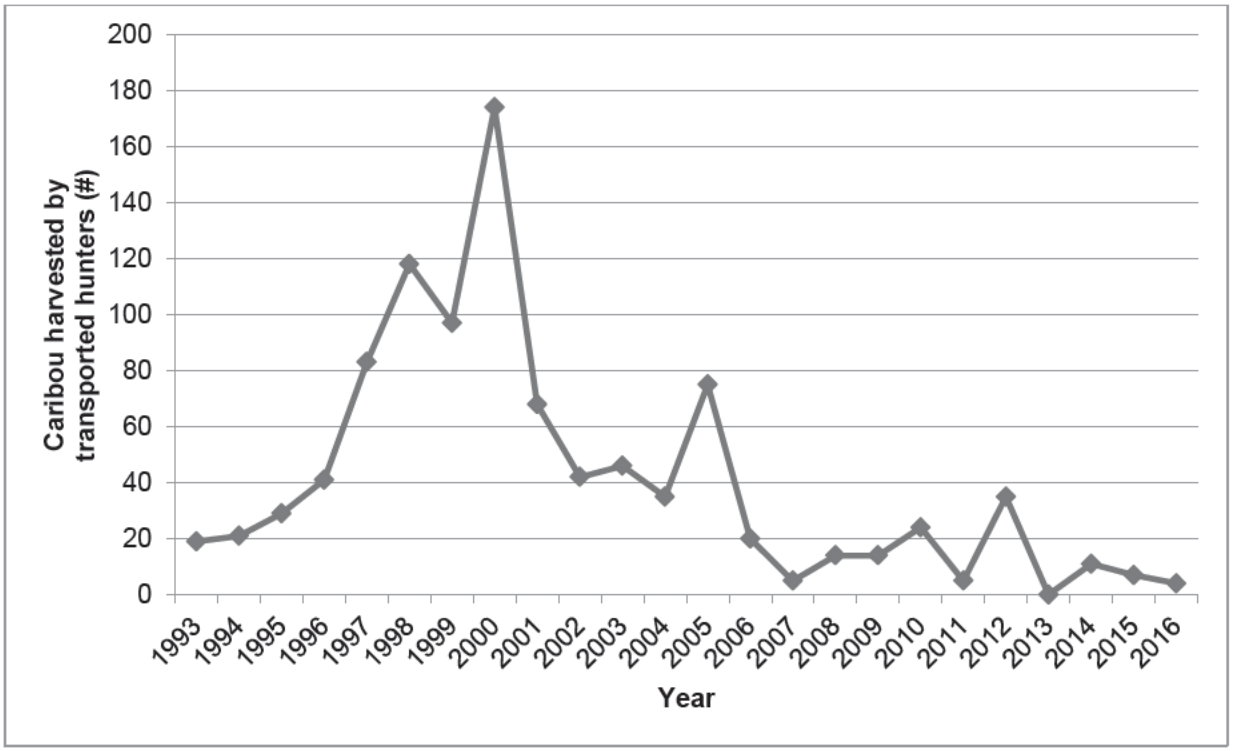


Figure 11. Number of caribou harvested by hunters transported by aircraft transporters on the Selawik National Wildlife Refuge (FWS 2017).

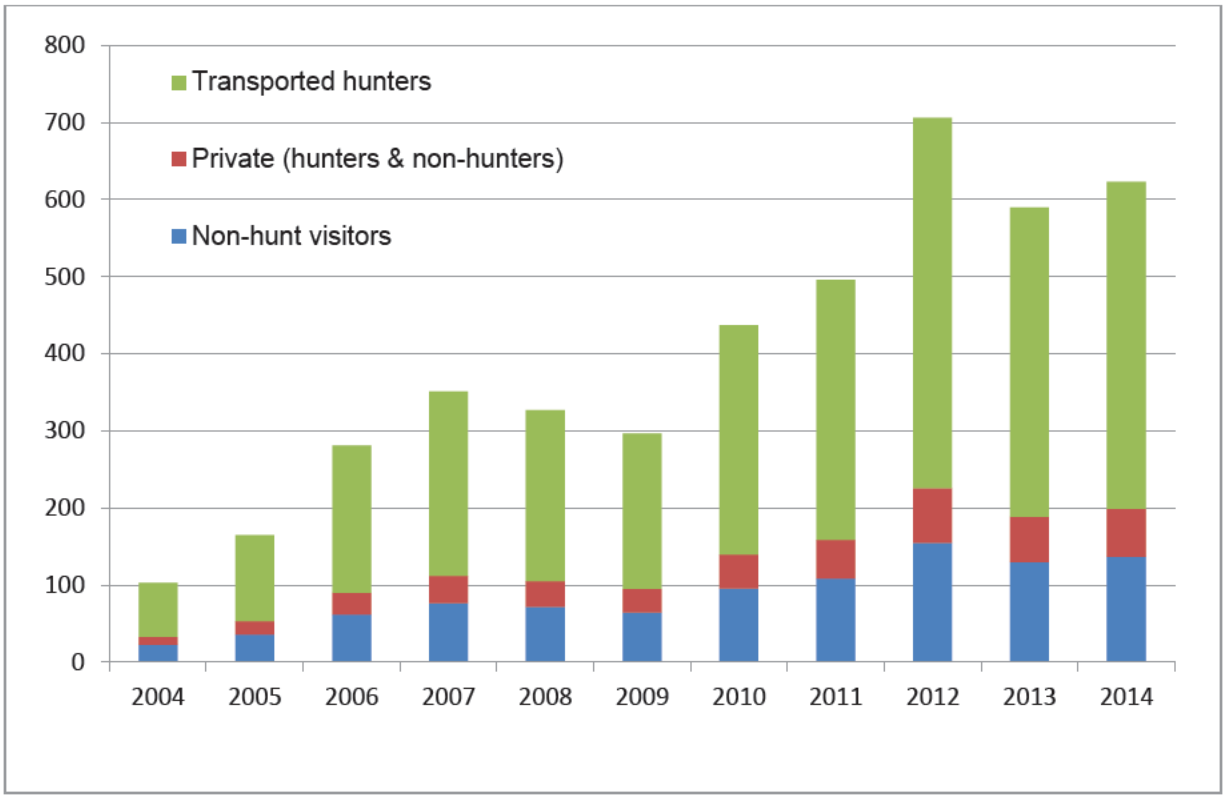
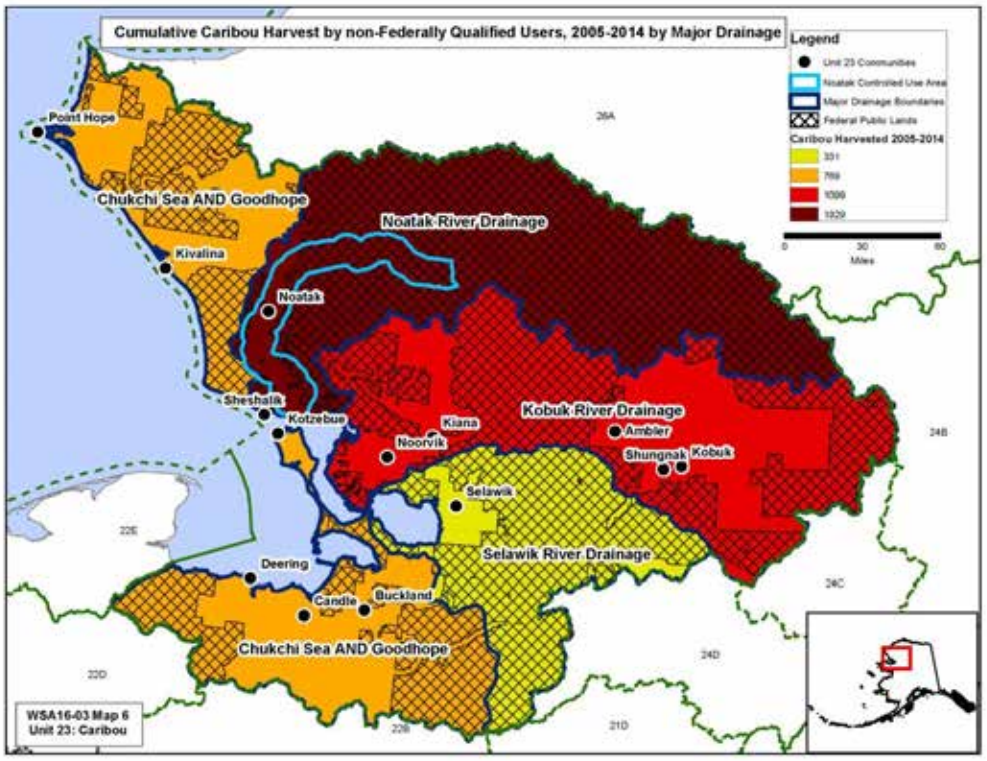
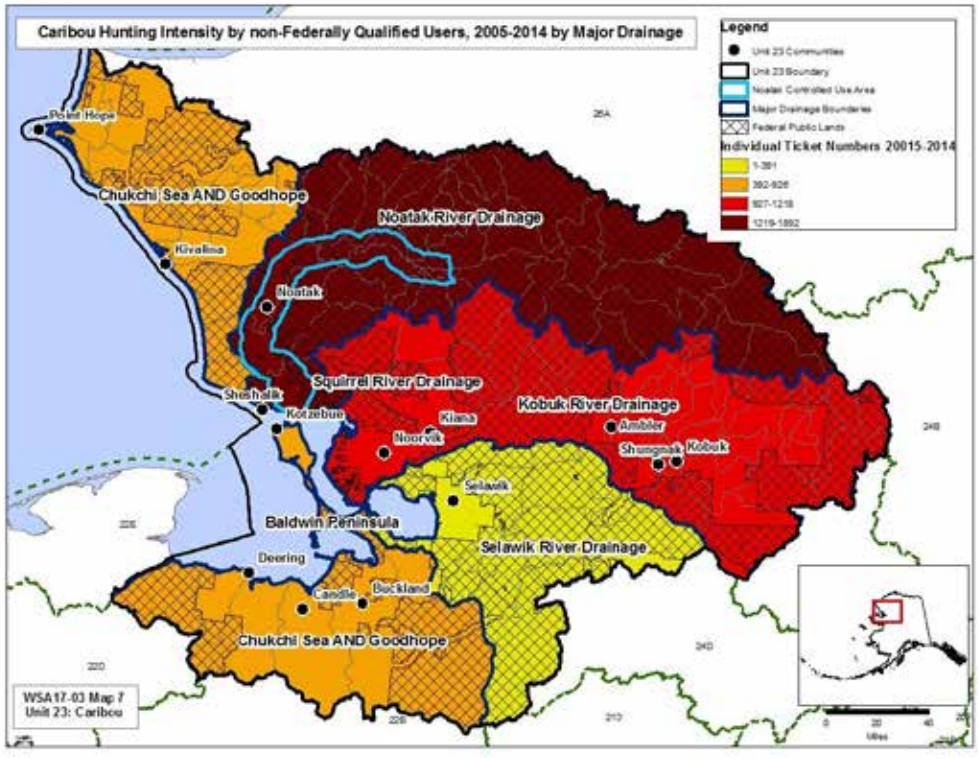


Figure 12. Noatak National Preserve recreation visitors arriving by air (Ackerman 2015). The number of visitors accessing Noatak NP by private planes is extrapolated.



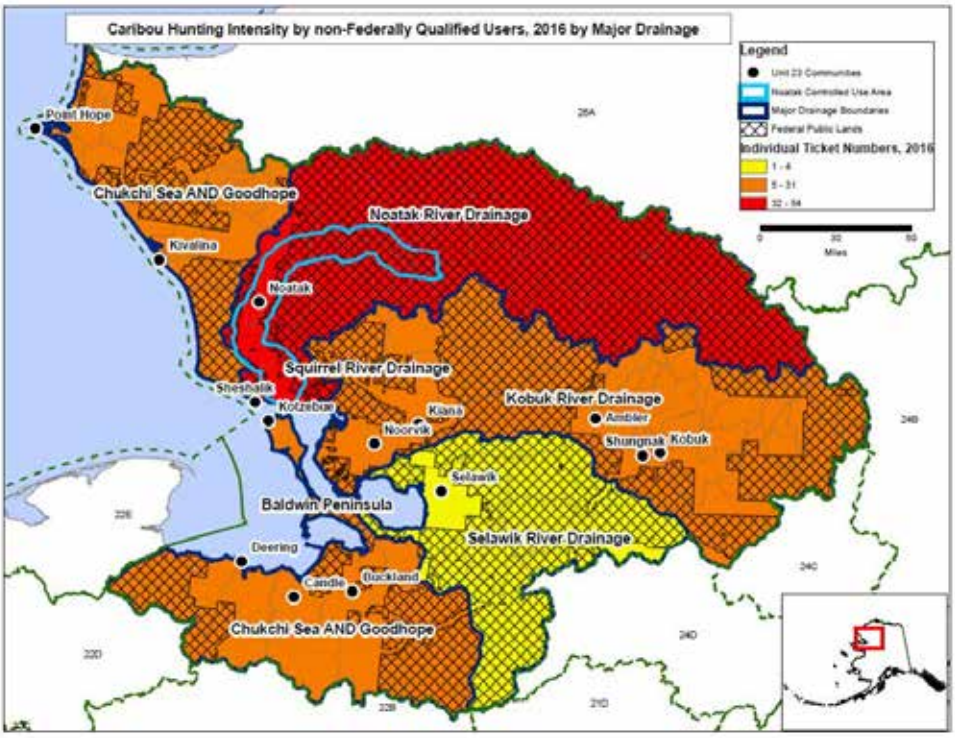
a.

Map 7. Cumulative caribou harvest by non-Federally qualified users in Unit 23 by major (n=4,128) river drainage from 2005-2014 (WINFONET 2017).



a.

Map 8. Cumulative caribou hunting intensity (number of hunters) of non-Federally qualified users by major (n=4,427) river drainage from 2005-2014 (WINFONET 2017).



a.

Map 9. 2016 cumulative caribou hunting intensity (number of hunters) of non-Federally qualified users by major (n=117)) river drainage (WINFONET 2017).

Other Alternatives Considered

User conflicts and related concerns over possible effects of NFQU hunting activity on caribou migration in Unit 23 occur more frequently in some areas than in others. The Noatak River corridor upstream from Noatak to the confluence of the Cutler River has repeatedly been identified as a high user conflict zone (**Map 5**, ADF&G 2017b, Halas 2015, Fix and Ackerman 2015, NWARAC 2015, 2016, 2017, FSB 2017). Other areas within Unit 23 such as the Squirrel River drainage, along the Upper Kobuk River, and other areas within Noatak NP such as the Eli and Agashashok (Aggie) Rivers have also been identified as areas experiencing user conflicts (Fix and Ackerman 2015, NWARAC 2015, 2017). Conversely, user conflicts are rarely identified on Selawik NWR, Gates of the Arctic National Preserve, Bering Land Bridge National Preserve, and BLM lands outside of the Squirrel River Drainage. Due to this discrepancy in user conflict, a partial Federal public lands closure may be more appropriate and more effective than a unit-wide Federal lands closure. The areas discussed below are the same ones recommended for closure by the Unit 23 Interagency Group.

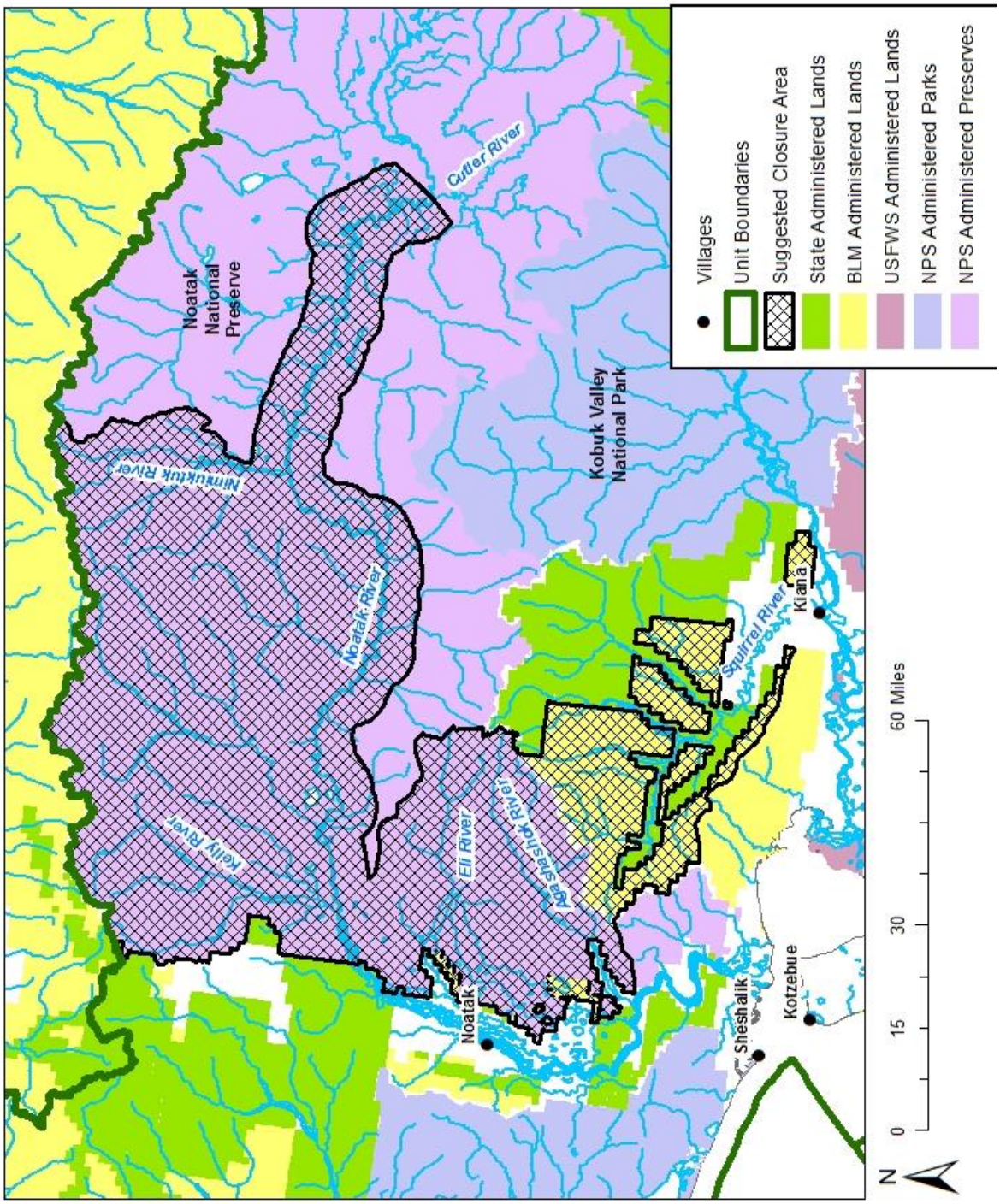
One alternative considered is to close Federal public lands within a 10-mile corridor along the Noatak River from the western boundary of Noatak NP upstream to its confluence with the Cutler River (**Map 10**). A ten mile corridor (5 miles either side) was selected since that is the width of the Noatak CUA. The Cutler River was selected because that is the extent of overlap between local and nonlocal hunters identified by Halas (2015, **Map 5**) as well as the upstream boundary of the Noatak CUA extension proposed by the Noatak/Kivalina and Kotzebue AC's in Proposal 44 (ADF&G 2017b). Additionally, the possibility of

only closing Federal public lands along the Noatak River downstream from its confluence with Sapun Creek was suggested by the Northwest Arctic Council Chair in order to provide urban-dwelling relatives greater hunting opportunity and because the main user conflict issues surround Noatak and Kivalina (NWARAC 2017:123-124). Furthermore, the Northwest Arctic Council stated in its 2016 annual report that the 2016 Federal lands closure to caribou hunting by NFQU reduced user conflicts and improved caribou harvest by FQSU in the vicinity of Noatak. Public testimony at the WSA17-03 public hearings also indicated that the majority of user conflicts occur in the Noatak area.

Closing Federal public lands along the Aggie and Eli rivers was also considered (**Map 10**). The retracted motion at the winter 2017 Northwest Arctic Council meeting which specifically requested closing the mountain passages in these areas to facilitate caribou migration and reduce user conflicts, highlights the importance of this area to local hunters.

Closing Federal public lands north of the Noatak River between (and including) the Kelly and Nimiuktuk River drainages was also considered as most user conflicts occur near Noatak (**Map 10**). These drainages provide migratory corridors that funnel caribou to the Noatak River where they are intercepted by local hunters. A concern commonly repeated by local hunters, particularly from Noatak (i.e. Halas 2015) is the effect of airplanes and nonlocal hunters on caribou migration. The long-held Inupiaq tradition of letting lead caribou pass unmolested in order to establish migration routes also suggests that once migration routes are established, other caribou will follow regardless of hunting or other disturbances such as airplanes (Dau 2015a). Perhaps a more appropriate response in this area would be to establish another CUA or delayed entry zone where NFQU would not be able to hunt until migration routes are clearly established. As caribou migration has become less predictable in recent years, often occurring later in the season (Dau 2015a), the dates for the new CUA would need to be flexible. However, temporal closures are beyond the scope of this request and may be more effectively implemented by NPS. Therefore, complete closure of this area may be warranted. However, closing the western portion of Noatak NP may have the unintended consequence of concentrating nonlocal caribou hunters in the eastern portion of the preserve.

Closing Federal public lands within the Squirrel River drainage was also considered. As there are no Federal public lands along the lower Squirrel River near Kiana, only the middle and upper reaches of the Squirrel River were considered. Along these sections, the vast majority of lands immediately along the Squirrel River (~0.5-1 mile either side) are State lands (**Map 6**). Therefore, it is uncertain whether closure of Federal lands in this area would discourage nonlocal hunters or just concentrate them in the narrow State-owned corridor, adding to user conflicts. The Northwest Arctic Council discussed making a motion to close only the Squirrel River area at its fall 2015 meeting, indicating the severity of the user conflicts in this area (NWARAC 2015). Closure of Federal public lands in the Squirrel River drainage would demonstrate the Board's responsiveness to FQSU concerns and may provoke action by other agencies (i.e. State).



Map 10. Suggested targeted closure of Federal public lands to caribou hunting by NFQU.

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Effects of the Proposal

If WP18-46 or WP18-47 is adopted, caribou hunting on Federal public lands in Unit 23 would be closed to NFQU under Federal regulations indefinitely or for two regulatory years, respectively. Regulatory year 2018/19 would be the third consecutive year of a closure. In 2016/17, all Federal lands were closed by WSA16-01 while in 2017/18, only lands along the Noatak, Agashakok, Eli, and Squirrel Rivers were closed via WSA17-03.

In 2015, the State shortened bull and cow seasons for residents, prohibited the take of calves, and reduced the nonresident harvest limit. These recent regulation restrictions were enacted to reduce the impact of both resident and nonresident hunters on the WACH. In 2015, both the number of NFQU and number of caribou harvest by these users decreased appreciably, suggesting the regulatory changes were effective (**Figure 9**). However, the 2016/17 Federal closure to NFQU confounded further evaluation of these changes. Considering the substantial reduction in NFQU density and harvest in 2016/17, adoption of these proposals is expected to result in similar numbers of NFQU and harvest that are well below long-term averages (**Figure 9**). Preliminary data from harvest reports in 2016 indicate that the 2016/17 closure may have reduced nonlocal caribou harvest by 50% or more (Parrett 2016b, WINFONET 2017). While the overall number of nonlocal hunters and caribou harvest decreased in 2016/17, the relative distribution remained similar with the highest use in the Noatak (**Maps 7-9**).

While the sustainable harvest of WACH caribou may soon be (or has already been) exceeded, the overharvest of cows is of particular concern (Dau 2015a). As nonresidents may only harvest one bull, their impact on the herd's population trajectory is negligible. Total nonlocal harvest from Unit 23 accounts for only about 4% of the total WACH estimated harvest (456 caribou out of an estimated total harvest of 11,984 caribou on average) or 0.2% of the 2016 population estimate (200,928 caribou). From a biological perspective, reducing harvest by <4% (nonlocal harvest will still occur on State lands within Unit 23) will not have a meaningful impact on WACH conservation or population recovery. Indeed, wounding loss may account for more caribou mortalities than nonlocal harvest.

Concerns over the impact of sport hunting activities on caribou migration have also been expressed. Aircraft can affect caribou behavior in the short-term (< 8 hours), which can impact hunting success. However, aircraft are unlikely to have long-term impacts on caribou migration through the Noatak NP (Fullman et al. 2017, Halas 2015, Dau 2015a). The WACH have migrated through Unit 23 for thousands of years, although specific migration routes change annually (**Figure 1**). The long-held Inupiaq tradition of letting lead caribou pass unmolested in order to establish migration routes also suggests that once migration routes are established, other caribou will follow regardless of hunting or other disturbances such as airplanes (Dau 2015a). Adoption of these proposals would reduce airplane traffic within Noatak NP and may allow lead caribou to establish migration routes unmolested, precluding any potential migratory diversions.

Adoption of these proposals may also concentrate nonlocal hunters onto State lands, which only comprise 19% of Unit 23 (**Map 6**). Consequently, user conflicts may increase on State lands, particularly along the

Squirrel and upper Kobuk Rivers. However, there were no reports of concentrated nonlocal hunting activity on State lands affecting local harvest during the 2016/17 closure (ADF&G 2017d). Additionally, NFQU would need to distinguish between State and Federal lands. Due to the checkerboard pattern of land ownership in some areas of Unit 23 (i.e. Squirrel River area, **Map 6**), distinguishing land status is difficult and may increase law enforcement concerns. NFQU may also be displaced onto Federal public lands in adjacent units (i.e. Unit 26A), which could impact hunting and harvest in those units. During the 2016/17 Federal lands closure in Unit 23, nonlocal caribou harvest in Unit 26A increased 40%, although the average number of nonlocal hunters in Unit 23 is five times greater than in Unit 26A (ADF&G 2017d). However, NANA shareholders residing in urban areas would still be able to hunt on NANA lands under State regulations.

While the number of people and planes on Federal public lands would likely decrease substantially, user conflicts would not be fully eliminated since other users (i.e. moose hunters, photographers, recreational boaters, private planes) would still be able to fly over and access Federal public lands. Additionally, NFQU would still be able to access and harvest caribou on gravel bars below the mean high water mark within Federal public lands as these areas are considered State land. Reports from law enforcement and nonlocal hunters indicate caribou are commonly harvested on such gravel bars, which may suggest limited impacts of the closure as river crossings are where conflicts most often occur (**Map 5**, Stevenson 2017, pers. comm., BHA Alaska 2017). Attempts to mitigate user conflicts in Unit 23 have already been implemented by the NPS (delayed entry zone in Noatak NP), ADF&G (Noatak CUA), and Selawik NWR (closure of certain areas to commercial use). However, more can be done by individual agencies to further address user conflict (e.g. establishing new CUAs in high conflict areas, modifying the dates and extent of the NPS delayed entry zone, further restricting the number and activities of permitted transporters and guides, additional education and outreach, etc.).

Adopting these proposals may result in increased subsistence opportunity for FQSU. Reducing competition with and potential disturbance from nonlocal hunters may increase their hunting success and efficiency. Local residents recognized positive effects from the 2016/17 closure to caribou hunting by NFQU in Unit 23. The Noatak Native Village Council as well as students at the Noatak school submitted letters to the Board expressing their appreciation of the closure, citing higher harvest success. Public testimony from local residents in support of the closure was received during public meetings for WSA16-03 and WSA17-03 as well as the Board's deliberation on WSA16-03 (FSB 2017). Reports from regional law enforcement indicated that during the fall 2016 hunting season, nonlocal hunter density decreased along the Noatak River, but increased along the Wulik and Kivalina Rivers, suggesting nonlocal hunters shifted their activities in response to the Federal closure (Stevenson 2017, pers. comm., ADF&G 2017d). The favorable reports from Noatak residents likely reflected this shift in nonlocal hunter activity. However, it is possible that increases in nonlocal hunter activity in the vicinity of Kivalina could increase user conflicts in that area.

OSM PRELIMINARY CONCLUSION

Support Proposal WP18-46 **with modification** to close all Federal public lands within a 10 mile wide corridor (5 miles either side) along the Noatak River from the western boundary of Noatak National Preserve upstream to the confluence with the Cutler River; north of the Noatak River between, and including, the Kelly and Nimiuktuk River drainages; within the northern and southern boundaries of the Eli and Agashashok River drainages, respectively; and within the Squirrel River drainage to caribou hunting except by Federally qualified subsistence users and **Take No Action** on Proposal WP18-47.

The modified regulation should read:

Unit 23—Caribou

Unit 23—that portion which includes all drainages north and west of, and including, the Singoalik River drainage	*5 caribou per day as follows:* *Calves may not be taken* *Bulls may be harvested*	 *July 1–Oct. 14* *Feb. 1–June 30*
	Cows may be harvested. However, cows accompanied by calves may not be taken July 15–Oct. 14.	*July 15–Apr. 30*
Unit 23, remainder	*5 caribou per day as follows:* *Calves may not be taken*	 *July 1–Oct. 31* *Feb.1–June 30*
	Cows may be harvested. However, cows accompanied by calves may not be taken July 31–Oct. 14.	*July 31–March 31*
	Federal public lands within a 10 mile wide corridor (5 miles either side) along the Noatak River from the western boundary of Noatak National Preserve upstream to the confluence with the Cutler River; north of the Noatak River between, and including, the Kelly and Nimiuktuk River drainages; within the northern and southern boundaries of the Eli and Agashashok River drainages, respectively; and within the Squirrel River drainage are closed to caribou hunting except by Federally qualified subsistence users hunting under these regulations.	

Justification

Closure of all Federal public lands in Unit 23 to NFQU is not warranted at this time. The Unit 23 Interagency Group recommended this targeted closure at its April 2017 meeting. Additionally, the WACH working group's management plan recommends closure of some, not all, Federal public lands if the WACH population drops below 200,000. Currently, the WACH population is on that management threshold. While user conflicts have been well documented in some portions of Unit 23 (i.e. along the Noatak and Squirrel Rivers), they have not been documented in other areas of Unit 23 (i.e. Bering Land Bridge National Preserve). Furthermore, while the 2016/17 closure seemed to have reduced nonlocal hunting activity and user conflicts in some areas, it increased the number of nonlocal hunters in other areas, which may lead to increased user conflicts in those areas.

Two criteria for a closure under ANILCA §815.3 and the Board's closure policy are conservation of healthy wildlife populations and continuation of subsistence uses of wildlife populations. Closure of Federal public lands for conservation of the WACH is not warranted. The number of caribou harvested by NFQU is not biologically meaningful. Additionally, caribou harvest by NFQU is already somewhat reduced due to the 2015 changes to State regulations (e.g. reduction in nonresident harvest limit, **Figure 9**). While NFQU activities may affect caribou behavior in the short-term, they likely do not affect long-term migration patterns through Noatak NP.

Closure of some Federal public lands for the continuation of subsistence uses, however, is warranted. Continued complaints about conflicts surrounding the Noatak and Squirrel River drainage and the apparent benefit of the 2016/17 Federal closure to Noatak residents evidenced by letters and public testimony support the closure of Federal public lands along the Noatak, Eli, Agashashok and Squirrel Rivers. Additionally, the short-term effects of aircraft on caribou behavior can negatively affect hunting success and harvest.

While NFQU will still be able to hunt caribou on gravel bars below the mean high water mark and on State lands in the Squirrel River drainage, these issues are beyond the Board's authority. Federal and State land managers could also be more proactive in enacting management strategies that respond to changing caribou migration and nonlocal use patterns over time.

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Appendix 1

Estimated total caribou harvest by community, per capita caribou harvest by community, and data sources for Unit 23: Western Arctic caribou herd (ADF&G 2015).

Unit 23

Community	Year/Period	Est Caribou Harv.	# caribou per capita	Source
Ambler	2003	325	1.12	Georgette et al. 2005, unpublished data
	2009	456	1.75	Braem 2012
	2012	685	2.54	Braem et al. 2015
Buckland	2003	637	1.56	Magdanz et al. 2011
	2009	561	1.30	Braem 2012
Deering	1994	142	0.96	Magdanz et al. 2002
	2007-2008	182	1.37	Braem 2011
	2011-2012	237	1.91	Braem 2011
	2013	393	2.85	ADF&G unpublished data
Kiana	1999	488	1.23	ADF&G unpublished data
	2006	306	0.77	Magdanz et al. 2011
	2009	440	1.18	Braem 2012
Kivalina	1982	346	0.48	CSIS
	1983	564	0.78	CSIS
	1992	351	0.49	CSIS
	2007	268	0.67	Magdanz et al. 2010
	2010-2011	86	0.23	Braem et al. 2014
Kobuk	2004-2005	134	1.06	ADF&G unpublished data
	2009	210	1.72	Braem 2012
	2012	119	0.84	Braem et al. 2015
Kotzebue	1986	1917	0.71	Georgette and Loon 1993
	1991	3782	1.04	CSIS
	2001	2376	0.77	Whiting 2003
	2002	1719	0.56	Whiting 2003
	2003	1915	0.61	Whiting 2003
	2012-2013	1804	0.56	CSIS
	2013-2014	1629	0.51	ADF&G unpublished data
Noatak	1994	615	1.62	Magdanz et al. 2002
	1999	683	1.61	Georgette et al 2000., unpubd data
	2002	410	0.90	Georgette et al. 2004, unpubd data
	2007	441	0.90	Magdanz et al. 2010
	2010	66	0.13	Braem et al. 2014
	2011	360	0.66	Mikow et al. 2014
Noorvik	2002	988	1.46	Georgette et al. 2004, unpubd data
	2008	767	1.19	Braem et al. 2012
	2012	851	1.36	CSIS

-continued-

Unit 23, continued

Community	Year/Period	Est Caribou Harv.	# caribou per capita	Source
Point Hope	1994-1995	355	0.49	Bacon et al. 2009, rev. 2011
	2000-2001	219	0.31	Bacon et al. 2009, rev. 2011
Selawik	1999	1289	1.68	CSIS
	2006	934	1.11	CSIS
	2011	683	0.79	Braem et al. 2013
Shungnak	1998	561	2.17	Georgette 1999, unpubd data
	2002	403	1.62	Magdanz et al. 2004
	2008	416	1.53	Braem 2012
	2012	396	1.47	Braem et al. 2015

WP18–56 Executive Summary	
General Description	Proposal WP18-56 requests that the Arctic Village Sheep Management Area in Unit 25A be open to the harvest of sheep by non-Federally qualified users. *Submitted by: Richard Bishop of Fairbanks, Alaska.*
Proposed Regulation	**Unit 25A—Arctic Village Sheep Management Area** *2 rams by Federal registration permit only.* *Aug. 10–Apr. 30* ~~*Federal public lands are closed to the taking of sheep except by rural Alaska residents of Arctic Village, Venetie, Fort Yukon, Kaktovik, and Chalkyitsik hunting under these regulations.*~~
OSM Preliminary Conclusion	**Oppose**
Southeast Alaska Subsistence Regional Advisory Council Recommendation	
Southcentral Alaska Subsistence Regional Advisory Council Recommendation	
Kodiak/Aleutians Subsistence Regional Advisory Council Recommendation	
Bristol Bay Subsistence Regional Advisory Council Recommendation	
Yukon-Kuskokwim Delta Subsistence Regional Advisory Council Recommendation	

WP18–56 Executive Summary	
Western Interior Alaska Subsistence Regional Advisory Council Recommendation	
Seward Peninsula Subsistence Regional Advisory Council Recommendation	
Northwest Arctic Subsistence Regional Advisory Council Recommendation	
Eastern Interior Alaska Subsistence Regional Advisory Council Recommendation	
North Slope Subsistence Regional Advisory Council Recommendation	
Interagency Staff Committee Comments	
ADF&G Comments	
Written Public Comments	**51 Support**

DRAFT STAFF ANALYSIS
WP18-56

ISSUES

Proposal WP18-56, submitted by Richard Bishop of Fairbanks, Alaska, requests that the Arctic Village Sheep Management Area (AVSMA) in Unit 25A be open to the harvest of sheep by non-Federally qualified users.

DISCUSSION

The proponent states that the restriction of sheep hunting to only residents of a few communities (Arctic Village, Chalkyitsik, Fort Yukon, Kaktovik, and Venetie) is not necessary to accommodate local subsistence uses, and that residents of these communities do not hunt sheep in the AVSMA. The proponent also states that sheep hunting opportunity on Federal public lands in the AVSMA should be open to the public under State hunting regulations because there is no biological or subsistence related reasons to preclude sheep hunting opportunities by the public in the AVSMA.

Federal closures to the harvest of sheep in the AVSMA by non-Federally qualified users have been in effect since 1991. The closure was expanded in 1995 to include Cane Creek and Red Sheep Creek drainages but was rescinded in these drainages for the 2006 to 2011 regulatory years between Aug. 10 and Sept. 30 each year. The last time the Federal Subsistence Board (Board) received a proposal to rescind the closure in the entire AVSMA was 2006 (WP06-57).

Existing Federal Regulation

Unit 25A — Sheep

Unit 25A —Arctic Village Sheep Management Area	
2 rams by Federal registration permit only.	*Aug. 10–Apr. 30*

Federal public lands are closed to the taking of sheep except by rural Alaska residents of Arctic Village, Venetie, Fort Yukon, Kaktovik, and Chalkyitsik hunting under these regulations.

Proposed Federal Regulation

Unit 25A — Sheep

Unit 25A—Arctic Village Sheep Management Area	
2 rams by Federal registration permit only.	*Aug. 10–Apr. 30*

~~*Federal public lands are closed to the taking of sheep except by rural Alaska residents of Arctic Village, Venetie, Fort Yukon, Kaktovik, and Chalkyitsik hunting under these regulations.*~~

Existing State Regulations

Unit 25 Sheep

Unit 25A, east of the Middle Fork Chandalar River	*Residents, One ram with full-curl horn or larger*	*HT*	*Aug. 10–Sept. 20*
	Or		
	Three sheep by permit available online at http://hunt.alaska.gov or in person in Fairbanks and Kaktovik beginning Sept. 14. The use of aircraft for access to hunt sheep and to transport harvested sheep is prohibited in this hunt except into and out of the Arctic Village and Kaktovik airports. No motorized access from the Dalton Highway.	*RS595*	*Oct. 1–Apr. 30*
	Nonresidents, One ram with full-curl horn or larger every four regulatory years.	*HT*	*Aug. 10–Sept. 20*

5 AAC 92.003 Hunter education and orientation requirements.

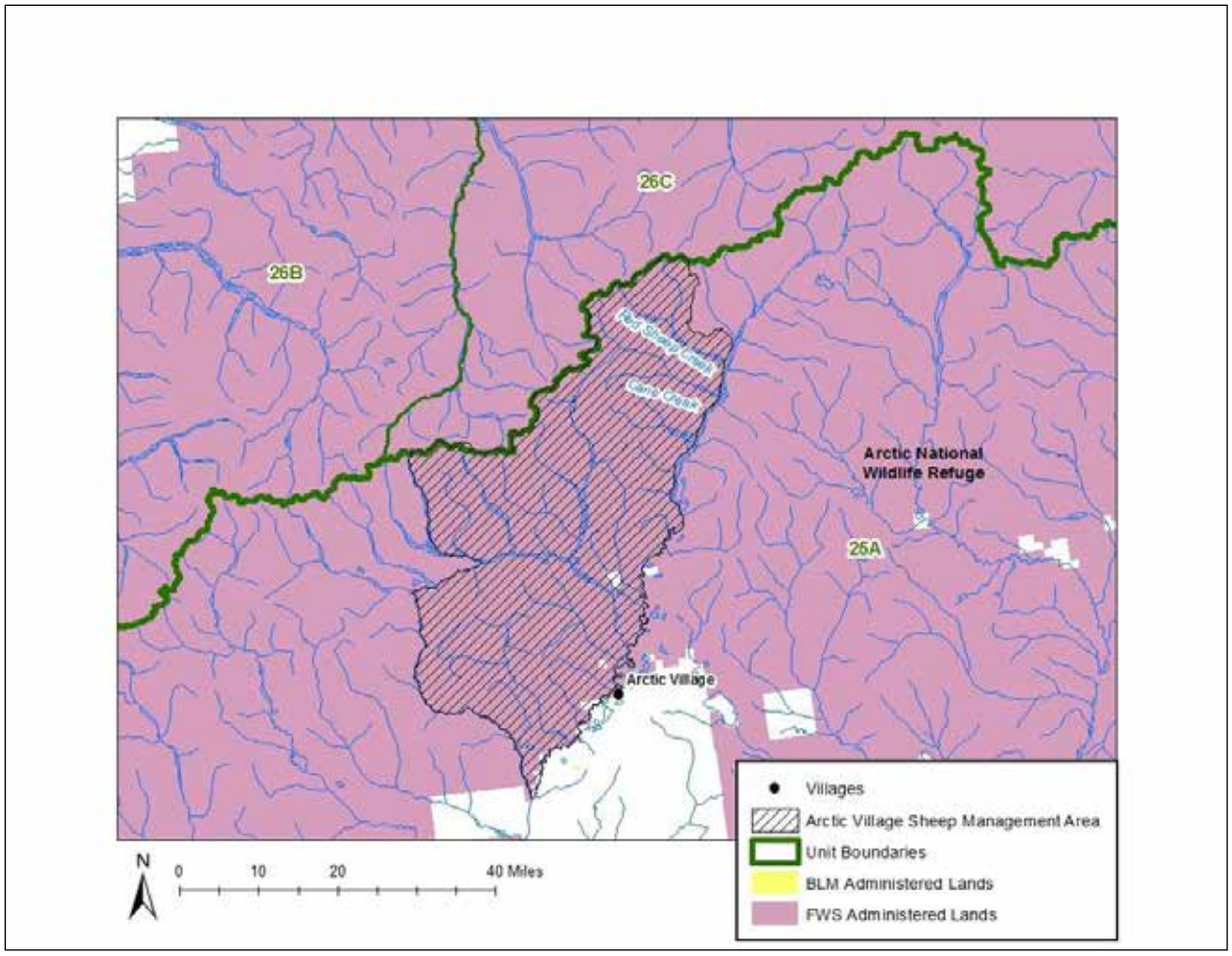
(i) Before a person hunts within the Red Sheep Creek/Cane Creek portion of the Arctic Village Sheep Management Area of Unit 25A, that person must possess proof of completion of a department-approved hunter ethics and orientation course, including land status and trespass information.

Extent of Federal Public Lands

Federal public lands comprise approximately 99% of the Arctic Village Sheep Management Area in Unit 25A and consist of U.S. Fish and Wildlife Service managed lands. These Federal public lands are within the Arctic National Wildlife Refuge (**Map 1**).

Customary and Traditional Use Determination

Rural residents of Arctic Village, Chalkyitsik, Fort Yukon, Kaktovik, and Venetie have a customary and traditional use determination for sheep in Unit 25A.



Map 1. The Arctic Village Sheep Management Area in Unit 25A.

Regulatory History

Knowledge of regulatory history necessary to analyze Proposal WP18-56 is extensive. It is described in **Appendix A**.

Biological Background

Sheep populations across the eastern Brooks Range of Alaska have appeared relatively stable at low densities since the late 1990s (Caikoski 2014). However, geographic barriers such as large valleys and rivers naturally limit sheep movements and distribution, resulting in discrete subpopulations (Arthur 2013, Caikoski 2014). Therefore, repeated, fine-scale surveys are necessary to understand sheep population status and trends in a specific area such as the AVSMA.

State management goals and objectives for sheep in Unit 25A (Caikoski 2014) include:

Protect, maintain, and enhance the sheep population and its habitat in concert with other components of the ecosystem.

- Provide for continued general sheep harvest and subsistence use of sheep.
- Provide an opportunity to hunt sheep under aesthetically pleasing conditions.
- Maximize hunter opportunity using a full-curl harvest strategy.
- Maintain an average harvest of rams ≥ 8 years old.

Arctic National Wildlife Refuge conducts periodic aerial sheep surveys of the AVSMA and surrounding areas. Due to differences in survey areas, comparisons across years are difficult. Sheep densities within the AVSMA have generally been low compared to other areas in the Brooks Range, which is likely due to poor habitat quality (Payer 2006 in OSM 2014a). Within the AVSMA, sheep densities north of Cane Creek have been much higher than sheep densities south of Cane Creek (Mauer 1990 in OSM 2014a, Wald 2012). This is probably related to shale formations that are more common north (versus south) of Cane Creek, which support more vegetation and therefore more sheep (Smith 1979 in OSM 2014a). The presence of mineral licks south of Cane Creek also influences sheep densities as most sheep observed by Mauer (1996) and Payer (2006) were clustered around such licks (OSM 2014a).

In 1991, AVSMA sheep densities north and south of Cane Creek averaged 2.25 sheep/mi^2 and 0.2 sheep/mi^2, respectively (Mauer 1996 in OSM 2014a). In 2006, AVSMA sheep density north of Cane Creek averaged 1.7 sheep/mi^2 (Wald 2012). The observed decline in density is thought to be weather related (OSM 2014).

The AVSMA sheep population likely declined between 2012 and 2015 due to several years of poor lamb production and severe winters (particularly the winters of 2012-13 and 2013-14). In 2012, surveys within and near the AVSMA indicated an average sheep density of 0.79 sheep/mi^2 and 27 lambs:100 ewes (Arthur 2017, pers. comm.). Density north and south of Cane Creek ranged from 1.5–1.8 sheep/mi^2 and 0.25–0.7 sheep/mi^2, respectively (Wald 2012). In 2015, estimated sheep density for the same areas averaged 0.67 sheep/mi^2 and the lamb:ewe ratio was 34 lambs:100 ewes. The 2015 survey also indicated a decline in rams of all age classes (Arthur 2017, pers. comm.).

In 2016, a larger area was surveyed, including the Hulahula River drainage in Unit 26C, which contains higher sheep densities than the AVSMA. While the 2016 overall sheep density averaged 0.86 sheep/mi^2, density within the AVSMA was likely 0.70-0.75 sheep/mi^2 (Arthur 2017, pers. comm.). The ram:ewe ratio for the entire survey area averaged 28 rams:100 ewes. Due to improved lamb production in 2015 and 2016 (>30 lambs:ewe), the AVSMA sheep population has likely not declined below 2015 levels and may be increasing. However, it will be at least 3–5 years before an increase in mature (8+ year old) rams are observed in the AVSMA sheep population (Arthur 2017, pers. comm.).

Cultural Knowledge and Traditional Practices

The AVSMA was traditionally occupied by *Netsi Gwich'in* who occupied the northern reaches of the East Fork Chandalar, Koness, and Sheenjek Rivers. By the 1930s most Netsi Gwich'in were living in three semi-permanent settlements of Arctic Village, Christian Village, and Venetie, and traditional land use remained largely intact (McKennan 1965). In the past, Netsi Gwich'in relied upon sheep as a food source primarily in late summer or whenever caribou were scarce (Hadleigh-West 1963). Hadleigh-West (1963) identified four very specific sheep hunting areas used by Arctic Village residents along the Junjik River, East Fork Chandalar River, Cane Creek, and Red Sheep Creek.

The customary and traditional use determination for sheep in Unit 25A, including the AVSMA, consists of five communities with a total population of roughly 1,200 people according to the 2010 U.S. Census (**Table 1**).

Table 1. The population of communities in the customary and traditional use determination for sheep in Unit 25A, 1960-2010.

Community	U.S. Census					
	1960	1970	1980	1990	2000	2010
Arctic Village	110	85	111	96	152	152
Chalkyitsik	57	130	100	90	83	69
Fort Yukon	701	448	619	580	595	583
Kaktovik		123	165	224	293	239
Venetie	107	112	132	182	202	166
Total	975	898	1,127	1,172	1,325	1,209

Source: ADCCED 2017.

Of the five communities with recognized customary and traditional uses of sheep in Unit 25A, the residents of Arctic Village have the strongest ties to and are the primary users of the Red Sheep and Cane Creek drainages (OSM 1993; see also Dinero 2003, Gustafson 2004, and Reed et al. 2008). Sheep hunting is a "longstanding" tradition for Arctic Village residents, most of whom are Gwich'in Athabascan (Caulfield 1983:68; Dinero 2003; EISRAC 2006:110–137, 2007, 2011; Gustafson 2004), and the Red Sheep and Cane Creek areas have been a longstanding focus of this activity. Sheep are a prestigious subsistence resource and providing sheep meat to the community is highly respected (cf. Caulfield 1983 and Dinero 2003 for discussion). Sheep are also known as an important "hunger food," that is, a food source that is critical when caribou are unavailable (Caulfield 1983, Dinero 2011, pers. comm.; Gilbert 2011, pers. comm.). Local people report increasing uncertainty of caribou migrations in recent years, declining quality of caribou meat, and increasing difficulty and travel distance to obtain moose in recent years: in light of this, local residents claim that sheep are an increasingly important resource (Gilbert 2011, pers. comm.; Swaney 2011, pers. comm.). As noted by one prominent elder, "When we have no caribou, that's the time we have to go up [to get sheep]" (Gilbert 2011, pers. comm.).

The public record supports the fact that Arctic Village residents have a long history of using the Cane Creek and Red Sheep Creek drainages, and that it continues be a culturally significant area to them. Extensive

discussion included in previous proposal analyses (OSM 1993, 1995a, and 2014a) pointed to regular use of these drainages by residents of Arctic Village. Gustafson (2004), in a study of traditional ecological knowledge, discusses the importance and continued use of the Red Sheep Creek area for sheep hunting. Testimony by Arctic Village residents in 2006, 2007, and 2011 at the Eastern Interior Alaska Regional Advisory Council (Eastern Interior Council) meeting about hunting in the Red Sheep and Cane Creek drainages demonstrates continued hunting in these areas. Discussions with Refuge Information Technicians from Arctic Village, other Arctic National Wildlife Refuge staff, researchers working in the area, and subsistence hunters from Arctic village also confirm continued sheep hunting in the Red Sheep and Cane Creek drainages (Bryant 2011, pers. comm.; Dinero 2011 pers. comm.; Mathews 2011, pers. comm.; John 2011, pers. comm.).

The trip from Arctic Village to Red Sheep Creek is over 100 miles and residents use great effort both physically and economically to hunt sheep in these drainages (Bryant 2011, pers. comm.; John 2011, pers. comm.; Gilbert 2011, pers. comm.; Swaney 2011, pers. comm.). The residents of Arctic Village have repeatedly expressed concerns about non-Federally qualified users hunting sheep in Red Sheep Creek and Cane Creek drainages and have provided testimony and public comment at numerous Council and Board meetings to attest to the importance of Red Sheep Creek, to describe their use of the area, and to explain that the presence of non-Federally qualified users has affected their access and reduced their harvest opportunities (EIRAC 2006, 2007, 2011; FSB 1991d:291-311, 1995, 2006a, 2007:292–306, and 2012; (OSM 1993, 1995a, 1996, 2006b, 2007a, and 2014a; Swaney 2011, pers. comm.; Gilbert 2011, pers. comm.; John 2011, pers. comm.).

Among the Gwich'in, there is a story about how Red Sheep Creek was named which illustrates the link between subsistence and religious practices and beliefs. It also underscores the importance of this area to the residents of Arctic Village. The story relates Red Sheep Creek to the Episcopalian Church, an influential factor in establishing Arctic Village, and sheds some light on why Arctic Village residents consider Red Sheep Creek a revered place (Dinero 2007; Dinero 2011, pers. comm.). The story begins with people who were hungry. One day at the church someone spotted caribou moving in the brush. Upon closer inspection people realized they were looking at unusual sheep with red markings, or what many say were crosses on their coats. The next day, the people followed the red sheep far into the mountains where they were finally able to harvest them. The hides of the sheep were kept and passed down because of their distinctive markings (Dinero 2011, pers. comm.). The story of the red sheep links a prestigious subsistence resource (sheep) to traditional and modern beliefs and practices, and demonstrates the complementary nature of subsistence to place, tradition, culture, and modern beliefs.

Traditionally Arctic Village residents have harvested sheep in early fall (late August or early September) or in early winter (November) (Caulfield 1983, FSB 2007:292–306). "Sheep taste best in the fall," as documented in earlier research (OSM 1995a:353, Proposal 54). Residents generally travel to hunt sheep by boat, then by foot from hunting camps in the fall or by snowmachine in late fall, but not in winter given the dangerous terrain and winter weather (OSM 1993, Proposal 58).

Arctic Village residents have commented that allowing non-Federally qualified users to harvest sheep in Red Sheep Creek and Cane Creek during the time when Arctic Village residents customarily and

traditionally harvested sheep (with the exception of November) affects Arctic Village residents' ability to access an important sheep hunting area. Since 1993, Arctic Village residents have noted to the Board that plane traffic and use by non-Federally qualified users have interfered with their ability to successfully hunt sheep in the Red Sheep and Cane Creek drainages. Residents reported that plane fly-overs "spooked" sheep and that, "older rams can climb to higher elevations, making them more difficult to hunt" (OSM 1993:4, Proposal 58; see also OSM 1995a, Proposal 54 for additional discussion). Gideon James from Arctic Village explained that Red Sheep and Cane Creek are both very narrow valleys, and consequently flights through the area disturb the sheep (FSB 2012:201). These disturbances have continued to be described by Arctic Refuge staff (Matthews 2011, pers. comm.), and local residents (Swaney 2011, pers. comm., John 2011 pers. comm., Gilbert 2011, pers. comm.). Frid (2003) found that fixed-wing aircraft disrupted resting or caused fleeing behavior in Dall sheep in the Yukon Territory during overflights. This disruption was of a longer duration during direct flight approaches. Results of this study could help provide managers with guidelines for determining spatial and temporal restrictions to aircraft in areas frequented by this species.

Harvest History

Federal closures to the take of sheep in the AVSMA by non-Federally qualified users have been in effect since 1991. In 1995, the AVSMA was expanded to include the area north of Cane Creek and the Red Sheep Creek drainage. The closure to the take of sheep in the area north of Cane Creek and the Red Sheep Creek drainage, Aug. 10–Sept. 30, by non-Federally qualified users was rescinded for the 2006 through 2011 regulatory years

Data on the reported use of the AVSMA by Federally qualified subsistence users is sparse, and just how many sheep are harvested by Federally qualified subsistence users in the AVSMA is unknown. It is likely that many Gwitch'in hunters have not reported their harvest efforts (see Van Lanen et al. 2012 and Anderson and Alexander 1992 for a discussion).

Since 1995, Federally qualified subsistence users have been required to get a Federal registration permit to hunt for sheep in the AVSMA. Permit reports kept by the U.S. Fish and Wildlife Service show that residents of Arctic Village have requested 25 Federal permits to hunt sheep in the AVSMA, 7 hunters reported attempting to harvest sheep, and a total of 5 sheep harvests were reported (**Table 1**). Residents of Fort Yukon have requested 5 permits to hunt sheep in the AVSMA, 4 hunters reported attempting to harvest sheep, and a total of 2 sheep harvests were reported. The majority of permits were issued after 2005. The location of the harvest for the majority of sheep taken was not reported. One hunter reported taking a sheep in the area north of Cane Creek and the Red Sheep Creek drainage.

The Alaska Department of Fish and Game maintains a harvest reporting database where hunters using State harvest tickets or State permits report their hunting efforts (ADF&G 2017b). Complete records were not kept until the mid-1980s, and it is likely that many Gwitch'in hunters have not reported their harvest efforts or have reported their harvest efforts on Federal permits (see above).

Table 1. The harvest of sheep reported on Federal permits in Unit 25A by communities in the customary and traditional use determination, 1995-2015 cumulative.

FEDERAL PERMITS ONLY - Unit 25A Sheep Harvest						
Community	Arctic Village Sheep Management Area Permit FS2502			Unit 25A remainder Permit FS2503		
	Issued	Hunted	Taken	Issued	Hunted	Taken
Arctic Village	25	7	5	16	3	3
Fort Yukon	5	4	2	2	0	0
Kaktovik	0	0	0	6	4	4
Total	30	11	7	24	7	7

Source: OSM 2017a.

From 1983 to 2015 regulatory years, hunters with State harvest tickets or State permits reported harvesting 1,690 sheep (about 50 sheep annually) from within the entire Unit 25A area (see **Table 2**, ADF&G 2017b and OSM 2017a). The harvest of 7 sheep by Federally qualified subsistence users were all reported before 1995, which is when Federal permits became available. Using the State's harvest reporting database, after 1995 all sheep harvests were reported by non-Federally qualified users using State harvest tickers or State permits.

From 1983 to 1990 regulatory years, approximately 61 sheep harvests (about 8 sheep annually) were reported in an area approximating the AVSMA using uniform coding units, including the area north of Cane Creek and the Red Sheep Creek drainage, before most of the area was closed to the harvest of sheep by non-Federally qualified users in 1991 (OSM 2017a, 4 of the 61 sheep harvests were reported by Federally qualified subsistence users).

From 1983 to 1994 regulatory years, approximately 27 sheep harvests (about 2 sheep annually) were reported in the area north of Cane Creek and in the Red Sheep Creek drainage, before it closed to the harvest of sheep by non-Federally qualified users in 1995 (OSM 2017a, no sheep harvests was reported by Federally qualified subsistence users).

From 2006 to 2010 regulatory years, approximately 22 sheep harvests (about 4 sheep annually) were reported in the area north of Cane Creek and in the Red Sheep Creek drainage while it was open to the harvest of sheep by non-Federally qualified users (OSM 2017a, harvest site information is not readily available after the 2010 regulatory year). One sheep harvest was reported in 2005 by a non-Federally qualified user, when the area was closed.

Effects of Proposal

If adopted, Proposal WP18-56 would open the AVSMA to the harvest of up to 3 sheep annually by a non-Federally qualified user who is a resident of Alaska or 1 ram every four years by a nonresident of Alaska.

Table 2. Number of sheep harvested in Unit 25A, 1983-2016, by user group, based on ADF&G harvest reporting system.

STATE PERMITS ONLY - Unit 25A Sheep Harvest								
Year	Federally qualified subsistence users		Non-Federally qualified uses				Total	
			Residents of Alaska		Nonresidents of Alaska			
	Issued	Harvested	Issued	Harvested	Issued	Harvested	Issued	Harvested
2016			61	20	36	24	97	44
2015			62	16	41	24	103	40
2014			77	24	40	20	117	44
2013			91	36	48	31	139	67
2012			90	36	41	26	131	62
2011			93	42	61	44	154	86
2010			158	47	51	30	212	77
2009			145	45	59	39	204	84
2008			149	38	56	36	205	74
2007			126	36	53	40	179	76
2006			110	36	46	33	156	69
2005			108	28	52	38	160	66
2004			84	9	47	37	131	46
2003			101	20	51	33	153	53
2002			89	14	45	25	134	39
2001			95	15	50	36	145	51
2000			72	12	35	19	107	31
1999			70	16	33	25	103	41
1998			51	12	21	15	72	27
1997			57	15	20	15	77	30
1996			57	13	19	13	76	26
1995			62	14	20	9	82	23
1994			31	2	15	8	46	10
1993			70	17	18	10	88	27
1992			96	15	33	24	130	40
1991			92	19	46	36	140	56
1990			125	28	44	40	172	71
1989			117	23	52	39	169	62
1988			88	23	46	38	135	62
1987			82	22	34	29	116	51
1986			90	22	31	27	122	49
1985			77	22	29	23	106	45
1984			56	14	19	16	75	30
1983			65	13	25	17	90	30
Total	13[a]	7[a]	2,997	764	1,317	919	4,327	1,690

[a] Four or fewer reports were received in any given year. Only the total is provided to protect confidentiality of Federally qualified subsistence users reporting their effort and harvest.

Source: ADF&G 2017b and OSM 2017a.

0000000824

Adopting this proposal and opening the AVSMA to non-Federally qualified users may adversely affect subsistence users' access and ability to harvest sheep in the AVSMA and thereby fail to provide a meaningful preference for Federally qualified subsistence users.

If adopted, this proposal could negatively impact the sheep population in the AVSMA especially south of Cane Creek where sheep density estimates are low.

OSM PRELIMINARY CONCLUSION

Oppose Proposal WP18-56.

Justification

Federal public lands in the Arctic Village Sheep Management Area should remain closed to the harvest of sheep except by Federally qualified subsistence users. Sheep densities within the AVSMA have generally been low compared to other areas in the Brooks Range, which is likely due to poor habitat quality (Payer 2006 in OSM 2014). In 1991, when the closure was adopted by the Board, portions of the area did not appear to be able to support more sheep than were present, and the Board said that the remainder of Unit 25A supported a substantial opportunity for all hunters (FSB 1991b:150–164). Sheep populations in the AVSMA situated south of Cane Creek continue to exist at low densities (Arthur 2017, pers. comm.) and should remain closed to nonsubsistence uses in order to protect healthy populations of sheep, as mandated in ANILCA Section 815(3).

Since 1995 the Board has continued to hear substantial testimony and ethnographic evidence demonstrating the importance of Cane Creek and Red Sheep Creek drainages to Federally qualified subsistence users, especially Netsi Gwich'in who occupied the area historically and continue to occupy the area today. In 2012, the Board reiterated that the closure was needed to ensure the continuation of traditional subsistence uses of sheep by Arctic Village hunters (OSM 2012b:7), and again in 2014 (OSM 2014a:350). There have been no indications that the phenomenon has changed. This area should remain closed to nonsubsistence uses in order to protect subsistence uses, as mandated in ANILCA Section 815(3).

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WRITTEN PUBLIC COMMENTS

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: WP-18-56

AK Subsistence, FW7 <subsistence@fws.gov> Tue, Aug 1, 2017 at 3:46 PM
To: Gene Peltola <gene_peltola@fws.gov>, Thomas Doolittle <thomas_doolittle@fws.gov>, Jennifer Hardin <jennifer_hardin@fws.gov>, Paul Mckee <paul_mckee@fws.gov>, Theo Matuskowitz <theo_matuskowitz@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Jeff Alling** <jeffa@alcanbuilders.com>
Date: Tue, Aug 1, 2017 at 3:29 PM
Subject: WP-18-56
To: "Subsistence@fws.gov" <Subsistence@fws.gov>

My name is Jeff Alling and I am a founding member of RHAK (Resident Hunters of Alaska) and I oppose the continued closure of Dall Sheep hunting in the AVDSMA area on the grounds that it is apparent that the local hunters do not use or do not report the use of this resource. Also I oppose the closure because there is no biological concern about hunting of Full Curl Rams.

This area has been closed to the taking of Dall Sheep by non-local hunters since 1991 for supposed "Social" concerns. This reason is nonsense as any contact I have had with locals from that area has been very positive.

Please reopen this area in an effort to revive this cherished freedom that has been taken from us by our Federal Government since 91.

Thank you.

Jeff Alling

Alcan Builders Inc.

3009 International Rd. Fairbanks, AK 99701

PH: 907-456-1383

FX: 907-452-4378

mailto:jeffa@alcanbuilders.com

Check us out at www.Alcanbuilders.com

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: AOC comments on proposal WP18-56

2 messages

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 3:44 PM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>, Paul Mckee <paul_mckee@fws.gov>, Jennifer Hardin <jennifer_hardin@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Alaska Outdoor Council** <alaskaoutdoorcouncil@gmail.com>
Date: Fri, Aug 4, 2017 at 1:49 PM
Subject: Re: AOC comments on proposal WP18-56
To: subsistence@fws.gov
Cc: AOC Board <aocboard@alaskaoutdoorcouncil.com>, Richard Bishop <dmbishop@ptialaska.net>

August 4, 2017

Federal Subsistence Board
Office of Subsistence Management
Attn: Theo Matuskowitz
1011 E. Tudor Road, MS-121
Anchorage, Alaska 99503-6199
Sent electronically to subsistence@fws.gov

RE: Proposal WP18-56

Chairman Christianson and Members of the Board:

The continued closure of hunting by non-qualified subsistence users in the Arctic Village Sheep Management Area (AVSMA) is a clear violation of ANILCA, therefore, the Alaska Outdoor Council (AOC) asks the Board to approve Proposal WP18-56 to discontinue the closure, providing hunting opportunities per the Refuge purpose, being once more in harmony with the Refuge's Comprehensive Conservation Plan (CCP)

Most egregious is continued disregard for and violation of ANILCA, to which the previous Administration clearly allowed the Federal Subsistence Board (FSB) to willfully violate federal law. Secretary of the Interior, Ryan Zinke is likely to take a different view of the matter and personal representing the DOI on the FSB will be more inclined to vote consistent with federal law and intent of ANILCA Section 816. "Unless necessary for the conservation of healthy populations of fish and wildlife and to continue subsistence uses", hunting on the Refuge by non-federally-qualified subsistence users is supposed to be the rule and not the exception per ANILCA Title 815(3).

Conservation concern, meeting subsistence uses, administration, and public safety are the only criteria for closing hunting to non-federally-qualified subsistence users per ANILCA Sec. 816(b). And indeed, because there is a healthy population in the area in question, and there is no substantial evidence showing need to keep the area closed to provide a meaningful preference for actual and bona fide subsistence uses, the FSB should, our members believe, be making a diligent effort to abide by ANILCA rather than continue its flagrant violation of it, and in so doing pass this proposal.

In addition, worse than just ignoring ANILCA, the FSB, by keeping this area closed for the reasons it has given, has also brought the FSB even more out of compliance with Congressional intent because it has ignored and trumped ANILCA's legitimate reasons for closure, and having done so has instead implemented the current closure for reasons absolutely disallowed in ANILCA, which gives no other reason for closure aside from those stated at the top of the

previous paragraph. Certainly social or cultural or emotional reasons for closure of hunting in the face of no conservation concern or absence of subsistence uses are clearly illegal, yet the FSB has continued to unlawfully create and implement its own rules, depending instead on contrived excuses as to close what is otherwise a legitimate and heralded activity according to ANILCA and the Refuge's CCP.

Reported harvests of Dall sheep over the last 25 years suggest inconsequential use of Dall sheep and inconsequential subsistence harvests. And by all accounts, a healthy population of Dall sheep is resident in the area. If there is no actual demand for full curl rams to meet legitimate subsistence use, then non-federally qualified hunters, by all the federal laws and management plans, can participate in the hunt. Exclusion of these hunters continues to have no biological benefit to either sheep or humans.

Conflicts in the field between residents of Arctic Village, Chalkitsik, Fort Yukon, Kaktovik, Venetie and any non-federally qualified subsistence users in the AVSMA has never been likely do to the extremely low number of sheep hunters, nor is it a factor for the FSB to take into consideration when deliberating on proposals to ban non-local resident regulated hunting opportunities. Nothing in Section 816 of ANILCA comes close to even alluding to that being a criteria for closure to non-federally qualified subsistence users.

According to ANWR's official website, the Refuge is characterized as "amazing public land owned by all US citizens," and that people commonly come to the Refuge to "camp, hike, float rivers, hunt, or fish," all officially allowable uses on federal public land. Hunting on Refuges is a customary and traditional activity for Americans, and therefore should be reopened in the area proposed. It is the right of all Americans to recreate on federal public land.

Closures due to perceived cultural or social reasons are not supported by either ANILCA as already noted, but the continued closure also comes into violation of the Refuge's Comprehensive Conservation Plan(CCP). In fact, paraphrased below, the latter document says:

- The Refuge has local, state, and national constituent users who must be considered in developing and implementing visitor use programs and policies. These visitor constituencies' use is best addressed through a fair and open public planning process. (Objective 5.4)

(AOC: Rights of use of the resource by non-federally-qualified subsistence users given the current conditions as stated above are EQUAL to that of federally-qualified subsistence users. There is no current legitimate reason to preclude use of any resource by anyone per this CCP.)

- Uses will not be prohibited unless a public process determines the use is detrimental to the area's resource values. (Objective 5.1)

(AOC: Note that "cultural" or "social" uses are not legitimate criteria on which to order any closure to hunting. The current closure is NOT based on resource values in violation of this CCP.)

• Public access to Refuge lands for recreation is allowed to "provide the public with opportunities for wildlife-dependent recreation." (Objective 5.4)

Because hunting is an allowed and publicized use on the Refuge, it appears Refuge intent is that hunting is clearly considered "wildlife-dependent recreation," and thus should not be precluded in the face of no conservation concern or jeopardy to the area's resource values or abrogation of any subsistence use. ANILCA Article 815 supports this very clearly as well.

In conclusion, the Alaska Outdoor Council believes there is no legal reason, and there are no supporting data, to keep the Arctic Village Sheep Management Area closed to open hunting any longer. In truth, ANILCA and the Refuge guiding documents both EXPECT uses to not be limited EXCEPT when a documented conservation concern to meet subsistence use clearly requires it. These conditions have not been shown to exist, and to be in harmony with the Refuge's purposes, the Refuge Comprehensive Conservation Plan, and ANILCA, Proposal WP18-56 to open hunting should be passed. There never has been a legitimate reason for closure and there remains NO legitimate reason to continue the closure.

Appended to this letter is the State of Alaska's Federal Subsistence Liaison Team's talking points to this issue when the Federal Subsistence Board last considered opening the AVSMA to open hunting in 2014. These points are apropos and still relevant.

Sincerely,

Rod Arno
Executive Director
Alaska Outdoor Council

On Fri, Aug 4, 2017 at 2:43 PM, Alaska Outdoor Council <alaskaoutdoorcouncil@gmail.com> wrote:

Alaska Outdoor Council comments in support of proposal WP18-56.
Please also include the 2014 comments from the State of Alaska liaison to the FSB from 2014 on proposal WP14-51 with AOC's comments.

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Alaska Outdoor Council
310 K Street, Suite 200
Anchorage, Alaska 99501
Phone: 907-841-6849

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Alaska Outdoor Council
310 K Street, Suite 200
Anchorage, Alaska 99501
Phone: 907-841-6849

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 3:44 PM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>, Paul Mckee <paul_mckee@fws.gov>, Jennifer Hardin <jennifer_hardin@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Alaska Outdoor Council** <alaskaoutdoorcouncil@gmail.com>
Date: Fri, Aug 4, 2017 at 1:43 PM
Subject: AOC comments on proposal WP18-56
To: subsistence@fws.gov
Cc: AOC Board <aocboard@alaskaoutdoorcouncil.com>, Richard Bishop <dmbishop@ptialaska.net>

Alaska Outdoor Council comments in support of proposal WP18-56.
Please also include the 2014 comments from the State of Alaska liaison to the FSB from 2014 on proposal WP14-51 with AOC's comments.

--
Alaska Outdoor Council
310 K Street, Suite 200

Anchorage, Alaska 99501
Phone: 907-841-6849

2 attachments

AOC comments on WP-18-56.pages.zip
269K

Liaison Team talking points RFR Red Sheep Creek WP14 51 FSB Jan 2014.doc
78K

ADF&G FEDERAL SUBSISTENCE LIAISON TEAM

TALKING POINTS:
REQUEST FOR RECONSIDERATION: RED SHEEP CREEK / WP14-51
JAN 2014 - J.YUHAS

THE STATE URGED THE REOPENING OF RED SHEEP / CANE CREEK DRAINAGES WITHIN AVSMA TO SHEEP HUNTING FOR OTHER USERS:

- **Two years ago this area was closed to non-federally qualified users unnecessarily.**
- **It was closed aside from any conservation concerns, noting an abundance of sheep in this area and an extremely low use of this resource by local people.**
- **Federal Public Land is held in trust for all people.**
- **The Board must act within the authority provided it under ANILCA.**
- **Any new precedent must be defensible. The precedent set by the FSB in April by maintaining this closure is not.**

CLOSED UNNECESSARILY

- **The Board is aware there is no justification under either the Boards Closure Policy or ANILCA 8.15 to close this area for conservation.**
- **The issues brought forth in requesting a closure for this area are rightfully addressed in other venues.**
- **The State of Alaska took swift action two years ago to assist federal land managers in addressing the complaints heard at the time of closure.**

CLOSURE IS OUTSIDE THE BOARDS AUTHORITY UNDER ANILCA AND THEREFORE INDEFENSIBLE

- **Federal Public Land, is just that – Public Land.**
- **ANILCA 8.15 speaks to closures to hunting for the conservation of the resource of continuance of subsistence uses only.**
- **NO REFERENCE to trespass or littering – an issue federal land managers and enforcement rightfully govern, which the State has taken measures to assist them with these efforts – providing tools through our actions two years ago.**
- **NO REFERNCE to the new idea of "cultural preservation" being circulated by federal staff based on testimony at this board meeting two years ago that one local resident did not see it as his culture to hunt when an outsider was present in the valley.**
    - **"Cultural preservation" itself is a debatable concept within the scientific community.**
    - **Closing an area on this basis would set a new precedent for utilization all around the state.**

  - This concept is clearly outside the intent of ANILCA 8.15s authority for closure
- Nearly every parcel of Federal Public Land Park, Preserve, Refuge, and Forest with any indigenous population adjacent to that land will have areas which are reported to be "special to those people."
  - Measures exist to truly address the specialness of lands to a people – just not in the Federal Subsistence Program arena.
- These arguments cannot defensibly be used as a new precedent to close lands to hunting to one group of people by this Board – most notably because the Board does not have the authority to do so for these reasons.
- While the Board does not have the legal means to close this area to hunting by one group of people, the federal system does possess other means to address these issues.
  - Federal land managers can enforce already illegal behavior with the new tools the State has provided it.
  - Federal land managers can pursue a land swap to provide Venetie the purportedly most special lands thereby excluding others.
- THIS PARTICULAR CLOSURE SIMPLY DOES NOT FIT IN THIS ARENA.
- The Board fully recognized the lack of any conservation concern during its deliberations both to close and to deny the reopening of this area citing instead: identification with the wishes of the local people, a deference to the spirituality of those who wish the closure to remain, and simply that "it would keep some people out."

<u>CLOSURE DOES NOT ACHIEVE DESIRED EFFECT</u>

- The only people this action closes this area to are non-federally qualified sheep hunters for the purposes of hunting.
  - That's a Maximum of 7 people per year – which has already been recognized as a di minimis impact to the sheep population.
  - Not closed to their landing near or walking through the area or any other uses by those people.
  - Not closed to *anyone* else.
- As the Fairbanks AC pointed out: Federal staff has testified at public meetings that many other parties use this area.
  - Those users included hikers, rafters, sheep hunters traveling through the area to other open areas.
  - Those users could trespass, vandalize, or scare sheep in that area – likely more so than an individual attempting to minimize their presence in order to successfully hunt sheep.
  - This does not preserve the area for the local users who simply want to keep others out.
- Two years ago this board and the RACs heard testimony referring to egregious trespass, vandalism, and general disrespect for the lands near this area.

- Those reports were never successfully attributed to one group of people, and conflicting opinions persist at to who may have committed these acts.
- We've established that closure for these reasons already lies outside the framework of this program, but even so – if anybody intends to dole out a punishment they must first successfully determine the offender.
- The changes made by the State since your last meeting give federal managers and enforcement the tools to begin to do that.

ONLY WAY TO REMAIN WITHIN THE BOUNDS OF ANILCA FOR THE BOARDS AUTHORITY IS TO REOPEN THE AREA

- These Federal Public Lands are held in Trust for the people.
- Any reasons for the Board acting to keep this area closed to one group of users must be legally defensible / it is each Board Members responsibility to know their vote, especially to set a new precedent, is defensible.
- Established no conservation concern – therefore no justification under ANILCA 8.15 – even to preserve "subsistence uses."
  - While "culture as a use" may be an interesting intellectual argument for some federal staff, it is the individual Board Members who must understand the legal parameters of attempting to embark on any new interpretations of the law that governs their actions.
- Attempting to point out that the State does not have a class already developed is a contrived argument / a stalling tactic.
  - The State responded expediently to local concerns two years ago – and took special actions to address these concerns.
  - The Department created a mechanism to address issues the federal land managers and enforcement had not & the Board of Game approved an Agenda Change Request for and approved this plan in very short order to respond to these concerns.
  - The State has been clear that any class will be developed with the local people rather than forced upon them.
  - There is currently no incentive for local cooperation to develop this class if the area remains closed.
  - No agency would expend staff resources or funding under these conditions /when no outcome or cooperation is expected.
- Some federal staff advocated rejecting this proposal denouncing any "new information" related to the discussion.
  - In reinstating this closure two years ago the Board noted that while it was encouraged by recent State response to the issue, that the Board of Game had not yet met at the time of this Boards meeting, and that action was not guaranteed.
  - That action did take place – two weeks after the FSB met to close the area.
  - While the information is two years old, and the State has waited two years for corrective action, that information is precisely what was

stated on the record as being necessary to keep this area open by this Board at the time of the closure.

- The entertainment of interesting intellectual arguments by staff or others has its place. That place is best reserved to academia rather than through a direct negative impact to the users of the resource.

The State urged the Board to take action in their April meeting to lift this closure and return to process, recognizing that land managers now possess greater tools to assist them in their charge to maintain order, as well as other appropriate means to address the issues outside the jurisdiction of this body, and ensuring the use of this land to all those for whom it is held in trust.

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: Proposal WP18-56

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 7:50 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>, Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Pete Buist** <grizzlybear@mosquitonet.com>
Date: Fri, Aug 4, 2017 at 4:13 AM
Subject: Proposal WP18-56
To: subsistence@fws.gov

Please APPROVE proposal WP 18-56.

Obviously no sheep hunting by the listed communities actually occurs. Historically the only consistent use of the area (before the closure) was by guides and some non-local AK resident hunters. There is no cogent reason, either biological or subsistence-related, for the closure to remain in force.

Leaving this area closed continues to send a message to the rest of the world: "The federal subsistence program in Alaska is a joke and not actually intended to help local rural residents." Silly, politically correct closures make a mockery of an important system.

Thank you for the opportunity to comment.

Pete Buist
Fairbanks, AK

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: sheep hunt

AK Subsistence, FW7 <subsistence@fws.gov> Mon, Jul 31, 2017 at 7:58 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>
Cc: Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Kodiak Adventures Lodge** <kodiakadventureslodge@gmail.com>
Date: Sun, Jul 30, 2017 at 8:05 PM
Subject: sheep hunt
To: subsistence@fws.gov

Hello ,
I am writing in support of opening sheep hunting in federal public land within the Artic National wildlife refuge. There is a proposal # **WP-18-56**
This needs to be addressed in a biological manner not favoring one group of people over another. All would benefit from opening this up. Please consider my request.

Larry Carroll

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: Proposal WP18-56

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 10:15 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>, Paul Mckee <paul_mckee@fws.gov>, Jennifer Hardin <jennifer_hardin@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Walter Chuck** <the4chucks@aol.com>
Date: Fri, Aug 4, 2017 at 10:14 AM
Subject: Proposal WP18-56
To: subsistence@fws.gov

Federal Subsistence Board,

I am writing you to express my strong support for Proposal WP18-56 which would reopen an area in the Eastern Brooks Range within the ANWR for the take off full curl Dall Sheep Rams in accordance with all hunting regulations and fees. This area contains a healthy and the resumption of allowing the hunting of Dall Sheep will increase access and utilization for other recreation opportunities as well on our public lands.The Alaska National Interest Lands Conservation Act allows hunting for non-locals if there is no conservation concern, the Dall Sheep population is healthy and exists in numbers that would sustain the harvest of adult males. Subsistence opportunities would continue to be available and users needs would continue to be met. Once again please pass Proposal WP18-56.

Thank you for your time,

Walter Chuck
166 NE 71st St
Newport, OR 97365
541-574-9078

Matuskowitz, Theo <theo_matuskowitz@fws.gov>

Fwd: WP-18-56 Proposal

1 message

AK Subsistence, FW7 <subsistence@fws.gov> Mon, Jul 31, 2017 at 8:00 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>
Cc: Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Clemens M. Clooten** <CClooten@fairbanks.us>
Date: Mon, Jul 31, 2017 at 7:28 AM
Subject: WP-18-56 Proposal
To: "subsistence@fws.gov" <subsistence@fws.gov>

Attn: Theo Matuskowitz

I request that Proposal WP-18-56 be adopted to allow Alaskans the opportunity to harvest sheep in this area because there is no harvest of sheep by the local people and it would bring money into this area.

Therefore, with essentially no harvest of sheep, there is no conservation reason to keep this area closed. Sheep hunting opportunity on these federal public lands should be available to the public under State of Alaska hunting regulations. Opening this area to hunting would not only benefit the local economies of nearby villages, but would also increase hunter opportunities in Alaska and lessen pressure on other Dall sheep hunting areas in the state.

Thank you for your time and consideration

Clem Clooten

1163 Linda Lou Lane

Fairbanks, Alaska 99712

Matuskowitz, Theo <theo_matuskowitz@fws.gov>

Fwd:
1 message

AK Subsistence, FW7 <subsistence@fws.gov> Mon, Jul 31, 2017 at 8:02 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>
Cc: Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **John Davis** <jcdavis@gci.net>
Date: Sun, Jul 30, 2017 at 9:12 PM
Subject:
To: subsistence@fws.gov

Proposal WP-18-56.

a) there is no biological concern about hunting of full curl rams in general and,

b) that the local hunters don't apparently use or report use of sheep.

Therefore, with essentially no harvest of sheep, there is no conservation reason to keep this area closed. Sheep hunting opportunity on these federal public lands should be available to the public under State of Alaska hunting regulations. Opening this area to hunting would not only benefit the local economies of nearby villages, but would also increase hunter opportunities in Alaska and lessen pressure on other Dall sheep hunting areas in the state.

I urge adoption of this proposal in the strongest terms. Very important to get this ridiculous regulation changed ASAP!

John C Davis

48590 KSRM Court

Kenai, AK 99611

Matuskowitz, Theo <theo_matuskowitz@fws.gov>

Fwd: WP-18-56

1 message

AK Subsistence, FW7 <subsistence@fws.gov> Mon, Jul 31, 2017 at 7:57 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>
Cc: Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **J Doll** <akjuliedoll@gmail.com>
Date: Sun, Jul 30, 2017 at 2:56 PM
Subject: WP-18-56
To: subsistence@fws.gov

I believe the area around Arctic Village should be reopened to general sheep hunting. There appears to be no issue requiring management or necessary hunting restrictions of the sheep.
Allowing resident and non-resident hunting would provide a financial benefit to the local area with aircraft servicing and general store use.
Our public lands should be open to use by all whenever possible.

--
Julie Doll, 30-year resident hunter
5625 Old Valdez Trail
Salcha, AK 99714

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: WP18-56

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 8:57 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>, Paul Mckee <paul_mckee@fws.gov>, Jennifer Hardin <jennifer_hardin@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **David A. Doudna** <david@northernsledworks.com>
Date: Fri, Aug 4, 2017 at 8:51 AM
Subject: WP18-56
To: "subsistence@fws.gov" <subsistence@fws.gov>

Please pass Proposal WP18-56 and open the area to sheep hunting per ANILCA.

1. The area has a healthy sheep population
2. Federal law (the Alaska National Interest Lands Conservation Act (ANILCA)) mandates hunting be open to "non-locals"
3. The Refuge is federal public land where ANYONE can recreate
4. The Refuge encourages hunting as wildlife-oriented recreation
5. Hunting can only be closed if there is a conservation concern or subsistence uses are not met
6. There is no present conservation concern
7. Subsistence opportunities for sheep and other resources continue to be available

Thank you,

David Doudna
P.O. Box 61171
Fairbanks, AK 99706

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: Wp-18-56

AK Subsistence, FW7 <subsistence@fws.gov> Mon, Jul 31, 2017 at 7:57 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>
Cc: Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Mark Freshwaters** <mfreshwaters@gmail.com>
Date: Sun, Jul 30, 2017 at 2:29 PM
Subject: Wp-18-56
To: subsistence@fws.gov

As a hunter and resident of Alaska since 1971, I support the opening of sheep hunting for non-local hunters. I see no conflict what so ever in the doing of this to make use of the states resource for all hunters and not just a select few.
When I lived in Fairbanks I would have never said to a village person looking for a town job, " now you back to your village and live a subsistence life and leave town town jobs to us city residents".
These things need to work both ways and not create a divide in people.
Please take this into consideration.
Sincerely,
Mark Freshwaters
PO box 866
Skagway, Alaska 99840

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: WP-18-56

AK Subsistence, FW7 <subsistence@fws.gov> Tue, Aug 1, 2017 at 7:52 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>
Cc: Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Jim Gallagher** <jimmy.g@acsalaska.net>
Date: Tue, Aug 1, 2017 at 4:15 AM
Subject: WP-18-56
To: subsistence@fws.gov

Please approve Proposal WP-18-56.

Sheep hunting opportunity on these federal public lands should be available to the public under State of Alaska hunting regulations.

Opening this area to hunting would not only benefit the local economies of nearby villages, but would also increase hunter opportunities in

Alaska and lessen pressure on other Dall sheep hunting areas in the state.

Thank you,

Born and raised Alaskan 1955

Jim E. Gallagher

Cell 907-242-5557

Jimmy.g@acsalaska.net

Matuskowitz, Theo <theo_matuskowitz@fws.gov>

Fwd: Proposal (WP-18-56)

1 message

AK Subsistence, FW7 <subsistence@fws.gov> Tue, Aug 1, 2017 at 12:28 PM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>
Cc: Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **H. E. Budd Goodyear, MSM, MLA** <bg@mtaonline.net>
Date: Tue, Aug 1, 2017 at 12:06 PM
Subject: Proposal (WP-18-56)
To:

Attn: Theo Matuskowitz
I urge the Subsistence Board to approve Proposal WP-18-56 to open sheep hunting to public in Game Management Unit 25 for 4 reasons:

1) Approval is recommend by the US Fish and Wildlife Service,
2) there is minimal hunting pressure on that area;
3) there is a lack of statistics to support keeping the area off limits to public hunting; and
4) purely political decisions seem to often go awry and become unfair.

Thank you for the opportunity to comment.

Budd Goodyear
Mat-Su Area

Attachment: WP-18-56

2018-2020_wildlife_proposal_book_final_0629_reduced_0.pdf
154K

2018–2020 Wildlife Proposals

Eastern Interior

WP18-56

Regulations.gov - Comment Page 1 of 1

regulations.gov

Submitted Electronically via eRulemaking Portal

The is a Comment on the **Fish and Wildlife Service** (FWS) Proposed Rule: **Subsistence Management: Public Lands in Alaska; 2018-19 and 2019-20 Subsistence Taking of Wildlife**

For related information, **Open Docket Folder**

Comment Now!

Due Jun 16 2017, at 11:59 PM ET

ID: FWS-R7-SM-2016-0049-0013

Tracking Number: 1k1-8wyk-zrzz

Comment

Game Management Unit 25, Arctic Village Sheep Management Area: Remove the restriction on public hunting of Dall sheep in this area. The retriction of sheep hunting to residents of a few communities is unnecessary to accommodate local subsistence uses, and the Area is unused for sheep hunting by residents of the communities listed. Sheep hunting opportunity on these federal public lands should be available to the public under State of Alaska hunting regulations. There is no biological or subsistence related reason to preclude sheep hunting opportunities from the public in this Area.

Document Information

Date Posted:
Jun 14, 2017

RIN:
1018-BB38

Show More Details

Submitter Information

Submitter Name:
Richard Bishop

City:
Fairbanks

Country:
United States

State or Province:
AK

ZIP/Postal Code:
99709

https://www.regulations.gov/document?D=FWS-R7-SM-2016-0049-0013 6/14/2017

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: Comments on Proposal WP18-56

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 3:58 PM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>, Paul Mckee <paul_mckee@fws.gov>, Jennifer Hardin <jennifer_hardin@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **K.M. Gordon** <kgordon@mosquitonet.com>
Date: Fri, Aug 4, 2017 at 3:55 PM
Subject: Comments on Proposal WP18-56
To: subsistence@fws.gov

Chairman Christianson and Members of the Board:

The FSB is out of compliance with ANILCA (and other guiding documents) in a serious way and needs to cease ignoring them. Past actions of the FSB have put the FSB on the wrong side of Congressional intent as well as the very laws that direct its work. That was to be expected from the Obama Administration, but it is unlikely these actions will pass muster under Secretary Zinke. Therefore to right the wrongs of the past and to become "legal," the following will be fixed through support of Proposal WP18-56:

The FSB is failing to comply with Congressional intent both to federally-qualified subsistence users and those not so qualified

The FSB is failing to comply with the stipulations of ANILCA Title 815

The FSB is failing to comply the directives of the ANWR Refuge Comprehensive Conservation Plan

The FSB is failing to comply with the purposes of the Refuge per ANILCA

The FSB is failing to comply with Refuge intent

The above failures are a direct result from willfully deviating from clearly afforded

directives to the FSB which instead makes up their own rules rather than follow correct criteria. Precluding hunting from one class of user is illegal, yet the FSB continues to do so for "emotional" reasons rather than the ones they are given to follow. Lack of overlapping seasons precludes user conflict in the field. A healthy population of sheep that is not being used is being wasted. Hunting should be allowed at the full curl ram designation.

Thank you for fixing the current violations and please bring the FSB back into compliance with federal dictates, and allow hunting at the "safe" full curl ram level. This regime will not hurt the population at all per the current science. It could make more sheep for everyone.

Sincerely,

Karen Gordon

Fairbanks

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: Proposal WP18-56

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 8:20 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>, Paul Mckee <paul_mckee@fws.gov>, Jennifer Hardin <jennifer_hardin@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Chris Gossen** <cgossen1@gmail.com>
Date: Fri, Aug 4, 2017 at 8:19 AM
Subject: Proposal WP18-56
To: subsistence@fws.gov

Please vote for Proposal WP-18-56 and reopen the area to sheep hunting per ANILCA.

--
Chris Gossen
Energy and Emission Solutions Inc.
907-388-3533

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: Wp18-56

AK Subsistence, FW7 <subsistence@fws.gov> Tue, Aug 1, 2017 at 7:51 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>
Cc: Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Walter Hanni** <walthanni@yahoo.com>
Date: Mon, Jul 31, 2017 at 6:44 PM
Subject: Wp 18-56
To: subsistence@fws.gov
Cc: Alaska Outdoor Council <membership@alaskaoutdoorcouncil.com>

It has been my experience having hunted the brooks range for sheep for many years that it's one of the most wonderful outdoor experiences I have ever had. In all the years of hunting I harvested far less sheep than I could have legally taken. It's a difficult hunt and sheep seem to live far away from convenient access. Opening more hunting land spreads hunters out giving everyone a more quality hunt. The game should be managed under state hunting regulations providing local hunters opportunity and others when the game population is healthy and can handle it. Thank you for this consideration. Sincerely Walt Hanni resident of Alaska since 1971

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: Proposal WP18-56

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 9:42 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>, Paul Mckee <paul_mckee@fws.gov>, Jennifer Hardin <jennifer_hardin@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Paul HARRELL** <harrellp1@msn.com>
Date: Fri, Aug 4, 2017 at 9:41 AM
Subject: Proposal WP18-56
To: "subsistence@fws.gov" <subsistence@fws.gov>

Please pass Proposal WP18-56 and open the area to sheep hunting per ANILCA.

Thank you!

Paul Harrell
North Pole, Alaska

Encourage one another to good works!

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: Comments on Proposal WP18-56

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 7:52 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>, Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Wayne Heimer** <weheimer@alaskan.net>
Date: Thu, Aug 3, 2017 at 9:16 PM
Subject: Comments on Proposal WP18-56
To: subsistence@fws.gov

Please accept my comments on WP18-56, dealing with the Arctic Village Dall Sheep Management Area.

They are copied here and in the attached file.

Most sincerely,

Wayne E. Heimer
1098 Chena Pump Road
Fairbanks, Alaska 99709

2 attachments

ATT00001
26K

Arctic Village Dall Sheep Management Area.docx
125K

Arctic Village Dall Sheep Management Area:

Comments to Federal Subsistence Board on Proposal WP18-56, a proposal to open general hunting for Dall sheep in the presently existing Arctic Village Dall Sheep Management Area.

*The Arctic Village Dall Sheep Management Area has not always existed.

*It was created because residents of Arctic Village alleged a need for exclusive use to meet traditional Dall sheep subsistence needs. Three other villages were included among federally-recognized users in prior actions of the Federal Subsistence Board.

*These three villages have reported virtually no use of Dall sheep from the Area.

*Based on reporting over the last 25 years, subsistence use of Dall sheep by Arctic Village residents has averaged fewer three sheep per year.

*There can be no biological concern about Dall sheep population health in the Area as a result of human harvest.

*If there is no biological concern for population health, and documented subsistence use is virtually absent, there is no practical rationale for the continued existence of exclusive use of Dall sheep by communities, which have reported no significant use of the Dall sheep set aside for them.

*Hence, the Arctic Village Dall Sheep Management Area should be eliminated, and regular use of Dall sheep (for full curl ram harvesting) should be reestablished as per the regular State of Alaska Dall sheep open season from August 10 through September 20.

*Given that harvest of full curl rams actually removes the only "surplus" Dall sheep from a population, general full curl hunting is likely to affect subsistence opportunities only by subtracting an insignificant number of mature rams from the population.

*Mature rams taken in winter are not considered the best subsistence fare. Other sheep are preferred as food by most users during winter.

*The subsistence season (seven months long with a bag limit of three sheep) is the highest-risk harvest management scheme, which even vaguely resembles controlled harvest.

*This season opens long after the general ram hunting season has closed, weather has changed (with the falling of snow), encompasses the Dall sheep rut, and allows only federally recognized subsistence users to participate.

*If subsistence harvests remain as low as reported, there is no reason this seven-month season could not be sustained. Nevertheless, it remains a high-risk harvest strategy.

*The Arctic Village Dall Sheep Management Area is obsolete under ANILCA, as well as inconsistent with the USFWS Comprehensive Management Plan for ANWR.

*The Arctic Village Dall Sheep Management Area may be profitably considered an experiment in Dall sheep subsistence use, which proved impractical. Exclusion of non-local hunters is not biologically necessary, and most likely in conflict with ANILCA intent. Restrictions in the AREA proved to be unnecessary, and provided no irreplaceable benefit to the subsistence users for whom they were designed.

*The costs of this experiment to the state can only be estimated. However if the sustainable harvest of five full curl rams from the AREA per year at a mean economic value of $20,000 per ram over 25 years is tallied, the loss to the State's economy could have been as high as 2.5 million dollars.

*It is time to let the Arctic Village Dall Sheep Management Area lapse into the history of ideas that didn't "pan out" as expected.

Please accept proposal WP18-56 to essentially abolish the Arctic Village Dall Sheep Management Area.

Wayne E. Heimer
ADF&G Dall Sheep Biologist 1971-1997 (ret.)
1098 Chena Pump Road
Fairbanks, AK 99709

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: Comments on Proposal WP18-56

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 11:55 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>, Paul Mckee <paul_mckee@fws.gov>, Jennifer Hardin <jennifer_hardin@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Wayne Heimer** <weheimer@alaskan.net>
Date: Fri, Aug 4, 2017 at 11:53 AM
Subject: Re: Comments on Proposal WP18-56
To: subsistence@fws.gov
Cc: Kevin J Kehoe <Kevin.Kehoe@kantishnainc.com>, Karen Gordon <kgordon@mosquitonet.com>, "Dale, Bruce W (DFG)" <bruce.dale@alaska.gov>, "Darren L (DFG) Bruning" <darren.bruning@alaska.gov>

Attention Federal Subsistence Board: I seem to have made a bag limit mistake regarding Proposal WP18-56 in my comments (weheimer@alaskan.net) submitted yesterday. Please not Mr. Arno's correction. Sorry about that. The bag limit argument does not materially affect my position on Proposal WP18-56. Thank you.

W. Heimer
1098 Chena Pump Road
Fairbanks, AK 99709

Thanks, Rod. I'll cc the FSB on my mistake see above. KG and I went "round" on this difference Wednesday. Being lazy, I deferred to her greater present effort on the issue, and went with the state bag limit. "Good on" the FSB for being more conservative than the state originally was.

HISTORY: The "three-sheep" bag limit was "transplanted" to Red Sheep Creek from the North Side of the Brooks Range (Kaktovik) as well as to other areas of historic Dall sheep subsistence use as the state formally provided for sheep subsistence uses in places beyond Kaktovik. The three-sheep bag limit originated back during the first official recognition of Dall sheep subsistence hunting (out of Kaktovik on the Hula Hula River) by the state of Alaska in the mid 1980s. The "three sheep" bag limit and

seven month season were originally established as an "uber-liberal" effort to encourage documentation of Dall sheep subsistence uses by Kaktovik residents. The rationale was to make sure the season and bag limit were sufficiently liberal to provide expansively for sheep subsistence use in the hope that reporting would be accurate and voluntary. Conservation was not a consideration at that time. The prime directive was to document subsistence use by local residents.

The reporting experiment didn't work very well in Kaktovik or anywhere else, but the season length and bag limit established the precedent for the seven-month season and three-sheep bag limit. At the time, I argued against that idea because philosophically, I don't think its a good idea for managers to permit harvests that have the possibility of being beyond biological sustainability, particularly where population monitoring is ineffective or neglected. Specific to the Hula Hula River, I buttressed my argument on the casual statement by the Mayor of Kaktovik to Sverre Pederson (Subsistence Division-with whom I shared an office during my ANILCA days) that, "*There used to be a lot of sheep out there*[in the rolling country between the Hula Hula River and Okpilik River as seen from Katak Ridge-where there were virtually no sheep at time Sverre reported to me in the early 1990s]...*we shoot 'em all, I guess.*"

So much for history. Thank you for the correction in bag limit. I presume the Federal Subsistence Board will be appraised of this error on my part via this additional comment.

It's always good to be corrected. I've always said I'd rather be correct than consistent.

W. Heimer

On Aug 4, 2017, at 10:28 AM, Rod Arno <rodarno@gmail.com> wrote:

It should be noted that the current (July 1, 2016 - June 30, 2018) harvest of Dall sheep in the AVSMA (GMU 25A) under federal regulations is:

2 rams by Federal registration permit (FS2502) only. Aug 10 - April 30

It's only the Alaska Board of Game that allows a 3 sheep (ewes included) harvest in the AVSMA. (AOC recently submitted a proposal to put a stop to that in all of GMU25 but the proposal failed 6-1)

Please correct me if I'm wrong,
rod

Sent from Rod Arno's iPad.

On Aug 3, 2017, at 11:19 PM, Wayne Heimer <weheimer@alaskan.net> wrote:

*The subsistence season (seven months long with a bag limit of three sheep) is the highest-risk harvest management scheme, which even vaguely resembles controlled harvest.

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: Please pass Proposal WP18-56 and open the area to sheep hunting per ANILCA.

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 7:48 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>, Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **George Houston** <ghouston@hevanet.com>
Date: Fri, Aug 4, 2017 at 7:09 AM
Subject: Please pass Proposal WP18-56 and open the area to sheep hunting per ANILCA.
To: subsistence@fws.gov

Please pass Proposal WP 18-56 and open the area to sheep hunting per ANILCA.

1. Subject area has a healthy dall sheep population

2. Federal law (the Alaska National Interest Lands Conservation Act (ANILCA)) mandates hunting be open to "non-locals" (see #5 and #6)

3. The Refuge is federal public land where ANYONE can enjoy recreational opportunities.

4. There is no present conservation concerns.

5. The Refuge encourages hunting as wildlife-oriented recreation.

6. Hunting can only be closed if there is a conservation concern or subsistence uses are not met.

7. Subsistence opportunities for sheep and other resources continue to be available.

8. The Federal Subsistence Board has apparently illegally kept this area closed from outsiders for emotional reasons rather than legal ones.

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: Proposal WP18-56

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 10:53 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>, Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>, Jennifer Hardin <jennifer_hardin@fws.gov>

---------- Forwarded message ----------
From: <lljacobs4@aol.com>
Date: Fri, Aug 4, 2017 at 10:31 AM
Subject: Proposal WP18-56
To: subsistence@fws.gov

Chair Christianson and members of the Board

I am writing to show support for the proposal before the Board that would reopen the area in the Eastern Brooks Range within the Artic National Wildlife Refuge for hunting of full curl rams to the public. Please pass Proposal WR18-56 and open the area to sheep hunting per ANILCA.

Thank You for your consideration
Larry Jacobs
President - OR-FNAWS
Board member - WSF

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: Proposal WP18-56

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 7:54 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>, Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **James P. Jacobson** <huntfish@ak.net>
Date: Fri, Aug 4, 2017 at 7:52 AM
Subject: Proposal WP18-56
To: subsistence@fws.gov

8-4-17 Dear Board Members:
Please follow the actual guidelines of federal law & PASS WP18-56.
Thank you,
J.P.Jacobson, U.S.Citizen & Alaska resident

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: Approve Proposal WP-18-56.

AK Subsistence, FW7 <subsistence@fws.gov> Wed, Aug 2, 2017 at 11:32 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>, Jennifer Hardin <jennifer_hardin@fws.gov>, Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Kaiser, John J.** <John.Kaiser@awwu.biz>
Date: Wed, Aug 2, 2017 at 11:09 AM
Subject: Approve Proposal WP-18-56.
To: "subsistence@fws.gov" <subsistence@fws.gov>

I thought Federal is supposed to look out for every one of the United States of America! Please Open this area so my children who were born in Alaska, thus are Residents and Alaskan Natives, have the opportunity to harvest a Dall sheep in this area.

It is wrong to only allow a small group exclusive rights to something that belongs to all Alaskans.

John Kaiser

Matuskowitz, Theo <theo_matuskowitz@fws.gov>

Fwd: Proposal 18-56

1 message

AK Subsistence, FW7 <subsistence@fws.gov> Mon, Jul 31, 2017 at 8:01 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>
Cc: Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **kkennedy2175** <kkennedy2175@gmail.com>
Date: Sun, Jul 30, 2017 at 11:04 PM
Subject: Proposal 18-56
To: subsistence@fws.gov

I encourage you to approve the proposal to open the artic refuge to sheet hunting for all Alaskans. This is a discimitory. If the tables were turned it would be called racist.
Opening will help the local economy with non government resources, and create non government jobs. All Alaska will benefit.

Kal Kennedy, Alaska citizen since 1990.

Sent via the Samsung GALAXY S®5, an AT&T 4G LTE smartphone

Matuskowitz, Theo <theo_matuskowitz@fws.gov>

Fwd: Wp18-56

1 message

AK Subsistence, FW7 <subsistence@fws.gov> Mon, Jul 31, 2017 at 8:05 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>
Cc: Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **AK Subsistence, FW7** <subsistence@fws.gov>
Date: Mon, Jul 31, 2017 at 8:05 AM
Subject: Re: Wp18-56
To: Mike Kramer <mike@mikekramerlaw.com>

The Office of Subsistence Management is in receipt of your comments. Thank you.

On Sun, Jul 30, 2017 at 5:10 PM, Mike Kramer <mike@mikekramerlaw.com> wrote:

> Please open the red sheep creek area for general hunting. No one from Arctic Village hunts sheep in this large area and there is no biological or social reason to keep it closed.
> Sheep hunting statewide is becoming increasingly more difficult and many federal lands are closed to general hunting, forcing Brooks Range sheep hunters onto small parcels of state land or crowded into other accessible areas of anwr.
> Red Sheep creek is a long ways from Arctic village and the few non local hunters that will utilize this area will have no negative impact on Arctic Village residents.
>
> Sent from my iPhone, please forgive typos

Matuskowitz, Theo <theo_matuskowitz@fws.gov>

Fwd: WP-18-56

1 message

AK Subsistence, FW7 <subsistence@fws.gov> Mon, Jul 31, 2017 at 8:01 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>
Cc: Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Doug Vincent-Lang** <dvincentlang@yahoo.com>
Date: Sun, Jul 30, 2017 at 10:28 PM
Subject: WP-18-56
To: subsistence@fws.gov

Please accept these comments regarding Proposal WP-18-56.

Nearly a million acres (900,000 acres) of previously open-to-hunting Arctic Village Dall Sheep Management Area (AVDSMA) within the Arctic National Wildlife Refuge in the Eastern Brooks Range has been closed by the federal government to non-local hunters since 1991 due to "social" concerns. There are no biological concerns about hunting of full curl rams and little reported use of sheep by local users. As such there is no conservation or social reason to keep this area closed.

Sheep hunting opportunity on these federal public lands should be available to the public under State of Alaska hunting regulations. Opening this area to hunting would not only benefit the local economies of nearby villages, but would also increase hunter opportunities in Alaska and lessen pressure on other Dall sheep hunting areas in the state.

Thank you for the opportunity to comment.

Doug Vincent-Lang

Anchorage, AK

dvincentlang@yahoo.com

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: WP18-56

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 2:49 PM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>, Paul Mckee <paul_mckee@fws.gov>, Jennifer Hardin <jennifer_hardin@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Jeff Lappe** <jalappe@hotmail.com>
Date: Fri, Aug 4, 2017 at 2:44 PM
Subject: WP18-56
To: "subsistence@fws.gov" <subsistence@fws.gov>

Please pass Proposal WP18-56 and open the area to sheep hunting per ANILCA.

Jeff Lappe

Sent from Outlook

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd:

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 10:22 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>, Paul Mckee <paul_mckee@fws.gov>, Jennifer Hardin <jennifer_hardin@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Gordon Lyons** <mspaindoc@msn.com>
Date: Fri, Aug 4, 2017 at 10:20 AM
Subject:
To: "subsistence@fws.gov" <subsistence@fws.gov>

Please pass Proposal WP18-56 and open the area to sheep hunting per ANILCA.
Thank you for your consideration. Any and all response/information/feedback would be greatly appreciated.
Sincerely,
Gordon Lyons

A. Gordon Lyons M.D.
Fellowship Trained/ABMS Board-Certified
Interventional Pain Medicine and
Anesthesiology

St. Dominic's Pain Management Center
Dominican Plaza
970 Lakeland Drive Suite 45
Jackson, MS 39216
Office 601.200.4690
Office Fax 601.200.4698

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd:

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 7:51 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>, Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **CRAIG NAKAMOTO** <nakamoto01@sbcglobal.net>
Date: Fri, Aug 4, 2017 at 2:54 AM
Subject:
To: "subsistence@fws.gov" <subsistence@fws.gov>

Please pass Proposal WP18-56 and open the area to sheep hunting per ANILCA.

Sincerely,

Craig Nakamoto,
President, Iowa FNAWS

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: Proposal WP-18-56 Arctic National Wildlife Refuge, Arctic Village Dall Sheep Management Area - Alaska

AK Subsistence, FW7 <subsistence@fws.gov> Tue, Aug 1, 2017 at 7:52 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>
Cc: Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Phil & Linda Nuechterlein** <knik07@gmail.com>
Date: Mon, Jul 31, 2017 at 10:27 PM
Subject: Proposal WP-18-56 Arctic National Wildlife Refuge, Arctic Village Dall Sheep Management Area - Alaska
To: subsistence@fws.gov

Greetings,

I would like to take the opportunity to voice my opinion on proposal WP-18-56.

It is my understanding that the Arctic Village Dall Sheep Management Area (AVDSMA) within the Arctic National Wildlife Refuge in the Eastern Brooks Range has been closed by the federal government to non-local hunters since 1991 due to "social" concerns. This should be changed for the following reasons:

1) **Local hunters apparently do not use or report the use of sheep.** Therefore, it appears that non-local hunters would not be competing with local hunters for this resource.

2) **There are apparently no biological reasons** to prohibit the general public from hunting mature full curl rams on this land.

3) **This is public land that should be available to all citizens** (and not restricted based on race, color, gender, creed, age, or zip code)

In conclusion, there is apparently no reason to keep this hunt closed to the general public. I respectfully request that you allow the public to hunt these lands under

State of Alaska hunting regulations.

Phil Nuechterlein

Eagle River, Alaska

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: Hunt Area

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 7:49 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>, Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Pat O'Neill** <pat.gcr@outlook.com>
Date: Fri, Aug 4, 2017 at 6:49 AM
Subject: Hunt Area
To: "subsistence@fws.gov" <subsistence@fws.gov>

Dear Board Members,

Please consider passing proposal WP18-56 and open the area to Sheep Hunting per ANILCA.

Thank You for your consideration.

Pat

Pat O'Neill
President
Granite City Roofing, Inc.
PO Box 1482
St. Cloud, MN 56302
320-253-4441

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: WP-1856

AK Subsistence, FW7 <subsistence@fws.gov> Tue, Aug 1, 2017 at 7:52 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>
Cc: Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Donald Quarberg** <dmqlaf@yahoo.com>
Date: Mon, Jul 31, 2017 at 8:58 PM
Subject: WP-1856
To: subsistence@fws.gov

Open the 900,000 acres of Dall Sheep habitat within the Arctic Village Dall Sheep Management Area to sheep hunting by the general public. There is no biological reason to have this area closed, especially when the locals report no hunting of Dall Sheep. Eliminate this totally unnecessary closure!

Thank You, Don Quarberg

Matuskowitz, Theo <theo_matuskowitz@fws.gov>

Fwd: Proposal WP-18-56

1 message

AK Subsistence, FW7 <subsistence@fws.gov> Mon, Jul 31, 2017 at 8:02 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>
Cc: Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Chuck** <jrsmom@ptialaska.net>
Date: Sun, Jul 30, 2017 at 7:48 PM
Subject: Proposal WP-18-56
To: subsistence@fws.gov

I strongly encourage you to approve proposal WP-18-56. There's no reason to prevent non local Alaska residents from hunting dall sheep in accordance with Alaska hunting regulations in the area described.

Thank you for your consideration.

Charles Rodgers

43725 Ross Drive

Soldotna, AK 99669

This email has been checked for viruses by Avast antivirus software.
https://www.avast.com/antivirus

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: Proposal WP18-56

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 10:55 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>, Jennifer Hardin <jennifer_hardin@fws.gov>, Paul Mckee <paul_mckee@fws.gov>

---------- Forwarded message ----------
From: **Mike Schlegel** <mws1941@gmail.com>
Date: Fri, Aug 4, 2017 at 10:32 AM
Subject: Proposal WP18-56
To: subsistence@fws.gov

August 4, 2017

To Whom It May Concern:

It is my understanding the Alaska Federal Subsistence Board has prohibited recreational hunting in the Eastern Brooks Range within the Arctic National Wildlife Refuge. It is also my understanding there are no biological issues/concerns regarding the Dall's sheep population in this portion of the Brooks range that suggest recreational hunting of full curl rams should not be allowed. The Alaska National Interest Lands Conservation Act mandates hunting opportunity for "non-locals" are provided where there are no conservation and/or subsistence issues. The Eastern Brooks Range fully meets these criteria. In addition, hunting is an approved and accepted recreational activity on federal refuges.

I encourage the Alaska Federal Subsistence Board to approve proposal WP18-56; subsistence hunting and recreational hunting can coexist when properly planned; hunting is conservation!

Thank you for the opportunity to comment;

Mike Schlegel

Retired Wildlife Biologist, Idaho Dept Fish and Game

506 S State Street

Grangeville, ID 83530

208-630-3001

mws1941@gmail.com

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: Passing WP18-56

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 2:54 PM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>, Paul Mckee <paul_mckee@fws.gov>, Jennifer Hardin <jennifer_hardin@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Schruf, Robert C (DOT)** <bob.schruf@alaska.gov>
Date: Fri, Aug 4, 2017 at 2:53 PM
Subject: Passing WP18-56
To: "subsistence@fws.gov" <subsistence@fws.gov>

Greetings,

If the locals do not harvest the Dall sheep in the eastern Brooks Range, then allow the non-local residents to maintain a healthy Dall sheep population, by harvesting the sheep.

"ACCESS FOR ALL"

Bob Schruf 907-378-3803

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: Please re open Arctic Village Sheep Management Area

AK Subsistence, FW7 <subsistence@fws.gov> Thu, Aug 3, 2017 at 3:57 PM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>
Cc: Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Rebecca Schwanke** <becky99588@yahoo.com>
Date: Thu, Aug 3, 2017 at 3:31 PM
Subject: Please re open Arctic Village Sheep Management Area
To: "subsistence@fws.gov" <subsistence@fws.gov>
Cc: Skip Bourgeois <gbourgeoisiii@hotmail.com>, "Kevin J. Kehoe" <kevinkehoe@alaskan.com>

I am writing to support the approval of Proposal WP-18-56.

Closed for some time now, the Arctic Village Dall Sheep Management Area should be re-opened to sheep hunting under a general season full-curl regulation. Even low density sheep populations can sustain the limited harvest pressure than a full-curl regulation brings.

Not allowing general sheep hunting in this area equates to a significant lost opportunity for a number of sheep hunters. Fly in hunting would offer a much needed financial boost to nearby communities.

There would be no conflict that I am aware of with local subsistence hunting in this area, and there is no biological reason to keep this area closed.

Please re-open the area to general state sheep hunting.

As a federal subsistence sheep hunter and a lifelong Alaskan, I thank-you for your consideration,

Rebecca Schwanke
PO Box 612
Glennallen, AK 99588

AK Subsistence, FW7 <subsistence@fws.gov>

Sheep hunting
1 message

Randy Smith <racsmith2157@gmail.com> Fri, Aug 4, 2017 at 4:46 PM
To: subsistence@fws.gov

Please pass proposal WP18-56 and open the area to sheep hunting per ANILCA.

Thank You!

AK Subsistence, FW7 <subsistence@fws.gov>

Comments on proposal number WP-18-56
1 message

Steven Speer <stevenespeer@gmail.com> Fri, Aug 4, 2017 at 7:03 PM
To: subsistence@fws.gov

I would like to voice my support for re-opening Dall sheep hunting per proposal number WP-18-56 in the Arctic Village Dall Sheep Management Area within ANWR. It does not appear from any available data to be a closure that is based on biological sustainability of the resident sheep populations. As these sheep are not typically utilized by local villagers, the benefit to the villages will be through the money sportsmen will spend in the area. Increasing opportunity to hunters by restoring public hunting access can only help balance pressure on herds across the state and help maximize the benefit of this resource for the entire public without undue negative impact on local residents.

I also think it is important that any argument against restoring public hunting that roughly corresponds to "I don't have any interest in hunting these animals but I don't want you to either because I just don't want you here" is not an argument that the stewards of these resources should be willing to entertain. It is bad public policy that will only inflame and perpetuate racist attitudes in our society rather than create a common agenda of long term conservation for the benefit of all user groups.

Thank you,

Steven Speer
Aloha, Oregon

Matuskowitz, Theo <theo_matuskowitz@fws.gov>

Fwd: Proposal WP-18-56

1 message

AK Subsistence, FW7 <subsistence@fws.gov> Mon, Jul 31, 2017 at 8:07 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>
Cc: Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Henry Springer** <oksun@gci.net>
Date: Mon, Jul 31, 2017 at 8:05 AM
Subject: Proposal WP-18-56
To: subsistence@fws.gov

To: Federal Subsistence Board, Anchorage, Alaska.

Ref. Proposal WP-18-56 hunting dall sheep within the Arctic National Wildlife Refuge in the Eastern Brooks Range.

I have lived in Alaska for 57 years and have hunted big game all over Alaska, both as a sport hunter and subsistence user. I have hunted Dall sheep in the Eastern Brooks range and am familiar with the conditions.

Hunting Dall sheep in the effected area should be allowed for non-local hunters. There is no dall-sheep conservation concern to the taking of mature rams. Subsistence users mostly prefer younger animals, The use of this resource by locals for subsistence purposes is not excessive and would allow for the taking of mature rams by others.

This is not a cheap area to hunt in, but hunting for mature dall rams is a unique thing for most non-local hunters and often a hunt of a life-time. It would also lessen the hunting pressure on some over-hunted dall sheep areas in the State and would aid the Alaska economy. These reasons seem sufficient to override some political concerns. I appreciate your serious consideration. Sincerely, Heinrich Springer

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: WP-18-56

AK Subsistence, FW7 <subsistence@fws.gov> Thu, Aug 3, 2017 at 3:56 PM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>
Cc: Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Gary Stevens** <garyatsls@cs.com>
Date: Thu, Aug 3, 2017 at 3:48 PM
Subject: WP-18-56
To: subsistence@fws.gov
Cc: Representative.Cathy.Tilton@akleg.gov, Senator.Shelley.Hughes@akleg.gov

Dear Members of the Federal Subsistence Board,

I urge you to adopt Proposal WP-18-56 to reopen sheep hunting in the Arctic Village Dall Sheep Management Area to "non-local hunters" . With basically no harvest of sheep, it appears to me that the local hunters are under utilizing this resource. Allowing non-local participation will help to spread out the existing pool of sheep hunters across the state as well as support the local economies within ANWR. Please consider allowing more opportunities for "non-local" participation in all areas currently restricted to "locals" only. Continuing to create these large areas limiting participation to "locals" is only creating larger and more divisive "social" issues. If there is no scientific/biological reason for the restriction, please don't impose restrictions.

Thank you for your consideration,
Gary Stevens
garyatsls@cs.com.
907-229-4710

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: Proposal WP18-56

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 7:49 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>, Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Todd Stowater** <Todd@thoringtonlaw.com>
Date: Fri, Aug 4, 2017 at 6:51 AM
Subject: Proposal WP18-56
To: "subsistence@fws.gov" <subsistence@fws.gov>

To Whom it may concern:

lease pass Proposal WP18-56 and open the area to sheep hunting per ANILCA.

It is my understanding that there is approximately 900,000 acres in ANWR that has been restricted to subsistence hunting only in violation of ANILCA for hunting of Dall's sheep by hunters other than subsistence hunters. There is an adequate population of full curl Dall's sheep that is currently not being hunted by anyone and should be open to hunters per Federal law. The primary restriction on hunting these Dall's sheep has been emotionally driven rather conservation or legal reasons. Subsistence opportunity will be still be available for those who wish to exercise that desire.

I have personally hunted Dall's sheep in Alaska and I would hope that opening this area to non-subsistence hunting would encourage others to do the same and have an opportunity to experience the wonderful State of Alaska.

Please give Proposal WP18-56 your prompt attention and pass the same.

Thank you,

Todd Stowater

McMahon, Stowater, Lynch & Laddusaw

120 N. Thorington St.

Algona, IA 50511

P (515)295-3532

F (515)295-3302

Todd@ThoringtonLaw.com

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: DO pass Proposal WP 18-56

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 8:29 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>, Paul Mckee <paul_mckee@fws.gov>, Jennifer Hardin <jennifer_hardin@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Rich Thompson** <rich@kathykellydesign.com>
Date: Fri, Aug 4, 2017 at 8:28 AM
Subject: DO pass Proposal WP 18-56
To: subsistence@fws.gov

As there are no biological implications and subsistence opportunities are not a concern, please pass this proposal so that the ARTIC NATIONAL WILDLIFE REFUGE can be open to all citizens, particularly for sheep hunting opportunities.

Sincerely

R.S. Thompson

Newberg, OR

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: Wild Sheep Foundation Comments to WP18-56

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 3:45 PM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>, Paul Mckee <paul_mckee@fws.gov>, Jennifer Hardin <jennifer_hardin@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **K.M. Gordon** <kgordon@mosquitonet.com>
Date: Fri, Aug 4, 2017 at 3:28 PM
Subject: Wild Sheep Foundation Comments to WP18-56
To: subsistence@fws.gov

Attached are the comments from the Wild Sheep Foundation in support of Proposal WP18-56. Thank you for the opportunity to comment.

Gray Thornton

President and CEO

Wild Sheep Foundation

WSF Comments Final 2017 AK WP18-56.pdf
145K

WILD SHEEP™ Foundation

August 4, 2017

Federal Subsistence Board
Office of Subsistence Management
Attn: Theo Matuskowitz
1011 E. Tudor Road, MS-121
Anchorage, Alaska 99503-6199

Chairman Christianson and Members of the Board:

The Wild Sheep Foundation appreciates the opportunity to comment on Proposal WP18-56, and we ask the Federal Subsistence Board to approve this proposal to allow sheep hunting by non-federally-qualified subsistence users in the Arctic Village Dall Sheep Management Area within the Arctic National Wildlife Refuge (ANWR).

Above all, the Wild Sheep Foundation's focus is on conservation. As the premier international sheep-focused conservation organization representing nearly 7,000 members, and an affiliated membership of another 5,000 worldwide, the Wild Sheep Foundation strives to enhance wild sheep populations, promote scientific wildlife management, educate the public and youth on sustainable use and the conservation benefits of hunting while promoting the interests of the hunter. Conservation and hunting go hand-in-hand because it is hunters who actually pay for wildlife management through agreements between states and the US Fish and Wildlife Service.

According to ANWR's official website, the Refuge is characterized as "amazing public land owned by all US citizens," and that people commonly come to the Refuge to "camp, hike, float rivers, hunt, or fish." These activities are all officially allowable uses on Refuge land. Hunting on refuges is a customary and traditional activity for Americans, and should be reopened in the area proposed in Proposal WP18-56. It is the right of all Americans to recreate, including hunting, on federal public land.

According to ANILCA's Appendix, Section 303, one of the purposes for the ANWR was the conservation of Dall sheep. The Wild Sheep Foundation, in harmony with this objective, is also supremely focused on wild sheep conservation, and indeed raises and directs more than $4 Million annually to support professional scientific management and advancement of knowledge on biology, behavior, environmental resistance, health, and other needs of wild sheep and their habitats.

412 Pronghorn Trail, Bozeman, MT 59718 • 406.404.8750 • info@WildSheepFoundation.org • www.WildSheepFoundation.org

Hunting on the Refuge by non-federally-qualified subsistence users is supposed to be the rule and not the exception per ANILCA Title 815(4) which states that there can be no "authorizing a restriction on the taking of fish and wildlife for non-subsistence uses on the public lands ...unless necessary for the conservation of healthy populations of fish and wildlife."

Conservation concern and meeting subsistence uses are the only criteria for closing hunting to non-federally-qualified subsistence users per ANILCA, and indeed, because there is no conservation concern in the area in question, and there is no substantial evidence showing need to keep the area closed to non-subsistence users to provide a meaningful preference for actual subsistence uses, ANILCA says there should be no restriction. Because ANILCA gives no other social or cultural reason for closure of hunting, continuing the closure remains a violation of ANILCA.

Reported harvests of Dall sheep over the last 25 years suggest inconsequential use of Dall sheep and inconsequential subsistence harvest. Also, exclusion of other hunters has had no biological benefit to populations – either sheep or human.

The current regulations for non-locals is from August 10 to September 20 (41 days) while the locals' harvest season is October 1 to April 30 (182 days), a factor of almost 4.5 times as many days in the field. Because there is no overlap in seasons, there can be no conflict in the field between these two hunter groups. Additionally, while non-locals can only take one full curl ram, locals can harvest any three sheep, so not only are the locals' seasons much longer, their bag limits provide much more opportunity than that of non-locals.

The Refuge and its resources belong to all Americans. Closures due to perceived cultural or social reasons are not supported by either ANILCA or the Refuge's Comprehensive Conservation Plan. In fact, paraphrased, the latter document says:

- The Refuge has local, state, and national constituent users who must be considered in developing and implementing visitor use programs and policies. These visitor constituencies' use is best addressed through a fair and open public planning process. (Objective 5.4)

- Uses will not be prohibited unless a public process determines the use is detrimental to the area's resource values. (Objective 5.1) (Emphasis mine. Note that "cultural" or "social" uses are not legitimate criteria on which to order any closure to hunting.)

- Public access to Refuge lands for recreation is allowed to "provide the public with opportunities for wildlife-dependent recreation." (Objective 5.4)

Because hunting is an allowed use on the Refuge, it appears Refuge intent is that hunting is clearly considered "wildlife-dependent recreation," and thus should not be precluded in the face of no conservation concern or jeopardy to the area's resource values, and ANILCA Article 815 supports this.

In conclusion, the Wild Sheep Foundation believes there is no legal reason, and there are no supporting data, to keep the Arctic Village Dall Sheep Management Area closed to non-subsistence hunting any longer. In truth, ANILCA and the Refuge both EXPECT uses to not be limited EXCEPT when a documented conservation concern clearly requires it. These conditions have not been shown to exist, and to be in harmony with the Refuge's purposes, Comprehensive Conservation Plan, and ANILCA, open hunting should be allowed by the passage of Proposal WP18-56.

Sincerely,

Gray N. Thornton,
President & CEO

C: Karen Gordon, WSF Director, Fairbanks
Kevin Kehoe, AK WSF President, Anchorage

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: WP18-56

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 7:47 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>
Cc: Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Mike Tinker** <miketinkerak@gmail.com>
Date: Fri, Aug 4, 2017 at 7:38 AM
Subject: WP18-56
To: subsistence@fws.gov

Please pass this proposal to reopen the eastern Brooks Range to Dall sheep hunting.

Sent from my iPad

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: Support for re-establishing sheep hunting in ANWR Brooks Range 900,000 acres

AK Subsistence, FW7 <subsistence@fws.gov> Mon, Jul 31, 2017 at 8:00 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>
Cc: Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Mead Treadwell** <mead@ventureadastra.com>
Date: Sun, Jul 30, 2017 at 11:37 PM
Subject: Support for re-establishing sheep hunting in ANWR Brooks Range 900,000 acres
To: subsistence@fws.gov
Cc: Bill Iverson <president@alaskaoutdoorconcil.org>

As a member of the Alaska Outdoor Council and an Alaskan who supports hunting I write in support of opening the Arctic Village area of ANWR that has been closed to sheep hunting since the first Bush Administration.

I support this in the belief it will help the economies of the communities in the area and not negatively impact subsistence. I believe state management will protect the resource and the needs of the people.

A proposal (WP-18-56) before the Federal Subsistence Board (which regulates hunting in the Refuge) states that:

a) there is no biological concern about hunting of full curl rams in general and,

b) that the local hunters don't apparently use or report use of sheep.

Therefore, with essentially no harvest of sheep, there is no conservation reason to keep this area closed. Sheep hunting opportunity on these federal public lands should be available to the public under State of Alaska hunting regulations. Opening this area to hunting would not only benefit the local economies of nearby villages, but would also increase hunter opportunities in Alaska and lessen pressure on other Dall sheep hunting areas in the state.

Thank you.

Mead Treadwell
Mobile: (907) 223-8128
meadwell@alaska.net
mead@ventureadastra.com
Sent from my iPhone

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: Proposal WP-18-56

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 7:50 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>, Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Gerald Walters** <grldwalters2@aol.com>
Date: Fri, Aug 4, 2017 at 6:24 AM
Subject: Proposal WP-18-56
To: subsistence@fws.gov

Subsistence Board,

I am asking that you open up, to the general public, the 900,000 acre area, in the Eastern Brooks Range within the Arctic National Wildlife Refuge, that has been previously closed to public hunting. This area is currently closed to hunting, except for local village residents. There is a healthy Dall sheep population there, and the locals, prefer caribou to Dall sheep, so rarely hunt sheep. I am encouraging the Federal Subsistence Board to reopen this area, to hunting of full curl rams, so that the general public, that supports these lands with their tax dollars, will have an opportunity to visit and invest in your state.

Additional supporting facts that I ask you to consider:

1. The area has a healthy sheep population.
2. Federal law (the Alaska National Interest Lands Conservation Act (ANILCA)) mandates hunting be open to "non-locals" (see #5 and #6).
3. The Refuge is federal public land where ANYONE can recreate.
4. The Refuge encourages hunting as wildlife-oriented recreation.
5. Hunting can only be closed if there is a conservation concern or subsistence uses are not met.
6. There is no present conservation concern.
7. Subsistence opportunities for sheep and other resources continue to be available.
8. The Federal Subsistence Board has illegally kept this area closed from outsiders for emotional reasons rather than legal ones.

Sincerely,

Jerry Walters

Matuskowitz, Theo <theo_matuskowitz@fws.gov>

Fwd: WP-18-56.
1 message

AK Subsistence, FW7 <subsistence@fws.gov> Mon, Jul 31, 2017 at 8:01 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>
Cc: Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **mark wayson** <markonwayson@yahoo.com>
Date: Mon, Jul 31, 2017 at 5:55 AM
Subject: WP-18-56.
To: subsistence@fws.gov

Sheep hunting as well as hunting other game animals should be open to all in the area in question.

Mark Wayson

Matuskowitz, Theo <theo_matuskowitz@fws.gov>

Fwd: WP-18-56

1 message

AK Subsistence, FW7 <subsistence@fws.gov> Mon, Jul 31, 2017 at 2:08 PM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>
Cc: Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Gary Wilken** <garywilken@me.com>
Date: Mon, Jul 31, 2017 at 1:58 PM
Subject: WP-18-56
To: subsistence@fws.gov
Cc: Alaska Outdoor Council <membership@alaskaoutdoorcouncil.com>

Greetings US Fish & Game,

Please use this communication in support of reopening hunting of Dall sheep on federal public lands to all sheep hunters once again in the Arctic Village Dall Sheep Management Area.

Opening this area to hunting would not only benefit the local economies of nearby villages, but would also increase hunter opportunities in Alaska and lessen pressure on other Dall sheep hunting areas in the state.

Thank you for the opportunity to express my opinion.

Gary Wilken
2829 Chief William Drive #6
Fairbanks AK 99709

378-0707 m

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: AVDSMA

AK Subsistence, FW7 <subsistence@fws.gov> Wed, Aug 2, 2017 at 10:24 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>
Cc: Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Birch Yuknis** <byuknis@aol.com>
Date: Wed, Aug 2, 2017 at 10:23 AM
Subject: AVDSMA
To: subsistence@fws.gov

Hello and thank you for reading my email,

I am a lifelong Alaska resident. I was able to hunt in this area while in high school but it was closed shortly to nonlocals after I graduated college. I have made several trips to the Brooks Range sheep hunting and have long waited for this area to be "reopened" to everyone. I agree with the proposal WP 18-56 that is before the Federal Subsistence Board.

All of the data points to no biological reason to have this area closed to non-local hunters. This is a Federal Wildlife Refuge that should be open to all residents of the United States, not just a select group of locals. Based on this alone this area should be "opened" up to everyone.

Thank you for your time,

Birch Yuknis
5035 N Flying Circus Circle
Wasilla, Alaska 99654

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: WP-18-56
6 messages

AK Subsistence, FW7 <subsistence@fws.gov> Tue, Aug 1, 2017 at 7:52 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>
Cc: Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Jim Gallagher** <jimmy.g@acsalaska.net>
Date: Tue, Aug 1, 2017 at 4:15 AM
Subject: WP-18-56
To: subsistence@fws.gov

Please approve Proposal WP-18-56.

Sheep hunting opportunity on these federal public lands should be available to the public under State of Alaska hunting regulations.

Opening this area to hunting would not only benefit the local economies of nearby villages, but would also increase hunter opportunities in

Alaska and lessen pressure on other Dall sheep hunting areas in the state.

Thank you,

Born and raised Alaskan 1955

Jim E. Gallagher

Cell 907-242-5557

Jimmy.g@acsalaska.net

AK Subsistence, FW7 <subsistence@fws.gov> Tue, Aug 1, 2017 at 3:46 PM
To: Gene Peltola <gene_peltola@fws.gov>, Thomas Doolittle <thomas_doolittle@fws.gov>, Jennifer Hardin <jennifer_hardin@fws.gov>, Paul Mckee <paul_mckee@fws.gov>, Theo Matuskowitz <theo_matuskowitz@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Jeff Alling** <jeffa@alcanbuilders.com>
Date: Tue, Aug 1, 2017 at 3:29 PM
Subject: WP-18-56
To: "Subsistence@fws.gov" <Subsistence@fws.gov>

My name is Jeff Alling and I am a founding member of RHAK (Resident Hunters of Alaska) and I oppose the continued closure of Dall Sheep hunting in the AVDSMA area on the grounds that it is apparent that the local hunters do not use or do not report the use of this resource. Also I oppose the closure because there is no biological concern about hunting of Full Curl Rams.

This area has been closed to the taking of Dall Sheep by non-local hunters since

1991 for supposed "Social" concerns. This reason is nonsense as any contact I have had with locals from that area has been very positive.

Please reopen this area in an effort to revive this cherished freedom that has been taken from us by our Federal Government since 91.

Thank you.

Jeff Alling

Alcan Builders Inc.

3009 International Rd. Fairbanks, AK 99701

PH: 907-456-1383

FX: 907-452-4378

mailto:jeffa@alcanbuilders.com

Check us out at www.Alcanbuilders.com

AK Subsistence, FW7 <subsistence@fws.gov> Thu, Aug 3, 2017 at 9:31 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>
Cc: Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **andrew r. zajac** <zajac@mtaonline.net>
Date: Thu, Aug 3, 2017 at 9:29 AM
Subject: WP-18-56
To: subsistence@fws.gov

Dear Board Members,

I urge you to lift the ban on the hunting of Dall sheep in the Arctic Village Dall Sheep Management Area. If there is no biological concern nor hunting pressure on full curl rams, then the opportunity to hunt should be available to the general public, thus relieving hunting pressure in other areas around the state. Thank you.

Sincerely,
Andy Zajac
Eagle River, AK

Mckinney, Kayla
<kayla_mckinney@fws.gov>

Fwd: WP-18-56

AK Subsistence, FW7 <subsistence@fws.gov> Thu, Aug 3, 2017 at 9:31 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>
Cc: Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **andrew r. zajac** <zajac@mtaonline.net>
Date: Thu, Aug 3, 2017 at 9:29 AM
Subject: WP-18-56
To: subsistence@fws.gov

Dear Board Members,

I urge you to lift the ban on the hunting of Dall sheep in the Arctic Village Dall Sheep Management Area. If there is no biological concern nor hunting pressure on full curl rams, then the opportunity to hunt should be available to the general public, thus relieving hunting pressure in other areas around the state. Thank you.

Sincerely,
Andy Zajac
Eagle River, AK

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: Proposal WP18-56

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 8:24 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>, Paul Mckee <paul_mckee@fws.gov>, Jennifer Hardin <jennifer_hardin@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Randy Zarnke** <itrap2@gci.net>
Date: Fri, Aug 4, 2017 at 8:23 AM
Subject: Proposal WP18-56
To: subsistence@fws.gov

Please pass Proposal WP18-56 and open the area to sheep hunting per ANILCA.

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: Proposal WP18-56

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 7:48 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>, Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Joe Zupancic** <yetisquad@hotmail.com>
Date: Fri, Aug 4, 2017 at 7:35 AM
Subject: Proposal WP18-56
To: "subsistence@fws.gov" <subsistence@fws.gov>

Please pass Proposal WP18-56 and open the area to sheep hunting per ANILCA. I may never get to set foot in it but knowing it is there and open to hunting is exciting to think about.

Joe Zupancic
970-471-0053

APPENDIX A
REGULATORY HISTORY

At the beginning of the Federal Subsistence Management Program in Alaska in 1990, existing State regulations were adopted into Temporary Subsistence Management Regulations (55 Fed. Reg. 126. 27117 [June 29, 1990]). The customary and traditional use determination for sheep in Unit 25A was for residents of Arctic Village, Chalkyitsik, Fort Yukon, Kaktovik, and Venetie (ADF&G 1987). The Board has not received a proposal to modify the determination.

In 1991, Proposals 09, 10, and 11 were submitted by the Arctic Village Council; Proposal 21 by Brooks Range Arctic Hunts; Proposal 75 by the Yukon Flats Fish and Game Advisory Committee; and Proposal 100A by the Arctic National Wildlife Refuge. At its meeting in March 1991, the Board acted on Proposals 100A and 75.

The Chair stated,

> As far as the Board's concerned, our first compliance is—or obligation—is compliance with the Federal [regulations], that will be its guiding principle that will be used by the Board. It considers this responsibility for various recommendations and proposals. The policy is that the State will reassume full responsibility to manage fish and game subsistence use on Federal lands, and that will be a principle that will guide the coming decisions of the Board. In keeping with that, we will want to minimize actions that will duplicate or complicate the State's resumption of the program. However, there are certain things that are happening that will cause us to make some decisions that may do that to some extent, but those will be well-discussed, well-considered, and well-calculated before we have to do that. So those are some of the general guidance policies that the Board will function under (FSB 1991a:5–6).

Proposal 100A requested that the Board modify the harvest limit from one mature ram to 2 rams and extend the hunting season in a portion of Unit 25A. The northern boundary of the area was the mainstem of Cane Creek. The area did not include areas north of Cane Creek, including Red Sheep Creek. Regional Advisory Councils did not meet until fall 1993, and there was no Council recommendation for the Board to consider. The Board adopted the Interagency Staff Committee recommendation and adopted the proposal with modification. The modification was to close the area to the harvest of sheep except by Federally qualified subsistence users. The justification was that portions of the area did not appear to be able to support more sheep than were currently present, the population of sheep in the Red Sheep Creek drainage was of much higher densities and could continue to support the then existing seasons and harvest limits, the Red Sheep Creek drainage received quite a bit more effort than other areas of Unit 25A, and the remainder of Unit 25A supported a substantial opportunity for all hunters (FSB 1991b:150–164; 56 Fed. Reg. 123. 29344 [June 26, 1991]).

Proposal 75 requested that the Board close to the harvest of sheep except by Federally qualified subsistence users the drainages of Junjik River, East Fork Chandalar River, Red Sheep Creek, Cane Creek,

Water Creek, Spring Creek, Ottertail Creek, and Crow Next Creek. The Board adopted the Interagency Staff Committee recommendation and rejected the proposal because of its earlier action taken on Proposal 100A, described above (FSB 1991b:164–168).

It was not until its meeting three months later in June 1991 that the Board acted on Proposals 09, 10, and 11. In Proposal 09, Arctic Village Council had anticipated the Board's action on Proposal 100A and requested the Board to include Cane Creek and Red Sheep Creek drainages in the area (AVSMA) closed to the harvest of sheep except by Federally qualified subsistence users. The proponent said that the area set aside did not include all of the areas that must be included to accommodate customary and traditional uses of sheep by residents of Arctic Village (OSM 1991). The Board adopted the Interagency Staff Committee recommendation and rejected the proposal. The Board said Arctic Village residents used Cane Creek and Red Sheep Creek only for a short time when air taxi service was available. These two areas could support both subsistence and sport harvest (FSB 1991c:78–80.).

Proposals 10 and 11 requested that the Board eliminate harvest limits in the AVSMA (Proposal 10) or increase the harvest limit to 3 sheep (Proposal 11). The Board adopted the Interagency Staff Committee recommendations and rejected both proposals. The Board said the sheep population in the AVSMA was extremely low and the proposed regulations would jeopardize the continuation of healthy populations of sheep (FSB 1991c:80–82). The Board adopted the Interagency Staff Committee recommendation and also rejected Proposal 21, which requested the Board to open the AVSMA to the harvest of sheep by non-Federally qualified users. The Interagency Staff Committee said that the sheep population was extremely low, and subsistence users must be afforded a priority (OSM 1991).

In 1992, Wildlife Request for Reconsideration (WRFR) 92-23 was submitted by the Arctic Village Council requesting that the Board reconsider its decision on Proposal 9, which if adopted would have added Cane Creek and Red Sheep Creek drainages to the AVSMA. The Board did not act on the request until 1993 when it received Proposal 58 from the Arctic Village Council requesting that the Board add Cane Creek and Red Sheep Creek drainages to the AVSMA and implement a community harvest limit. At its meeting in April 1993, the Board adopted the Interagency Staff Committee recommendation and rejected the proposal. The Board said that Cane Creek and Red Sheep Creek drainages supported adequate sheep to support harvest by non-Federally qualified users and that not enough data was available on harvest levels to support community harvest or reporting systems (FSB 1993:140–512).

In 1995, Proposal 54 was submitted by the Arctic Village Council requesting that the Board add Cane Creek and Red Sheep Creek drainages to the AVSMA. The Eastern Interior Council took no action on the proposal (EIASRAC 1995:88–97, OSM 1995a:359). The North Slope Subsistence Advisory Council (North Slope Council) recommended that the Board adopt the proposal (NSSRAC 1995:206, OSM 1995a:359). The Board adopted the proposal with modification. The modification was that the Board would revisit the proposal in another year. The Board said that although there was no biological reason for closing Cane Creek and Red Sheep Creek drainages to the harvest of sheep except by Federally qualified subsistence users, it had heard substantial testimony regarding the fact that due to the customary and traditional hunting practices of the residents of Arctic Village, not adopting the proposal would deny a

subsistence opportunity to the residents of Arctic Village (FSB 1995:611–634, 686–693; 60 Fed. Reg. 115. 31545 [June 15, 2005]).

In 1995, WRFR 95-06 was submitted by ADF&G requesting that the Board reconsider its decision on Proposal 54. The Board rejected the request in July 1995 (OSM 1995b).). The Board determined that the request was not based on information not previously considered by the Board, demonstrated that the existing information used by the Board was incorrect, or demonstrated that the Board's interpretation of information, applicable law, or regulation was in error or contrary to existing law. One of these factors would need to be present for the Board to reconsider its decision, as described in regulation (50 CFR 100.20).

In 1996, Proposal 55 was submitted by ADF&G. It requested that the Board open Cane Creek and Red Sheep Creek drainages to the harvest of sheep by non-Federally qualified subsistence users. The Eastern Interior Council recommended opposing the proposal. The Eastern Interior Council said it had heard no compelling evidence to overturn recent Board action to include these drainages. Opposition to the proposal came before the Council from an Arctic Village resident's testimony, a letter from the Arctic Village Council, and from the Council's representative from Arctic Village. The Council affirmed its support for the existing AVSMA. The North Slope Council recommended deferring action for one year until more information concerning Kaktovik residents' use of the AVSMA was available, however, the Council expressed desire to "defer to wishes of their neighbors to the south" (OSM 1996:12). The Board rejected the proposal referring to its action on Proposal 54 the previous year in 1995, described above, and that there had still been no dialogue between the State and Arctic Village (FSB 1996:20).

This Regulatory History contains more information on each regulatory proposal below than above. This is because official records of Council and Board justifications were kept after 1995. Justification for Board actions that were provided in letters to the Councils, as mandated in ANILCA Section 805(c), were reviewed and compared to transcripts and provide an accurate description of the Board's justifications.

In 2006, Proposal WP06-57 was submitted by ADF&G. It requested that the Board open the AVSMA to the harvest of sheep by non-Federally qualified subsistence users. The Eastern Interior Council recommended opposing the proposal and said that it needed sheep population surveys before considering reopening the closure to non-Federally qualified hunters. The Eastern Interior Council said that people of Arctic Village were totally dependent on the land for food for their nutritional and cultural needs. The Council said managers cannot only depend on harvest tickets for harvest information. It continued that there was a problem with transporters throughout the region. Transporters brought people up to this area, and they did not clean up after themselves. The Eastern Interior Council heard testimony from Arctic Village residents during the meeting that sheep have been harvested but not reported by subsistence users in this area. The Council indicated there was a need for a meeting with the people of Arctic Village and a need for more work on this issue before the area was opened to non-Federally qualified users. The Council said there was no biological reason given to support this proposal, and here was an opportunity for the people in the area to work with nonsubsistence users before submitting a proposal (OSM 2006b:452–453). The North Slope Council recommended deferring the proposal to get more information on sheep population and more harvest information. The Council said it would feel very uncomfortable making a

decision that might be detrimental when there was a lack of information (OSM 2006a:452–453). The Board rejected the proposal. The Board said it had listened to public testimony on this proposal and was unable to pass a motion to allow non-Federally qualified users to hunt sheep in the drainages of Red Sheep Creek and Cane Creek or to defer action on the proposal with respect to the remainder of the AVSMA. The Board did not see a need for action at this time because of the commitment of the Arctic National Wildlife Refuge to conduct sheep surveys in the area the following summer (FSB 2006:261–283, OSM 2006a:6).

In 2006, Wildlife Special Action Request (WSA) 06-03 was submitted by the USFWS. It requested that the Board open the Cane Creek and Red Sheep Creek drainages to the harvest of sheep by non-Federally qualified subsistence users from Aug. 10 through Sept. 20, 2006. The Board approved the request. It said it reviewed new information on sheep abundance in the AVSMA from a survey conducted by USFWS in June 2006 and presented in an assessment report. During the course of its consideration, the Board said it received an excerpt from the transcript of the May 2006 meeting of the the Board relative to consideration of this issue concerning Proposal WP06-57, a draft staff analysis prepared by OSM, ADF&G, and written and telephonic public testimony (OSM 2017b).

In 2007, Proposal WP07-56 was submitted by ADF&G. It requested that the Board open Cane Creek and Red Sheep Creek drainages to the harvest of sheep by non-Federally qualified users from Aug. 10 through Sept. 20. The Eastern Interior Council recommended the Board defer action on the proposal for one year to allow formation of a working group of representatives from affected villages, hunting interests, and agencies to decide what an acceptable sheep harvest or number of sheep hunters would be in this area, and then draft a proposal to the Board of Game for its March 2008 meeting. The Council said the proposal would have contained the number of non-Federally qualified hunters to be allowed to hunt in the Cane Creek and Red Sheep Creek area. The Council said the working group timeline would have given the Federal Subsistence Board time to monitor the progress of the working group, the Board of Game proposal(s), and the actions of the Board of Game before the Federal Subsistence Board met later in the spring of 2008. The Council said it had received testimony from Arctic Village sheep hunters, local elders, and Arctic Village Tribal Council leaders who all had requested the closure of the Red Sheep and Cane Creek area remain in effect. Testimony included the cultural importance of the area because of burial sites, allotments, and being a traditional area where they hunt sheep, and that they would not be able to compete with other hunters if the area was opened to other hunters. The Council said testimony also included the high cost of accessing the area and the difficulty reaching the area other than by aircraft. Council members discussed the relationship of caribou migrations and the need to hunt for sheep as well as the desired time to harvest sheep. When the caribou and moose are plentiful, local hunters do not hunt for sheep but when caribou and moose are not plentiful, they depend on sheep. The Council shared that the last time a similar proposal to open the area to other hunters was submitted, the Council had unanimously opposed it and were overridden by the Board. The Council sympathized with Arctic Village concerns and believed that closure of Cane Creek and Red Sheep Creek area would be lifted by the Board based on its action with the recent special action to open the area (WSA06-03, which the Board approved). Several Council members worked with village leaders to see what options were available to limit the number of other hunters allowed to hunt in the area, hence the recommendation to defer to a working group (OSM 2007a). The North Slope Council recommended the Board oppose the proposal. The Council said that there was no evidence that passage of this proposal would not impact villages. The Council said that for each village,

the resource needs should be assessed to ensure subsistence users' needs were being met. The sheep population was so small, it would not support harvest by commercial and sport hunters (OSM 2007a).

The Board adopted the proposal. The Board said that Section 815(3) of ANILCA only allows restrictions on the taking of fish and wildlife for nonsubsistence uses on Federal public lands if necessary for the conservation of healthy populations of fish and wildlife, to continue subsistence uses of such populations, or pursuant to other applicable law. Maintaining the Federal closure to nonsubsistence hunting of sheep in the Red Sheep Creek and Cane Creek drainages within the AVSMA was no longer necessary for the conservation of a healthy sheep population. Allowing sheep hunting by non-Federally qualified users in these drainages would not adversely affect the sheep population because these hunters would be limited to taking one full-curl ram in the fall season. Removal of some full-curl rams from the population was not expected to reduce the reproductive success of the sheep population. Maintaining the closure to nonsubsistence hunting of sheep in these drainages was also not necessary to provide for continued subsistence use of sheep. The sheep population could support harvest by both subsistence and nonsubsistence hunters. The existing closure was also not justified for reasons of public safety, administration, or pursuant other applicable law (OSM 2007b).

In 2012, Proposal WP12-76 was submitted by the Eastern Interior Council. It requested that the Board close Cane Creek and Red Sheep Creek drainages to the harvest of sheep by non-Federally qualified users from Aug. 10 through Sept. 20. The Eastern Interior Council recommended the Board support the proposal. The Council said the proposal enhanced the ability of the residents of Arctic Village to pursue subsistence opportunities and might reduce incidents of trespass and resource damage. The Council said it appreciated the information provided during public testimony and recognized the powerful connection between residents of Arctic Village and the subject area as one that is deeply culturally rooted. The Council said it was compelled by extensive and detailed public testimony and that subsistence users were concerned that non-Federally qualified users were interfering with subsistence users, particularly the people of Arctic Village. The North Slope Council recommended the Board support the proposal. The Council said that the amount of travel time by rural residents was a concern due to distance required to travel and the cost of fuel. The Board adopted the proposal (OSM 2012a:355). The Board said there was no conservation concern and the closure was needed to ensure the continuation of traditional subsistence uses of sheep by Arctic Village hunters (OSM 2012b:7).

In 2014, Proposal WP14-51 was submitted by the State of Alaska. It requested the Board to open Cane Creek and Red Sheep Creek drainages to the harvest of sheep by non-Federally qualified users from Aug. 10 through Sept. 20. It also requested that hunters be required to complete a course on hunter ethics and an orientation course, including land status and trespass information. The Eastern Interior Council recommended the Board oppose the proposal. The Council said it had heard extensive testimony from tribal and community members form Arctic Village and Venetie expressing the importance of sheep in this area to their culture and community. The Council said that the public testimony also noted that air traffic disturbance and hunter activity was pushing sheep further away and higher. The Council said that the cultural importance of the sheep and the area to Arctic Village and other residents for this hunt area was their overriding concern. The North Slope Council recommended the Board oppose the proposal. The Council said deflection or disturbance of sheep by sport hunters and aircraft flights made it difficult for

Arctic Village residents to reach sheep for subsistence hunting. The Council said these sheep were a very important subsistence food that was shared in the community, and even if local harvest numbers were not high, effort to reach the animals was considerable and the sharing of the meat and organs was widespread and important. The Council said these sheep and this location had special cultural and medicinal value due to the history and relationship of the community as well the mineral licks that the sheep frequented in this area which made their meat contain unique qualities (OSM 2014a:350).

The Board rejected Proposal WP14-51. The Board rejected this proposal based on the OSM analysis and conclusion, the recommendations of the North Slope and Eastern Interior Councils, and overwhelming public comment over the years and the testimony presented to the Board in the 2012 review of a similar proposal. The Board referenced extensive public testimony of local community concerns and cultural importance of this area and the long established administrative record on this issue. The Board recognized the cultural importance of the Cane Creek and Red Sheep Creek areas for subsistence harvest of sheep for the residents of Arctic Village and Venetie. The Board said the importance of this area was also known by the number and location of Native allotments, cultural sites and ethnographic studies documenting the long history of use in this area (OSM 2014b:3).

Furthermore, the Board said it had heard testimony and reports that subsistence users attempts to harvest sheep in this area may have been interfered with by aircraft and non-Federally qualified hunters' activity. The Board concurred with this testimony that the activities in this area by non-Federally qualified users had resulted in the displacement of sheep, pushing them out of range and preventing Federally qualified subsistence hunters from being able to harvest sheep. The Board supported keeping the closure in place to help insure the continued subsistence use of sheep for residents of Artic Village, Venetie, and the several other villages with customary and traditional use determinations for sheep in this area: Chalkyitsik, Fort Yukon, and Kaktovik. The Board said that this closure was based on ANILCA Section 815(3), which allows for a restriction on the taking of fish and wildlife for non-subsistence uses on public lands when necessary to continue Federal subsistence uses (OSM 2014b:3).

In 2014, WRFR14-01 was submitted by the State of Alaska requesting that the Board reconsider its actions on Proposal WP14-51, described above. In September 2015, the Board denied the request (OSM 2017b). The Board determined that none of the claims in the request met the criteria to warrant further reconsideration as set forth in 50 CFR Part 100.20.

WP18–51 Executive Summary	
General Description	Proposal WP18-51 requests that Federal (statewide) bear baiting restrictions be aligned with State regulations, specifically the use of biodegradable materials. *Submitted by: Eastern Interior Alaska Subsistence Regional Advisory Council.*
Proposed Regulation	*§__.26(b) Prohibited methods and means. Except for special provisions found at paragraphs (n)(1) through (26) of this section, the following methods and means of taking wildlife for subsistence uses are prohibited:* * * * * *(14) Using bait for taking ungulates, bear, wolf, or wolverine; except you may use bait to take wolves and wolverine with a trapping license, and you may use bait to take black bears and brown bears with a hunting license as authorized in Unit-specific regulations at paragraphs (n)(1) through (26) of this section. Baiting of black bears and brown bears is subject to the following restrictions:* * * * * *(iii) You may use only biodegradable materials for bait;* ***if fish or game is used as bait,*** ~~*you may use*~~ *only the head, bones, viscera, or skin of legally harvested fish and* ***big game, the skinned carcasses of furbearers and fur animals, small game (including the meat, except the breast meat of birds), and unclassified game*** ~~*wildlife for bait*~~ ***may be used, except that in Units 7 and 15, fish or fish parts may not be used as bait. Scent lures may be used at registered bait stations****;*
OSM Preliminary Conclusion	**Support** Proposal WP18-51 **with modification** to establish a definition for scent lure and clarify the regulatory language. The modified regulation should read: *§__.25(a) Definitions. The following definitions apply to all regulations contained in this part:* ***scent lure (in reference to bear baiting) means any biodegradable material to which biodegradable scent is applied or infused.*** *§__.26(b)(14)(iii) You may use only biodegradable materials for bait;* ***if fish or wildlife is used as bait,*** ~~*you may use*~~ *only the head, bones, viscera, or skin of legally harvested fish and wildlife* ~~***for bait***~~***, the skinned carcasses of furbearers, and unclassified wildlife may be used, except that in Units 7 and 15, fish or fish parts may not be used as bait. Scent lures may be used at registered bait stations****;*

WP18–51 Executive Summary	
Southeast Alaska Subsistence Regional Advisory Council Recommendation	
Southcentral Alaska Subsistence Regional Advisory Council Recommendation	
Kodiak/Aleutians Subsistence Regional Advisory Council Recommendation	
Bristol Bay Subsistence Regional Advisory Council Recommendation	
Yukon-Kuskokwim Delta Subsistence Regional Advisory Council Recommendation	
Western Interior Alaska Subsistence Regional Advisory Council Recommendation	
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Northwest Arctic Subsistence Regional Advisory Council Recommendation	
Eastern Interior Alaska Subsistence Regional	

WP18–51 Executive Summary	
Advisory Council Recommendation	
North Slope Subsistence Regional Advisory Council Recommendation	
Interagency Staff Committee Comments	
ADF&G Comments	
Written Public Comments	**3 Oppose**

DRAFT STAFF ANALYSIS
WP18-51

ISSUES

Proposal WP18-51, submitted by the Eastern Interior Alaska Subsistence Regional Advisory Council, requests that Federal (statewide) bear baiting restrictions be aligned with State regulations, specifically the use of biodegradable materials.

DISCUSSION

The proponent states that the current Federal bear baiting restrictions are much more restrictive than the State's and do not provide for a Federal subsistence priority. The proponent proposes to align Federal and State bear baiting restrictions in order to reduce regulatory complexity, reduce user confusion, and allow baiting with items (e.g. dogfood, anise, popcorn, baked goods, grease, syrup, etc.) that have traditionally been used as bear bait by Federally qualified subsistence users and are currently allowed under State regulations.

Existing Federal Regulations

§__.26(b) Prohibited methods and means. Except for special provisions found at paragraphs (n)(1) through (26) of this section, the following methods and means of taking wildlife for subsistence uses are prohibited:

* * * *

(14) Using bait for taking ungulates, bear, wolf, or wolverine; except you may use bait to take wolves and wolverine with a trapping license, and you may use bait to take black bears and brown bears with a hunting license as authorized in Unit-specific regulations at paragraphs (n)(1) through (26) of this section. Baiting of black bears and brown bears is subject to the following restrictions:

* * * *

(iii) You may use only biodegradable materials for bait; you may use only the head, bones, viscera, or skin of legally harvested fish and wildlife for bait;

Proposed Federal Regulations

§__.26(b) Prohibited methods and means. Except for special provisions found at paragraphs (n)(1) through (26) of this section, the following methods and means of taking wildlife for subsistence uses are prohibited:

* * * *

(14) Using bait for taking ungulates, bear, wolf, or wolverine; except you may use bait to take wolves and wolverine with a trapping license, and you may use bait to take black bears and brown bears with a hunting license as authorized in Unit-specific regulations at paragraphs (n)(1) through (26) of this section. Baiting of black bears and brown bears is subject to the following restrictions:

* * * *

(iii) You may use only biodegradable materials for bait; ***if fish or game is used as bait,*** ~~*you may use*~~ *only the head, bones, viscera, or skin of legally harvested fish and* ***big game, the skinned carcasses of fur-bearers and fur animals, small game (including the meat, except the breast meat of birds), and unclassified game*** ~~*wildlife for bait*~~ ***may be used, except that in Units 7 and 15, fish or fish parts may not be used as bait. Scent lures may be used at registered bait stations****;*

Note: The proposal as submitted omitted the word "fish". However, this was an oversight as the proponent's intention was to align State and Federal regulations.

State Regulations

5 AAC 92.044. Permit for hunting bear with the use of bait or scent lures.
(a) A person may not establish a bear bait station to hunt bear with the use of bait or scent lures without first obtaining a permit from the department under this section.

(b) In addition to any condition that the department may require under 5 AAC 92.052, a permit issued under this section is subject to the following provisions:
* * * *
(8) only biodegradable materials may be used as bait; if fish or big game is used as bait, only the head, bones, viscera, or skin of legally harvested fish and game may be used, except that in Units 7 and 15, fish or fish parts may not be used as bait;

5 AAC 92.085. Unlawful methods of taking big game; exceptions: The following methods and means of taking big game are prohibited in addition to the prohibitions in 5 AAC 92.080:
* * * *
(4) with the use of bait for ungulates and with the use of bait or scent lures for any bear, except that bears may be taken with the use of bait or scent lures as authorized by a permit issued under 5 AAC 92.044;

5 AAC 92.210. Game as animal food or bait. A person may not use game as food for a dog or furbearer, or as bait, except for the following:
(1) the hide, skin, viscera, head, or bones of game legally taken or killed by a motorized vehicle, after salvage as required under 5 AAC 92.220;
(2) parts of legally taken animals that are not required to be salvaged as edible meat, if the parts are moved from the kill site;
(3) the skinned carcass of a bear, furbearer, or fur animal, after salvage as required under 5 AAC 92.220;
(4) small game; however, the breast meat of small game birds may not be used as animal food or bait;
(5) unclassified game;
(6) deleterious exotic wildlife;
(7) game that died of natural causes, if the game is not moved from the location where it was found; for purposes of this paragraph, "natural causes" does not include death caused by a human;
(8) game furnished by the state, as authorized by a permit under 5 AAC 92.040.

Extent of Federal Public Lands

Federal public lands comprise approximately 54% of Alaska and consist of 20% U.S. Fish and Wildlife Service (USFWS) managed lands, 15% Bureau of Land Management (BLM) managed lands, 14% National Park Service (NPS) managed lands, and 6% U.S. Forest Service (USFS) managed lands.

Customary and Traditional Use Determinations

Customary and traditional use determinations for specific areas and species are found in subpart C of 50 CFR part 100, §___.24(a)(1) and 36 CFR 242 §___.24(a)(1).

Regulatory History

In 1990, Federal regulations for bear baiting were adopted from State regulations. These regulations, specifically §__*.26(b)(14)(iii)*, have not been modified since that time.

In 1992, Proposal P92-149 requested that bear baiting be prohibited due to habituation of bears to bait stations and human garbage, which results in bears becoming more dangerous. The Federal Subsistence Board (Board) rejected the proposal as there was no biological reason to restrict subsistence opportunity.

Currently, black bears may be taken at bait stations under Federal regulations in all units, except Units 1C, 4, 8, 9, 10, 14, 18, 22, 23, and 26. In 2014, the Board adopted Proposal WP14-50, allowing brown bears to be taken at bait stations in Unit 25D. In 2016, the Board adopted Proposal WP16-18, allowing brown bears to be taken at bait stations in Units 11 and 12.

In 2001, the Alaska Board of Game (BOG) adopted Proposal 156 to prohibit the use of fish parts as bear bait in Units 7 and 15 (ADF&G 2001). The intent of the proposal was to minimize human-bear interactions and to reduce defense of life or property (DLP) brown bear kills on the Kenai Peninsula (ADF&G 2001).

In 2015, the NPS published Final Rule 36 CFR 13.42(g)(10) prohibiting the take of black and brown bears over bait on National Preserves under State regulations. In 2016, the USFWS published a similar rule prohibiting the take of brown bears over bait on National Wildlife Refuges under State regulations. The USFWS rule was nullified when the President of the United States signed House Joint Resolution 69 into law on April 3, 2017. The Resolution invoked the Congressional Review Act, a law that permits regulations passed during the last six months of a previous administration to be overturned.

In 2016, the BOG adopted Proposal 61 as amended to insert the word "big" before game in 5 AAC 92.044(8) (see State regulations above). This was done to clarify that the skinned carcasses of legally harvested furbearers could be used as bear bait (ADF&G 2016).

In January 2017, the NPS published Final Rule 36 CFR 13.480(b) limiting types of bait that may be used for taking bears under Federal Subsistence Regulations to native fish or wildlife remains from natural mortality

or parts not required to be salvaged from a legal harvest. Based on public comment, the final rule includes a provision that allows to allow the superintendent of Wrangell-St. Elias National Park and Preserve (WRST) to issue a permit to allow use of human-produced foods upon a determination that such use is compatible with park purposes and values and the applicant does not have reasonable access to natural materials that could be used as bait (36 CFR 13.1902(d)). The exception for WRST was based on documented history of bear baiting.

Cultural Knowledge and Traditional Practices

Both black bears and brown bears are traditionally and contemporarily harvested, used, and shared across much of Alaska, though regional variations in harvest patterns, seasonal rounds and methods exist (Blackman 1990; Burch 1984; Clark 1981; Crow & Obley 1981; de Laguna & McClellan; de Laguna 1990; Hosley 1981; Lantis 1984; Slobodin 1981; Snow 1981; Townsend 1981). Historical methods of harvest among Alaska Native cultural groups included spearing (Brown 2012; Crow & Obley 1981; de Laguna & McClellan 1981; de Laguna 1990; Townsend 1981), harvest at winter den sites (Brown 2012; Hosley 1981; de Laguna 1990), snaring (Burch 1984; de Laguna & McClellan 1981; de Laguna 1990), bow and arrows (de Laguna 1990; Townsend 1981), deadfalls (de Laguna & McClellan 1981; de Laguna 1990), and with dogs (de Laguna & McClellan 1981; de Laguna 1990). Today, bears are frequently hunted with rifles while in pursuit of other large land mammals (ADF&G 1992; ADF&G 2008; Brown 2012).

The occurrence of bear baiting as a component of traditional harvest methods is limited within published literature; it is unknown if the practice occurred rarely or if it was merely seldom documented. Among the Upper Kuskokwim (Kolchan) Athabascans, some hunters were known to use ground squirrel nests to attract bears that had recently emerged from their dens in the spring (Brown 2012). A squirrel would be released near the bear and the bear would follow the tracks back to the nest where it would be harvested with lances (Brown 2012).

In Southeast Alaska, Tlingit hunters sometimes used dead falls to harvest bears and these were either set across bear trails or baited to attract bears (ADF&G 1992). The bait ingredients are unknown. Among several Athabascan groups in Alaska's interior, documented methods of harvesting black bears included hunting with bow and arrow or lacing bait with coiled baleen that would expand and rupture the bear's digestive tract (ADF&G 2008). Use of bear baiting stations to attract and harvest black bears has also been documented specifically for hunters from the community of Tok (ADF&G 2008). In a 2001-2002 study of 18 southwest Alaska communities there was no documentation of the use of baiting stations for harvesting bears (Holen et al. 2005).

Contemporary use of bait stations for bear hunting in Alaska has been contentious (Harns 2004). While some people believe that baiting black bears is acceptable, others have suggested that the method violates fair chase ethics (Harns 2004). The method allows hunters to be selective and humane, it helps hunters with limited mobility to participate by reducing trekking distance, and it facilitates clean kills by bow hunters that harvest animals at a closer range (Harns 2004). Additionally, it allows hunters to be more selective, to more easily identify sex, and to verify the presence or absence of cubs with sows (Harns 2004).

Opponents of bear baiting often reference safety concerns and food conditioning (Cunningham 2017, Hilderbrand et al. 2013). The National Park Service has also cited concerns regarding preventing the

defense of life and property killing of bears and maintaining natural processes and behaviors (Hilderbrand et al. 2013). To alleviate some of these concerns, BOG and the Board have implemented several restrictions that stipulate where bear baiting stations are allowed, that require bear baiting stations to be registered with ADF&G, and that require the completion of an ADF&G bear baiting clinic for all hunters age 16 and older.

Other Alternatives Considered

Adoption of this proposal would permit the use of scent lures at bear baiting stations under Federal regulations. According to 50 CFR *§__.25(a) Definitions* and 5 AAC *92.990 Definitions*, bait is defined as "any material excluding scent lures, that is placed to attract an animal by its sense of smell or taste; however, those parts of legally taken animals that are not required to be salvaged and which are left at the kill site are not considered bait." While scent lures are excluded from the bait definition, they are not explicitly defined under Federal or State regulations. If scent lures are not defined, any material and chemical could be used at registered bait stations on Federal public lands, including toxic and non-biodegradable ones.

Effects of the Proposal

If this proposal is adopted, Federally qualified subsistence users would be able to use any biodegradable material as well as scent lures at registered bear baiting stations on lands administered by the USFWS, BLM, and USFS. As bear bait is limited to native fish and wildlife remains on NPS administered lands, this proposal would not affect NPS lands (with some exceptions in WRST). This will provide Federally qualified subsistence users with greater opportunity on most Federal public lands and will align State and Federal baiting restrictions, reducing regulatory complexity and user confusion. Currently, Federal regulations are more restrictive than State regulations. As the requested changes are already permitted under State regulations, no appreciable differences in bear harvests, populations, subsistence uses, or habituation of bears to human foods are expected from this proposal.

OSM PRELIMINARY CONCLUSION

Support Proposal WP18-51 **with modification** to establish a definition for scent lure and clarify the regulatory language.

The modified regulation should read:

§__.25(a) Definitions. The following definitions apply to all regulations contained in this part: ***scent lure means any biodegradable material to which biodegradable scent is applied or infused.***

§__.26(b)(14)(iii) You may use only biodegradable materials for bait; ***if fish or wildlife is used as bait,*** ~~*you may use*~~ *only the head, bones, viscera, or skin of legally harvested fish and wildlife* ~~*for bait*~~***, the skinned carcasses of furbearers, and unclassified wildlife may be used, except that in Units 7 and 15, fish or fish parts may not be used as bait. Scent lures may be used at registered bait stations****;*

Justification

Adoption of this proposal will reduce regulatory complexity and provide greater opportunity for Federally qualified subsistence users by expanding and clarifying the use of biodegradable materials and scent lures as bear bait. There are no conservation concerns as these proposed clarifications are already permitted under State regulations.

Defining scent lures in regulation is necessary to ensure that only appropriate and non-harmful materials and scents are used on Federal public lands. The terms "game", "fur animals", and "small game" are not defined under Federal regulations, but are included in the Federal definition of "wildlife." While the term "big game" is defined under Federal regulations, it is also included within the Federal definition of "wildlife."

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WRITTEN PUBLIC COMMENTS

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: comments on proposal WP 18-51, 18-03,18-04, 18-05, 18-24

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 1:55 PM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>, Paul Mckee <paul_mckee@fws.gov>, Jennifer Hardin <jennifer_hardin@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Sharon Alden** <fwxsca@yahoo.com>
Date: Fri, Aug 4, 2017 at 1:52 PM
Subject: comments on proposal WP 18-51, 18-03,18-04, 18-05, 18-24
To: "subsistence@fws.gov" <subsistence@fws.gov>

To: Office of Subsistence Management
Attention: Theo Matuskowitz
From: Sean McGuire
Re: comments on proposal WP 18-51, 18-03, 18-4, 18-5, 18-24

I am opposing proposal WP 18-51 There should be no human food or any human substance to bait any animals. This is so basic. The last thing we want is to habituate bears or any wild animal to human food. This is an ethical as well as a safety issue. The last thing we want to see is the federal baiting regulations aligned with the state of Alaska's. The State baiting regulations are painfully out dated and present a glaring safety issue.

I am opposing proposal WP 18-03 the extended hunting and trapping season in game unit one. Over kill.

I am really opposed to proposal WP 18-04. Why in the world would you want to put more pressure on a wolf population that's already in trouble this appears to be contrary to the basic concept of wildlife management?

I am also opposing proposal WP 18-05 relates to my opposition to WP18-04.

I am also opposing in the strongest possible terms proposal WP 18-24
To heard wildlife with snow machines is one of the most unethical things I can imagine and the backlash would be harsh.

Thank you for your attention
Sean McGuire
159 Kniffen Rd

Fairbanks, Ak.
ph 907-888-0124
email fwxsca@yahoo.com

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: Comment on Proposed WP 18-51

AK Subsistence, FW7 <subsistence@fws.gov> Thu, Aug 3, 2017 at 7:48 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>
Cc: Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Jim & Suzanne Kowalsky** <jimkowalsky@yahoo.com>
Date: Wed, Aug 2, 2017 at 5:07 PM
Subject: Fwd: Comment on Proposed WP 18-51
To: subsistence@fws.gov

Attention as noted below.

Begin forwarded message:

From: Jim & Suzanne Kowalsky <jimkowalsky@yahoo.com>
Subject: Comment on Proposed WP 18-51
Date: August 1, 2017 at 12:17:30 PM AKDT

August 1, 2017

To: Office of Subsistence Management
p: Theo Matuskowitz
FR: Alaskans FOR Wildlife, Jim Kowalsky, Chair
Re: Comments on Proposal WP 18-51

Alaskans FOR Wildlife is a statewide member organization that advocates for naturally occurring Alaskan wildlife through education and advocacy headquartered in Fairbanks, Alaska PO Box 81957 99708 phone 907-488-2434

We wish to most strongly oppose proposal WP 18-51 which proposes to allow federally qualified subsistence hunters to add the use of human-produced foods and scent to the presently permitted use of biodegradable materials used to bait bears on all public federal lands, e.g.: federal wildlife refuges, national forests, BLM and National Park Service lands now open to rural subsistence.

We understand this proposal emerges from a request from the Eastern Alaska Regional Subsistence Advisory Council, purportedly to align federal with state bear baiting regulations which allow use of such as dog food, popcorn, grease, syrup, etc., to be used by federally qualified subsistence users currently, but only on state lands.

Our objection to WP 15-18 arises from the reality that such liberalization increases the already adverse effect of human food used to attract bears especially as a matter of public safety. Use of human foods will continue to alter bear behavior, increasing the numbers of human food-conditioned bears, attracting them to specific locations where conflicts with humans is certain to occur with increasing frequency. Such encounters would likely increase over time, resulting in serious human injuries and wrenching tragic deaths of the sort that Alaska currently experiences, and also more

killing offending bears.

Further negative impacts already occurring with frequency are bears attracted to humans and their food wastes in specific locations being killed in defense of life and property. Recent examples of bears that likely have become habituated to human foods being killed in defense of life and property have occurred at Prudhoe Bay and in Southeast Alaska with many other examples over time.

We view enactment of WP 15-18 would be highly irresponsible by perpetuating and increasing the already unfortunate practice of use of human produced foods at bait sites on state lands. This proposal amounts to making a serious increased threat to public safety on federal lands and to that already perpetuated on state lands.

Important also, WP15-18 proposes to gradually alter what should also be a natural growth and behavior of wild bears which should be allowed to exist and flourish in its natural wildlands habitat.

The proposal should not be enacted in the best interests of human and bear populations.
Thank you for consideration of our comment.

Mckinney, Kayla <kayla_mckinney@fws.gov>

Fwd: Comments on Proposals to the Federal Subsistence Board Attn. Theo Matuskowitz

AK Subsistence, FW7 <subsistence@fws.gov> Fri, Aug 4, 2017 at 7:51 AM
To: Theo Matuskowitz <theo_matuskowitz@fws.gov>, Paul Mckee <paul_mckee@fws.gov>, Kayla Mckinney <kayla_mckinney@fws.gov>

---------- Forwarded message ----------
From: **Francis Mauer** <fmauer@mosquitonet.com>
Date: Thu, Aug 3, 2017 at 9:02 PM
Subject: Comments on Proposals to the Federal Subsistence Board Attn. Theo Matuskowitz
To: subsistence@fws.gov

Comments Regarding Federal Subsistence Proposals: WP 18-03, 18-04, 1805, 18-24, and 18-51

Submitted to the Federal Subsistence Board by Fran Mauer, P.O. Box 80464, Fairbanks, AK 99708. August 3, 2017.

WP 18-03 I am opposed to extending the wolf hunting and trapping seasons in Unit 1. Wolves are highly vulnerable to harvest as it is, further extending of seasons is not justified, and would likely lead to excessive harvest of wolves as occurred on Prince of Wales Island last year which was supposed to be regulated by a quota, but even with quota rules in place the actual harvest exceeded the quota by 2.6 times. This proposal should be denied.

WP 18-04 This proposal would allow 30% of the wolf population on Prince of Wales Island to be harvested when existing harvest is 20%. As noted above, wolves are highly vulnerable to harvest, and last year's harvest exceeded the quota by 2.6 times! The extensive network of roads and trails on Prince of Wales render wolves exceptionally vulnerable. Expanding the harvest to 30% of the population following excessive harvest last year can not be justified given the failed management of this quota system last year. This proposal would lead to excessive harvest of an already depleted population and should be denied to conserve wolves on the Island.

WP 18-24 This proposal will open the door to harassment of wildlife by snow machines and violate a basic premise of hunting: respect for animals and fair chase principles. It would also result in excessive impacts to other animals that are not harvested due to disturbance associated with this "practice." Furthermore, it will exacerbate difficulty in enforcement of harassment rules. Approval of this proposal would give a black eye to subsistence in general, and certainly the Federal Subsistence Board, specifically for condoning such an inappropriate practice on the Federal public lands of

Alaska. Deny this proposal.

WP 18-51 This proposal would lower Federal standards for baiting to the lowest common denominator: State requirements. By allowing the use of human food items such as syrup, old dough nuts and other human refuse will habituate bears to humans and contribute to human – bear conflicts, and expose innocent people to risks from bears that no longer fear humans. Every spring the Alaska Dept of Fish and Game sponsors public service announcements advising folks to keep their garbage and bird feeder refuse secure from bears, clearly stating the danger to humans from habituated bears. There is absolutely no justification to also allow the use of human foods and scent to bait bears. I urge the Board to reject this proposal (18-51).

Thank you for the opportunity to comment.

Fran Mauer

FISHERIES RESOURCE MONITORING PROGRAM

BACKGROUND

Beginning in 1999, the Federal government assumed expanded management responsibility for subsistence fisheries on Federal public lands in Alaska under the authority of Title VIII of the Alaska National Interest Lands Conservation Act (ANILCA). Expanded subsistence fisheries management introduced substantial new informational needs for the Federal system. Section 812 of ANILCA directs the Departments of the Interior (DOI) and Agriculture (USDA), cooperating with the State of Alaska and other Federal agencies, to undertake research on fish and wildlife and subsistence uses on Federal public lands. To increase the quantity and quality of information available for management of subsistence fisheries, the Fisheries Resource Monitoring Program (Monitoring Program) was established within the Office of Subsistence Management (OSM). The Monitoring Program was envisioned as a collaborative interagency, interdisciplinary approach to enhance existing fisheries research, and effectively communicate information needed for subsistence fisheries management on Federal public lands.

Biennially, OSM announces a funding opportunity for investigation plans addressing subsistence fisheries on Federal public lands. The 2018 Notice of Funding Opportunity focused on priority information needs developed by the Subsistence Regional Advisory Councils with input from strategic plans and subject matter specialists. The Monitoring Program is administered through regions to align with stock, harvest, and community issues common to a geographic area. The six Monitoring Program regions are shown in **Figure 1**.

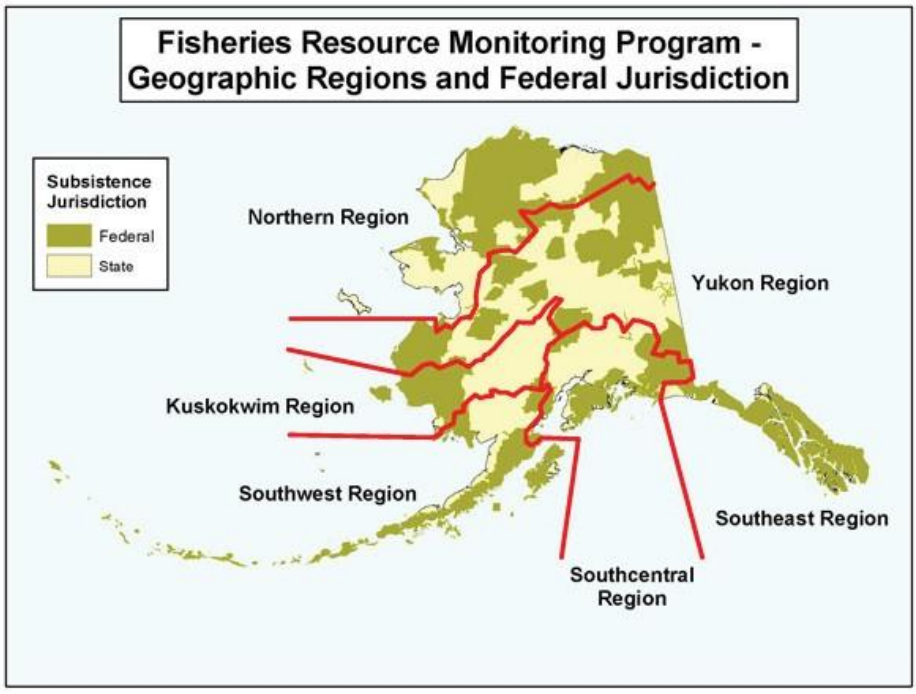

Figure 1. Geographic Regions for the Fisheries Resource Monitoring Program.

Strategic plans sponsored by the Monitoring Program have been developed by workgroups of fisheries managers, researchers, Subsistence Regional Advisory Councils, and by other stakeholders for three of the six regions: Southeast, Southcentral (excluding Cook Inlet Area), and Southwest Alaska. These plans identify prioritized information needs for each major subsistence fishery and are available for viewing on the Federal Subsistence Management Program website (https://www.doi.gov/subsistence/frmp/funding). Individual copies of plans are available by placing a request to OSM. Independent strategic plans were completed for the Yukon and Kuskokwim regions for salmon in 2005. For the Northern Region and the Cook Inlet Area, assessments of priority information needs were developed from regional working groups and experts on the Subsistence Regional Advisory Councils, the Technical Review Committee (a committee comprised of representatives from each of the five Federal agencies involved with subsistence management, and relevant experts from the Alaska Department of Fish and Game), and Federal and State managers, with technical assistance from OSM staff. Finally, a strategic plan specifically for research on whitefish species in the Yukon and Kuskokwim River drainages was completed in spring 2011 as a result of efforts supported through Monitoring Program project 08-206 (Yukon and Kuskokwim Coregonid Strategic Plan).

Investigation plans are reviewed and evaluated by OSM and Forest Service staff, and then by the Technical Review Committee. The Technical Review Committee's function is to provide evaluation, technical oversight, and strategic direction to the Monitoring Program. Each investigation plan is scored on these five criteria: strategic priority; technical and scientific merit; investigator ability and resources; partnership and capacity building; and cost benefit.

Project abstracts and associated Technical Review Committee proposal scores are assembled into a draft 2018 Fisheries Resources Monitoring Plan. The draft plan is distributed for public review and comment through Subsistence Regional Advisory Council meetings, beginning in August 2017. The Federal Subsistence Board will review the draft plan and will accept written and oral comments at its January 2018 meeting. The Federal Subsistence Board takes into consideration recommendations and comments from the process, and forwards their comments to the Assistant Regional Director of OSM. Final funding approval lies with the Assistant Regional Director of OSM. Investigators will subsequently be notified in writing of the status of their proposals.

HISTORICAL OVERVIEW

The Monitoring Program was first implemented in 2000, with an initial allocation of $5 million. Since 2001, a total of $117.2 million has been allocated for the Monitoring Program to fund a total of 452 projects (**Figure 2; Figure 3**).

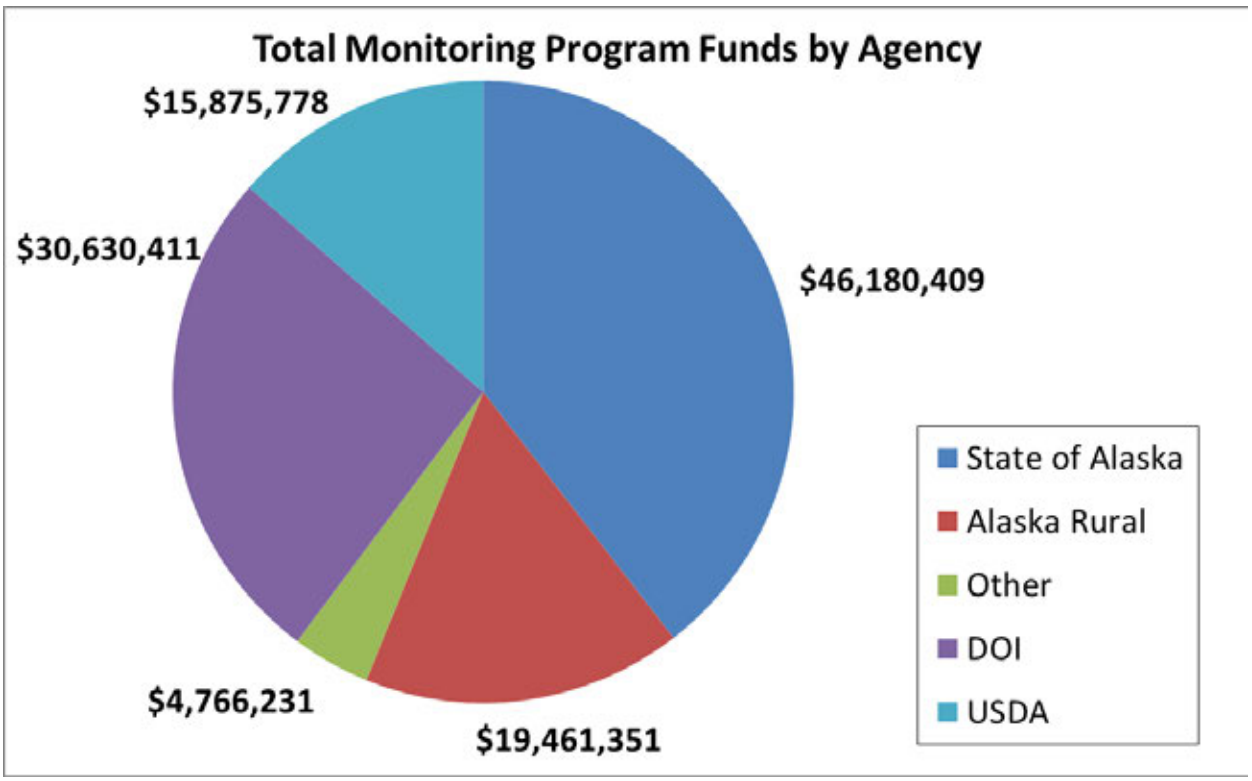

Figure 2. Total Project funds through the Monitoring Program from 2000 through 2016 listed by the organization of the Principal Investigator for projects funded. The funds listed are the total approved funds from 2000 to 2016. DOI = Department of Interior and USDA = U.S. Department of Agriculture.

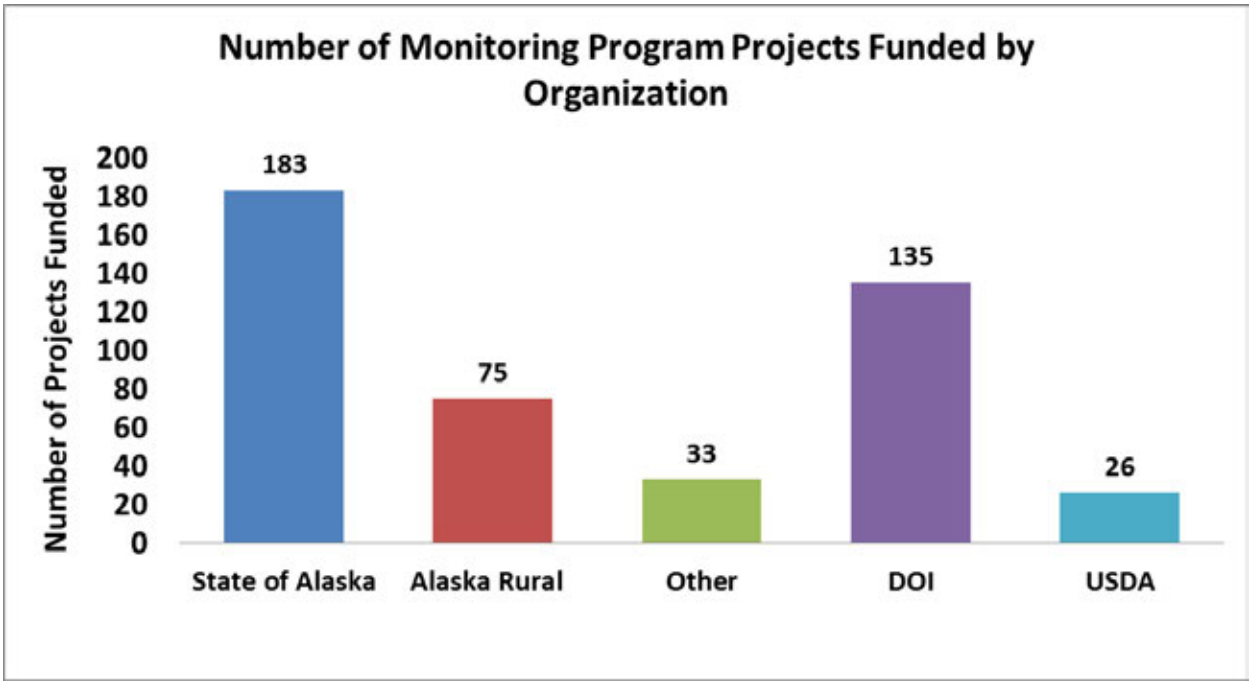

Figure 3. The total number of projects funded through the Monitoring Program from 2000 through 2016 listed by the organization of Principal Investigator. DOI = Department of Interior and USDA = U.S. Department of Agriculture.

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During each biennial funding cycle, the Monitoring Program budget funds ongoing multi-year projects (2, 3 or 4 years) as well as new projects. Budget guidelines are established by geographic region (**Table 1**) and data type. The regional guidelines were developed using six criteria that included level of risk to species, level of threat to conservation units, amount of subsistence needs not being met, amount of information available to support subsistence management, importance of a species to subsistence harvest and level of user concerns with subsistence harvest. Budget guidelines provide an initial target for planning; however they are not final allocations and will be adjusted annually as needed (**Figure 4; Figure 5**).

Table 1. Regional allocation guideline for Fisheries Resource Monitoring Funds.

Region	Department of Interior Funds	U.S. Department of Agriculture Funds
Northern	17%	0%
Yukon	29%	0%
Kuskokwim	29%	0%
Southwest	15%	0%
Southcentral	5%	33%
Southeast	0%	67%
Multi-Regional	5%	0%

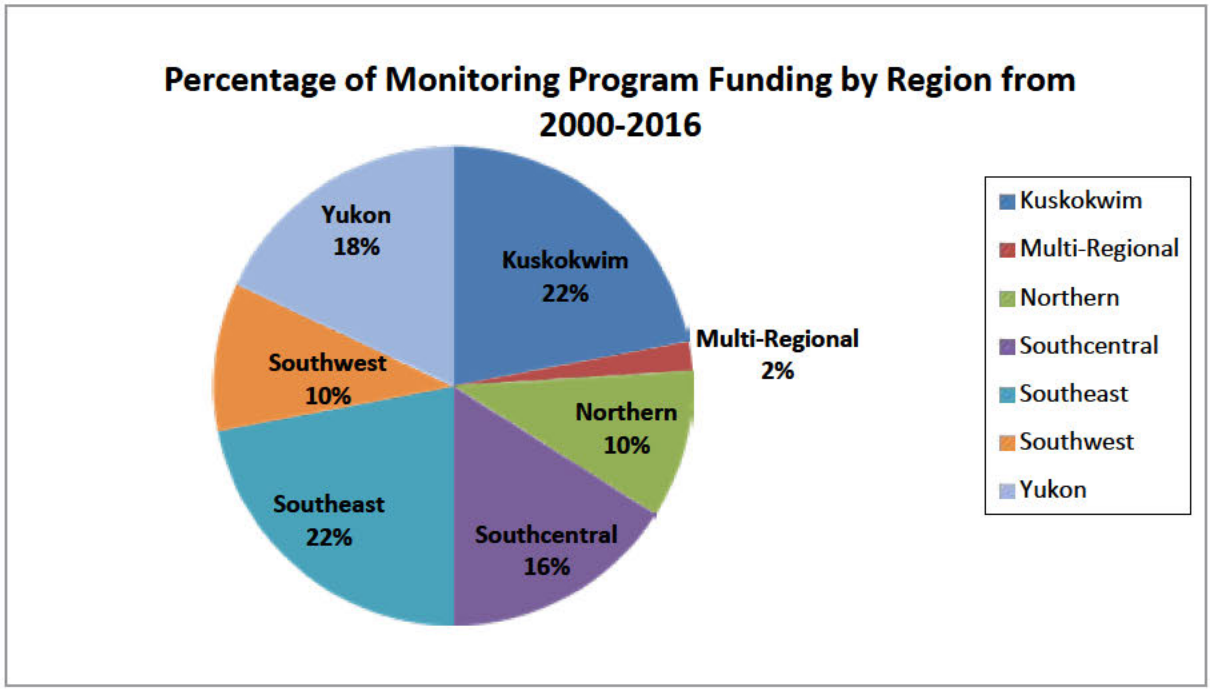

Figure 4. Total Project Funding by Geographic Region from 2000 through 2016.

Two primary types of research projects are solicited for the Monitoring Program including Harvest Monitoring/Traditional Ecological Knowledge (HMTEK) and Stock, Status and Trends (SST), although projects that combine these approaches are also encouraged. Project funding by type is shown in **Figure 5.**

Definitions of the two project types are listed below:

Harvest Monitoring and Traditional Ecological Knowledge (HMTEK) -These projects address assessment of subsistence fisheries including quantification of harvest and effort, and description and assessment of fishing and use patterns.

Stock Status and Trends Studies (SST) - These projects address abundance, composition, timing, behavior, or status of fish populations that sustain subsistence fisheries with linkage to Federal public lands.

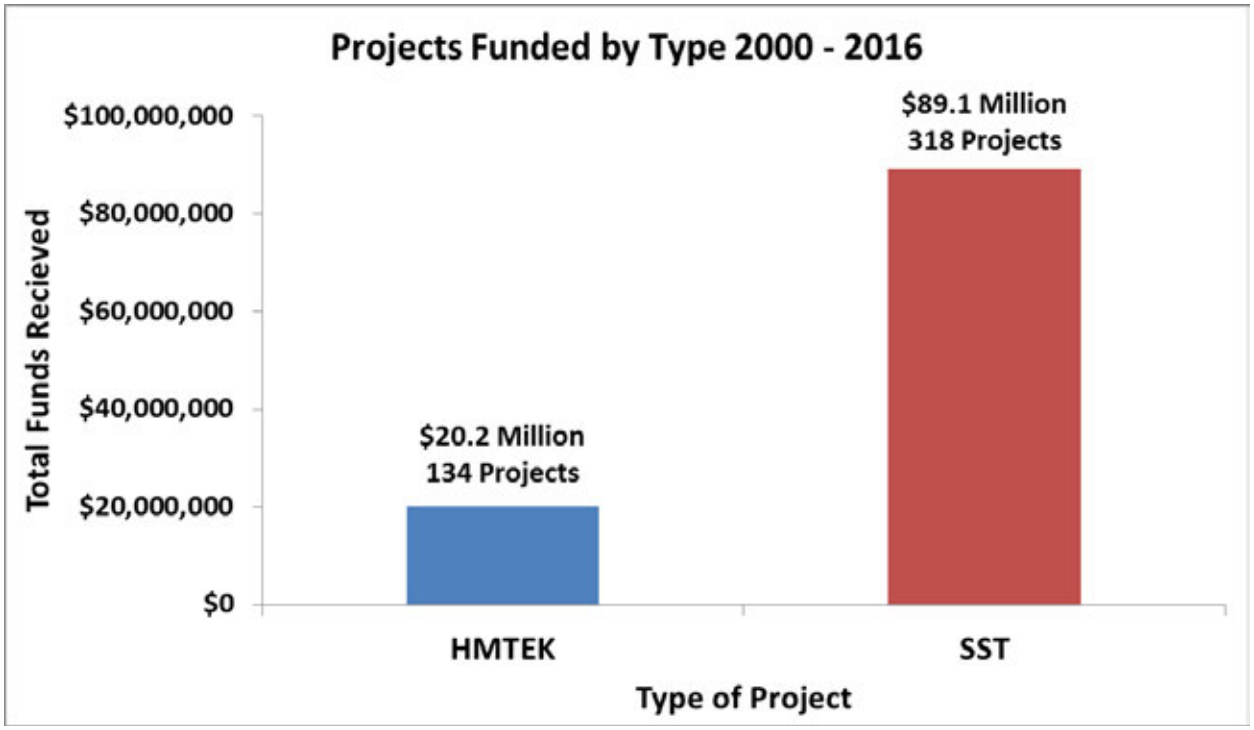

Figure 5. Total Project funding by type from 2000 through 2016. HMTEK = Harvest Monitoring/ Traditional Ecological Knowledge and SST = Stock, Status and Trends.

PROJECT EVALUATION PROCESS

In the current climate of increasing conservation concerns and subsistence needs, it is imperative that the Monitoring Program prioritizes high quality projects that address critical subsistence questions. Projects are selected for funding through an evaluation and review process that is designed to advance projects that are strategically important for the Federal Subsistence Program, technically sound, administratively competent, promote partnerships and capacity building, and are cost effective. Projects are evaluated by a panel called the TRC. This committee is a standing interagency committee of senior technical experts that is foundational to the credibility and scientific integrity of the evaluation process for projects funded by the Monitoring Program. The TRC reviews, evaluates, and make recommendations about proposed projects, consistent with the mission of the Monitoring Program. Fisheries and Anthropology staff from

the OSM provide support for the TRC. Recommendations from the TRC provide the basis for further comments from Subsistence Regional Advisory Councils, the public, the Interagency Staff Committee (ISC), and the Federal Subsistence Board, with final approval of the Monitoring Plan by the Assistant Regional Director of OSM.

To be considered for funding under the Monitoring Program, a proposed project must have a nexus to Federal subsistence fishery management. Proposed projects must have a direct association to a Federal subsistence fishery, and the subsistence fishery or fish stocks in question must occur in or pass through waters within or adjacent to Federal public lands. Complete project packages need to be submitted on time and must address five specific criteria (see below) to be considered a high quality project. Five criteria are used to evaluate project proposals:

1. ***Strategic Priorities*** – Studies should be responsive to information needs identified in the *2018 Priority Information Needs* https://www.doi.gov/subsistence/frmp/funding. All projects must have a direct linkage to Federal public lands and/or waters to be eligible for funding under the Monitoring Program. To assist in evaluation of submittals for projects previously funded under the Monitoring Program, investigators must summarize project findings in their investigation plans. This summary should clearly and concisely document project performance, key findings, and uses of collected information for Federal subsistence management. Projects should address the following topics to demonstrate links to strategic priorities:
    - **Federal jurisdiction,**
    - **Conservation mandate**,
    - **Potential impacts on the subsistence priority,**
    - **Role of the resource, and**
    - **Local concern.**

2. ***Technical-Scientific Merit*** – Technical quality of the study design must meet accepted standards for information collection, compilation, analysis, and reporting. Studies must have clear objectives, appropriate sampling design, correct analytical procedures, and specified progress, annual, and final reports.

3. ***Investigator Ability and Resources*** – Investigators must show they are capable of successfully completing the proposed study by providing information on the ability (training, education, and experience) and resources (technical and administrative) they possess to conduct the work. Applicants that have received funding in the past will be evaluated and ranked on their past performance, including fulfillment of meeting deliverable deadlines. A record of failure to submit reports or delinquent submittal of reports will be taken into account when rating investigator ability and resources.

4. ***Partnership and Capacity Building*** – Collaborative partnerships and capacity building are priorities of the Monitoring Program. ANILCA Title VIII mandates that rural residents be afforded a meaningful role in the management of subsistence fisheries, and the Monitoring

Program offers opportunities for partnerships and participation of local residents in monitoring and research. Investigators must not only inform communities and regional organizations in the area where work is to be conducted about their project plans, but must also consult and communicate with local communities to ensure that local knowledge is utilized and concerns are addressed. Letters of support from local communities or organizations that will collaborate on the proposed project add to the strength of a proposal. Investigators and their organizations must demonstrate their ability to maintain effective local relationships and commitment to capacity building. This includes a plan to facilitate and develop partnerships so that investigators, communities, and regional organizations can pursue and achieve the most meaningful level of involvement.

Investigators are encouraged to develop the highest level of community and regional collaboration that is practical. Investigators must demonstrate that capacity building has already reached the communication or partnership development stage during proposal development, and ideally, include a strategy to develop capacity building to higher levels, recognizing, however, that in some situations higher level involvement may not be desired or feasible by local organizations. Successful capacity building requires developing trust and dialogue among investigators, local communities, and regional organizations. Investigators need to be flexible in modifying their work plan in response to local knowledge, issues, and concerns, and must also understand that capacity building is a reciprocal process in which all participants share and gain valuable knowledge. The reciprocal nature of the capacity building component(s) must be clearly demonstrated in proposals.

5. Cost Benefit

Cost/Price Factors – An applicant's cost/price proposal will be evaluated for reasonableness. For a price to be reasonable, it must represent a price to the government that a prudent person would pay when consideration is given to prices in the market. Normally, price reasonableness is established through adequate price competition, but may also be determined through cost and price analysis techniques.

Selection for Award – Applicant should be aware that the Government shall perform a "best value analysis" and the selection for award shall be made to the Applicant whose proposal is most advantageous to the Government, taking into consideration the technical factors listed above and the total proposed price across all agreement periods.

POLICY AND FUNDING GUIDELINES

Several policies have been developed to aid in implementing funding. These policies include:

1. Projects of up to four years duration may be considered in any year's monitoring plan.
2. Studies must not duplicate existing projects.
3. A majority of Monitoring Program funding will be dedicated to non-Federal agencies.

4. Long term projects will be considered on a case by case basis.
5. Capacity building is considered a critical component of all projects, and all investigators are expected to incorporate capacity building and partnerships within their projects.
6. Activities that are not eligible for funding include:
   a) habitat protection, mitigation, restoration, and enhancement;
   b) hatchery propagation, restoration, enhancement, and supplementation;
   c) contaminant assessment, evaluation, and monitoring; and
   d) projects where the primary or only objective is outreach and education (for example, science camps, technician training, and intern programs), rather than information collection.

The rationale behind these policy and funding guidelines is to ensure that existing responsibilities and efforts by government agencies are not duplicated under the Monitoring Program. Land management or regulatory agencies already have direct responsibility, as well as specific programs, to address these activities. However, the Monitoring Program may fund research to determine how these activities affect Federal subsistence fisheries or fishery resources.

The Monitoring Program may fund assessments of key Federal subsistence fishery stocks in decline or that may decline due to climatological, environmental, habitat displacement, or other drivers; however applicants must show how this knowledge would contribute to Federal subsistence fisheries management. Similarly, the Monitoring Program may legitimately fund projects that assess whether migratory barriers (e.g. falls, beaver dams) significantly affect spawning success or distribution; however, it would be inappropriate to fund projects to build fish passes, remove beaver dams, or otherwise alter or enhance habitat.

2018 FISHERIES RESOURCE MONITORING PLAN

For 2018, a total of 53 investigation plans were received and 53 are considered eligible for funding. Of the projects that are considered for funding, 40 are SST projects and 13 are HMTEK projects.

For 2018, the Department of the Interior, through the U.S. Fish and Wildlife Service, will provide an anticipated $1.0 to $1.5 million in funding for new projects and up to $1.6 million for ongoing projects that were initially funded in 2016. The U.S. Department of Agriculture, through the U.S. Forest Service, has historically provided $1.8 million annually. The amount of U.S. Department of Agriculture funding available for 2018 projects is uncertain.

FISHERIES RESOURCE MONITORING PROGRAM
NORTHERN REGION OVERVIEW

Since the inception of the Monitoring Program in 2000, 49 projects have been undertaken in the Northern Alaska Region for a total of $11.8 million (**Figure 1**). Of these, the State of Alaska was the lead agency for 26 projects, the Department of the Interior for 15 projects, and Alaska Rural Organizations for 5 projects, and other organizations took the lead on 3 projects (**Figure 2**). Thirty-three were Stock, Status, and Trends (SST) projects, and 16 were Harvest Monitoring and/or Traditional Ecological Knowledge (HM/TEK) projects. A list of all Northern Region Monitoring Program projects from 2000 to 2016 is provided in **Appendix A**.

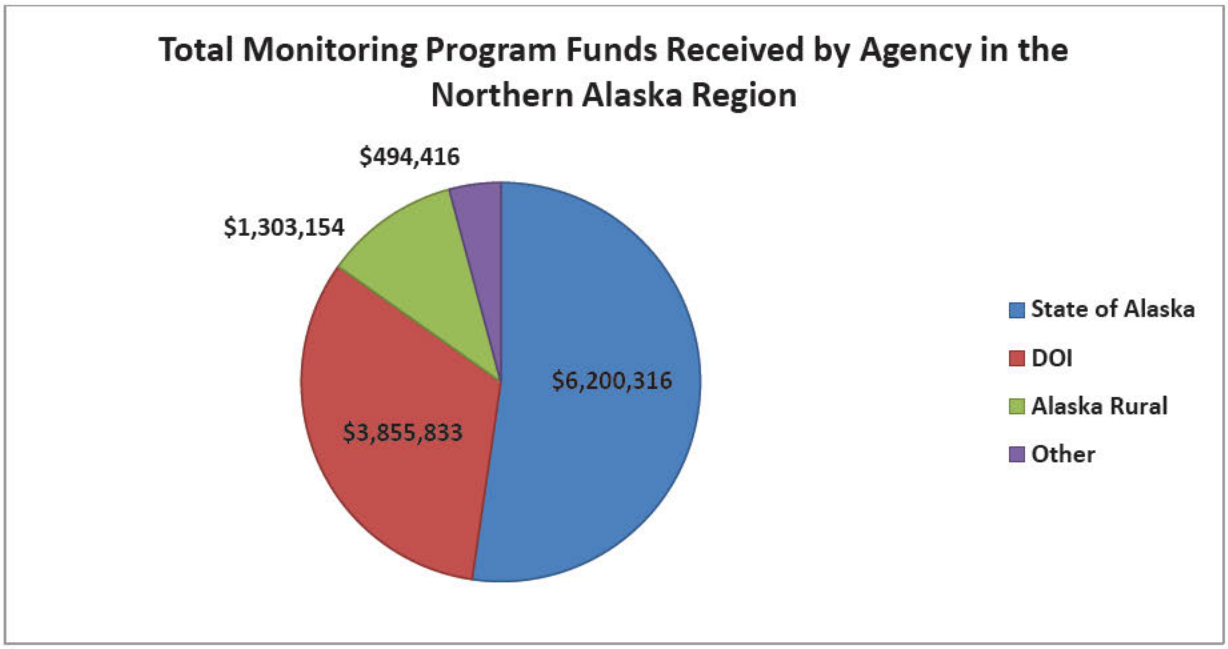

Figure 1. Monitoring Program funds received by Agency for projects in the Northern Alaska Region. The funds listed are the total approved funds from 2000 to 2016. DOI = Department of the Interior.

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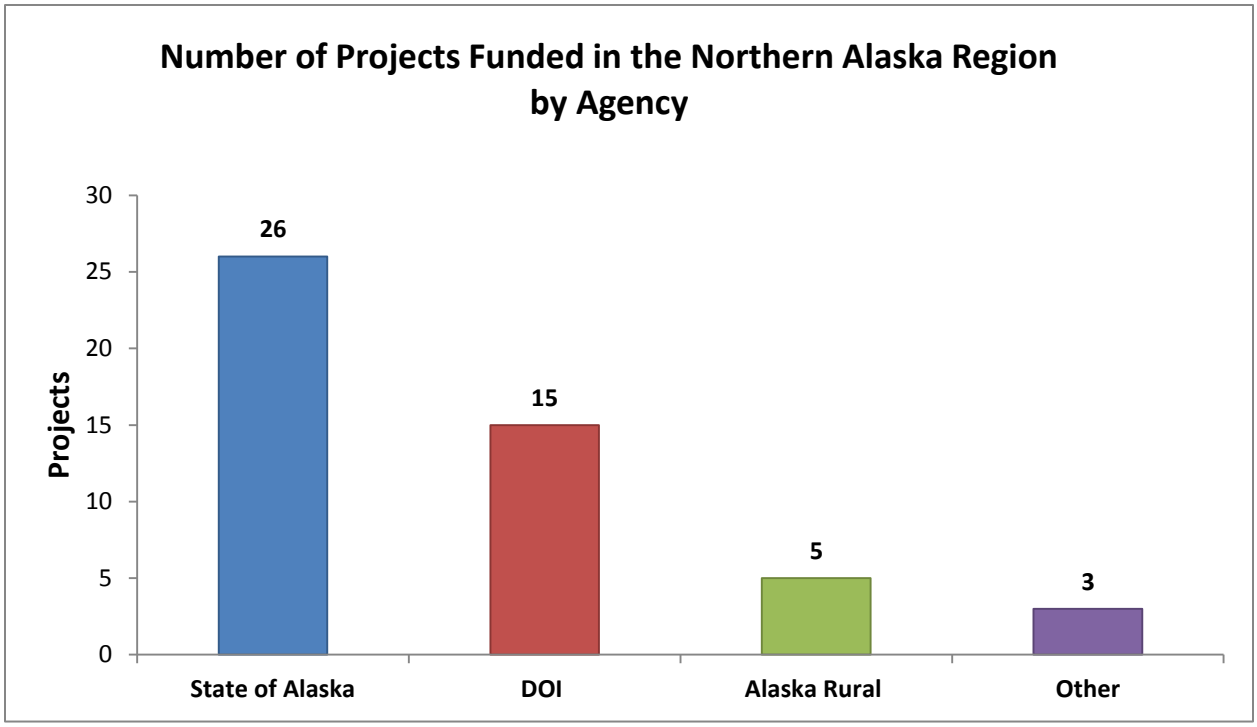

Figure 2. Total number of Monitoring Program projects funded, by agency, in the Northern Alaska Region from 2000 to 2016. DOI = Department of the Interior.

2018 DRAFT NORTHERN ALASKA REGION FISHERIES RESOURCE MONITORING PLAN

OVERVIEW

Priority Information needs

The 2018 Notice of Funding Opportunity for the Northern Alaska Region identified eleven priority information needs:

- Fish species inventory/survey in the Bering Land Bridge National Preserve, utilizing local and traditional knowledge from the communities of Shishmaref, Deering and Wales. Include application to Federal subsistence management.

- Unalakleet River Chinook Salmon escapement assessment.

- Salmon migration patterns in Norton Sound (between the Bering Sea and terminal rivers and streams).

- Understanding differences in cultural knowledge, beliefs, and perceptions of subsistence resources between fishery managers and subsistence users in Northwestern Alaska such as rural residents' beliefs, attitudes, and knowledge about beavers and perceptions of changes to fish habitat related to beavers.

- Traditional/local knowledge of subsistence fish. Include application to Federal subsistence management, such as identifying critical habitat, refining range maps, and shedding light on ecological relationships.
    - Dolly Varden in the communities of Noatak, Kivalina and the Kobuk River.

- Identify genetic diversity of Dolly Varden stocks harvested for subsistence use in Northwest Alaska.

- Dispersal, distribution, abundance and life history of Dolly Varden.

- Baseline harvest assessment and traditional/local knowledge of broad whitefish subsistence fisheries in tributaries of Smith Bay. Including application to Federal subsistence management, such as identifying critical habitat, refining range maps and understanding ecological relationships.

- Collect baseline information on Humpback, Broad and Least Cisco whitefish as it relates to spawning areas especially Selawik Lake.

- Baseline information including abundance, distribution, movement, fish health of Arctic Grayling in the Lower Colville River and its tributaries in context of climate change.

- Document Broad Whitefish health in Northern Alaska; of special interest is the comparison of the Colville and Ikpikpuk River populations in the context of climate change.

Available Funds

Federal Subsistence Board guidelines direct initial distribution of funds among regions and data types. Regional budget guidelines provide an initial target for planning. For 2018, the U.S. Department of the Interior, through the U.S. Fish and Wildlife Service, will provide an anticipated $1.0 to $1.5 million in funding for new projects and up to $1.6 million for ongoing projects that were initially funded in 2016. The U.S. Department of Agriculture, through the U.S. Forest Service, has historically provided up to $1.8 million annually. The amount of the U.S. Department of Agriculture funding available for 2018 projects is uncertain.

Technical Review Committee Proposal Score

The mission of the Monitoring Program is to identify and provide information needed to sustain subsistence fisheries on Federal public lands for rural Alaskans through a multidisciplinary and collaborative program. It is the responsibility of the TRC to develop the strongest possible Monitoring Plan for each region and across the entire state.

For the 2018 Monitoring Program, seven project proposals were submitted for the Northern Alaska Region. The TRC evaluated and scored each proposal for Strategic Priority, Technical and Scientific Merit, Investigator Ability and Resources, Partnership and Capacity Building, and Cost/Benefit. The final score determined the scoring of each proposal within the region (**Table 1,** 1= first place, 2 = second place, etc.). Projects that are placed higher comprise a strong Monitoring Plan for the region by addressing strategically important information needs based on sound science and promote cooperative partnerships and capacity building. The projects listed are currently being considered for funding in the 2018 Monitoring Program. Projects which were not eligible due to the nature of the activity are not included. For more information on projects submitted to the 2018 Monitoring Program please see the abstracts in **Appendix B**.

Table 1. Technical Review Committee (TRC) score for projects in the Northern Alaska Region. Projects are listed by TRC score and include the total funds requested and the average annual request for each project submitted to the 2018 Monitoring Program within the Northern Alaska Region (1 = first place, 2 = second place, etc.). The projects listed are currently being considered for funding in the 2018 Monitoring Program. Projects which were not eligible due to the nature of the activity are not included.

TRC Score	Project Number	Title	Total Project Request	Average Annual Request
1	18-103	Unalakleet River Weir	$662,645	$155,661
2 (tied)*	18-100	Lower Colville River Arctic Grayling-Nuiqst Subsistence Fishery	$246,503	$82,168
2 (tied)*	18-101	Kobuk River Dolly Varden Genetics	$55,800	$27,900
2 (tied)*	18-151	Priority Knowledge Dolly Varden South Chukchi Sea	$644,228	$214,743
3	18-150	Bering Land Bridge National Preserve TEK & Scientific Surveys	$421,282	$105,321
4	18-102	Dolly Varden Life History-North Slope AK	$313,579	$156,790
5	18-104	Broad Whitefish Health in Northern Alaska	$137,950	$45,983
		Total	**$2,481,987**	**$788,566**

* Proposals with identical scores during the rating process may be further assessed by comparing the average annual cost. Proposals with a lower average annual cost may be ranked above a similar rated proposal that has a higher annual average cost.

2018 TECHNICAL REVIEW COMMITTEE JUSTIFICATION FOR PROJECT SCORE

TRC Score: 1
Project Number: 18-103
Project Title: Unalakleet River Chinook Salmon Escapement Assessment-Continuation

Project Justification: This proposal is for continuation funding to monitoring Chinook Salmon escapement using a resistance board-floating weir in the Unalakleet River. This weir has been funded since 2010: (2010-2013, project 10-102) and (2014-2017, project 14-101). Estimates from the weir provide Chinook Salmon inseason daily passage estimates and run timing. This information aids Federal and State fishery managers in making timely management decisions. Additionally, the long-term goal of the weir is to use the data to create a run-reconstruction using escapement, age, sex, and length. This information will be used to set escapement goals for the river. For future implementation, it is recommended that the investigator consider the use of a video recorder to help possibly reduce the costs of the project.

Two of the three investigators have been involved with the Unalakleet River Weir since its inception providing a wealth of knowledge about Unalakleet River. While the principle investigator is new to the project, her agency (ADF&G) has been involved with the project since its inception in 2010. The project represents a working partnership between State and Federal agencies and a local community based organizations. Efforts have been made to increase capacity by incorporating both a ANSEP Bridge students and a local fisheries technicians from the village of Unalakleet, with the goal of training young professionals in fisheries resource management.

The cost of the proposal is in line with previous years funding and is typical of large weirs (320 ft. weir, largest in Alaska). The cost of the weir is reduced by the investigators ability to leverage funds from other contributors (Alaska Department of Fish and Game, Bureau of Land Management, Norton Sound Economic Development Corporation, and the Native Village of Unalakleet), creating a total in-kind match of $220,055 for the four years.

TRC Score: **(**2 tied)
Project Number: 18-100
Project Title: Seasonal Habitats and Migrations of Arctic Grayling of the Lower Colville River Relative to the Nuiqsut Subsistence Fishery Area

Project Justification: This projects purpose is to describe the annual distribution of Arctic grayling in the lower Colville River. This research will provide insight to fisheries managers to better understand the movement patterns of Arctic Grayling that were previously unknown for the Colville River. This project contains a linkage to Federal public lands/waters for subsistence use located in the National Petroleum Reserve. This project involves the investigation of one fish species that is harvested by Federally qualified subsistence users and it directly addresses a priority information need: *gather baseline*

information including abundance, distribution, movement, and health of Arctic grayling in the lower Colville River and its tributaries in the context of climate change.

The proposer intends to investigate the distribution, movement patterns, and seasonal use of Arctic Grayling, however the proposal does not clearly address the second component of the priority information need addressed in terms of relating the seasonal movements of Arctic grayling in the Colville River in terms of climate change. In addition, the proposal lacked details concerning how the investigator determined the number of radio tags to be deployed.

This project did receive support from the North Slope Regional Advisory Committee; however there still remains concern about the research timing possibly interfering with the local subsistence activities when caribou are migrating through the area. If funded, the investigator needs to continue to consult with local residents. The investigator has the ability and experience to successfully carry out a this project and has included a way to build / increase local involvement and capacity building through gathering local knowledge, hiring of locals, and by partnering with the ANSEP to hire a University student.

TRC Score: **(**2 tied)
Project Number: 18-101
Project Title: Genetic Diversity of Dolly Varden Populations in Kobuk River

Project Justification: This project aims to build upon a previously funded Monitoring Program project identifying important stocks of Dolly Varden that are harvested in an important mixed stock fishery. Dolly Varden are an important subsistence resource in the Kobuk River drainage and this project directly addresses two of the 2018 Priority Information Needs identified for the Monitoring Program by the Council: *Genetic diversity of Dolly Varden stocks harvested for subsistence use in Northwest Alaska,* and the second, *dispersal, distribution, abundance, and life history of Dolly Varden.*

This stock, status and trends project proposal justifies its request to continue gathering genetic baseline information from a previously funded Monitoring Program project (16-103), which hopes to assist fishery managers in identifying the portion of Dolly Varden harvested in the Wulik River winter subsistence fishery. The funding to collect an adequate sample size is justified by the need to obtain more baseline information to complete the genetic analysis. The investigators plan to collect and analyze genetic samples from the Kobuk River Dolly Varden population, however the methods used to capture the Dolly Varden remain the same as the previously funded project that did not capture enough fish to provide adequate sample size for the genetic analysis. If the methods of capture are to remain the same, it is unclear if the total samples needed to achieve the genetic resolution can be achieved. This project proposes to build / increase capacity by hiring an ANSEP University student to aid in the sampling and genetic analysis of the project.

TRC Score: **(**2 tied)
Project Number: 18-151

Project Title: Addressing Priority Knowledge Needs for Subsistence Stocks of Dolly Varden (aqalukpik) Along the Southern Chukchi Sea Coastline.

Project Justification: This is an ambitious project that seeks to better understand many biological aspects of Dolly Varden in the southern Chukchi Sea using a multifaceted research approach. Dolly Varden is an important subsistence resource to communities in the region, though substantial information on the life history characteristics, genetics, and critical habitat remains unknown. This proposal intends to rectify the data gap by collecting data on these variables through the use of TEK and laboratory genetic analysis. The study will use biological and ethnographic techniques to examine genetic diversity critical habitat, range, ecological relationships, nutritional value, diet, dispersal, distribution, abundance, and life history of this species. Laboratory and field methods will be deployed to collect and analyze associated data.

This project has a Federal nexus in the public lands/waters managed by the National Park Service (Noatak National Preserve, Cape Krusenstern National Monument, Kobuk Valley National Park), Bureau of Land Management (Kobuk-Seward Management Area), and the U.S. Fish and Wildlife Service (Selawik National Wildlife Refuge). It involves a subsistence resource, Dolly Varden, that is harvested by Federally qualified subsistence users. It directly addresses three priority information needs including 1) *genetic diversity of Dolly Varden stocks harvested for subsistence use in Northwest Alaska* 2) *TEK of fish harvested in subsistence fisheries, for example identifying critical habitat, refining range maps and shedding light on ecological relationships and* 3) *dispersal, distribution, abundance and life history of Dolly Varden.*

Two local hires from the communities of Kotzebue and Kivalina will be utilized for project management and fieldwork. Local hires will assist with the collection of traditional ecological knowledge in project communities and an ANSEP student will build collaborative and outreach capacity. These individuals will assist with logistics, project management, ethnographic data collection and dissemination. The proposed partnerships with representatives of the Native Village of Kotzebue and the Native Village of Kivalina appear meaningful, especially in undertaking the traditional ecological knowledge and sampling aspects of the project.

Dissemination through five peer-reviewed journal publications, reports, community presentations and half-day workshops with partner agencies seems overly ambitious for the project period and budget. The principal investigators and key personnel appear to have the capacity to undertake this research, though ethnographic methods and travel budgets should have been further developed. A well-published anthropologist will be contracted for the ethnographic component of this research which may help to alleviate initial concern regarding these items. The principal investigator has letters of support for this project from the Bureau of Land Management, the National Park Service, the Native Village of Kotzebue and the Selawik National Wildlife Refuge.

TRC Score: 3
Project Number: 18-150
Project Title: Bering Land Bridge National Preserve: Combining Traditional Ecological Knowledge and Scientific Surveys for a Contemporary Baseline

Project Justification: This project seeks to document the presence and distribution of important subsistence fish species that utilize federal public lands/waters in Bering Land Bridge National Preserve. Information on stock status, species distribution, and population age structure are lacking for this area with many of the major rivers and lakes having been surveyed sporadically or not at all. This project contains a linkage to federal public lands/waters for subsistence use as it focuses on the fisheries of Bering Land Bridge NP. It involves several species of fish harvested by Federally qualified subsistence users and it directly addresses a priority information need: *an inventory and survey of fish species in Bering Land Bridge National Preserve, utilizing traditional ecological knowledge from the communities of Shishmaref, Deering, and Wales*.

The proposer intends to document traditional ecological knowledge to identify species and habitats within the Preserve. The project would then use biological methods to survey for these species. While the research objectives certainly address priority information needs that would support effective management for several subsistence resources, the proposal lacks a clear plan for the collection of TEK data.
This project proposes to build / increase capacity by hiring and training local people in data collection, data entry techniques, and report writing. Sampling capacity building will occur for fish sampling and water quality sampling. The proposal does not involve partnerships with other agencies or organizations currently, but mentions potential future partnerships. The principal investigator provided letters of support from Bering Land Bridge National Preserve, the North Slope Economic Development Corporation, the Native Village of Shishmaref, the Wales IRA Council, and the Deering IRA Council.

TRC Score: 4
Project Number: 18-102
Project Title: Life History and Movement of an Important Subsistence Species, the Dolly Varden Char

Project Justification: This project proposes to continue research that was previously funded with the Monitoring Program in 2014 (14-103) to assess summer distributions and ecology of Dolly Varden fully addressing a priority information needs that were identified by the Council. Information of Dolly Varden life history in the Beaufort Sea still remains limited. Results from this project will identify age compositions, growth rate, fresh water and marine residency timing, and summer distribution of Dolly Varden sampled in the Ivishak river near Kaktovik. Assuming the same success rate of satellite tags transferring data from the previously funded project 14-103 of 70%, it is unknown if only tagging 15 fish that is proposed in this project would be enough and will provide detailed information to adequately describe the life history of Dolly Varden in such a short time frame (<45 days over one summer). The investigator did not make the connection as to how this newly acquired information would benefit fisheries managers in terms of management implications. The investigator also noted a consultation with the UFSWS Conservation Gene Lab, however did not identify which lab would proceed to work with the genetic lab samples or budget. Without identifying the lab, the budget justification is unclear and it is unclear if there would be enough funds to carry out this genetic work when the budget for this proposal is

near the cap for FRMP funding. The investigators have the experience needed to successfully conduct this ongoing project. The principle investigator has been experienced with a previously funded Monitoring Program and has provided timely and complete deliverables. This project presents an excellent opportunity to partner with the University of Alaska Fairbanks, United States Fish & Wildlife Service – Fairbanks Field Office, and the Canadian Department of Fisheries and Oceans.

TRC Score: 5
Project Number: 18-104
Project Title: Broad whitefish health of northern Alaska

Project Justification: The *Saprolegnia parasitica* occurrence has been a concern for both the local subsistence users, the Council and was identified as a 2016 Priority Information Need; however, not the 2018 Priority Information Need. The results of this project would describe the environmental factors of water temperature and water level that occur during the presence of the freshwater mold *Saprolegnia parasitica* on broad whitefish in the Colville River and Ikpikpuk River. By obtaining environmental data and specimens (mold and fish) from local, subsistence fishermen, this work will describe the presence of this mold but will not establish causation. The investigator wishes to investigate if water level has an effect on mold presence however makes no mention of how the water level will be assessed on these two rivers. The investigator mentions use of traditional ecological knowledge but the proposal lacks details describing how this information will be incorporated into the project methods and results. The results for this project would provide the foundation for further research but the methodologies would not establish causation and the management implications are unclear. The last objective is to analyze total metals, diesel range organics, residual range/heavy oil organics, and Nitrate/Nitrite. The Monitoring Program typically does not fund projects that include a) habitat protection, mitigation, restoration, and enhancement; b) hatchery propagation, restoration, enhancement, and supplementation; and c) contaminant assessment, evaluation, and monitoring. The rationale behind this approach is to ensure that existing responsibilities and effort by government agencies are not duplicated under the Monitoring Program; however, the Monitoring Program may fund research to determine how these activities affect subsistence fisheries or fishery resources. If this be the case, the principle investigator must show how this knowledge would contribute to Federal subsistence fisheries management. The project proposal lacks this connection to show how gaining knowledge of changing health of Broad Whitefish in the Colville and Ikpikpuk Rivers can aid fisheries managers in terms of a changing climate. It is recommended that the investigator further refines the traditional and ecological knowledge component of this proposal. The sampling frequency did not seem to adequately meet objective C in the proposal due to the rivers always changing dynamic with flowing water. It was unclear why 30 data loggers were deemed appropriate to answer the objectives. Sampling design needs refinement to better address the objectives. Alaska Department of Fish and Game have not identified *Saprolegnia parasitica* to be a concern for the abundance of fish populations in the Arctic. While the project is responsive to community concerns, the methodologies need to be further refined.

APPENDIX A

Table A.1. Monitoring Program projects funded in the Northern Region from 2000 to 2016.

Project Number	Project Title	Investigators (Lead listed first)
	North Slope	
00-002	Eastern NS Dolly Varden Spawning and Over-wintering Assessment	ADF&G, USFWS
01-113	Eastern NS Dolly Varden Genetic Stock ID Stock Assessment	ADF&G, USFWS
01-101	Eastern NS (Kaktovik) Subsistence Fish Harvest Assessment	AD&FG, KIC
02-050	NS (Anaktuvuk Pass) Subsistence Fish Harvest Assessment	ADF&G, NSB, AKP
03-012	SST of Arctic Cisco and Dolly Varden in Kaktovik Lagoons	USFWS
04-103	North Slope Dolly Varden Sonar Feasibility	USFWS
06-108	North Slope Dolly Varden Aerial Monitoring	ADF&G
07-105	North Slope Dolly Varden Genetic Baseline Completion	USFWS
07-107	Hulahula River Dolly Varden Sonar Enumeration	USFWS
12-155	Climate Change and Traditional Ecological Knowledge of Subsistence Whitefish and Cisco on the North Slope of Alaska	SWCA
14-103	Beaufort Sea Dolly Varden Dispersal Patterns	UAF
16-101	Arctic Dolly Varden Telemetry	USFWS
16-106	Aerial Monitoring of Dolly Varden Overwintering Abundance	ADF&G, USFWS
16-107	Chandler Lake Trout Abundance Estimation	ADF&G
16-152	Meade River Changes in Subsistence Fisheries	ADF&G
	Northwest Arctic	
00-001	Northwestern Dolly Varden and Arctic Char Stock Identification	ADF&G, USFWS
00-020	Hotham Inlet Kotzebue Winter Subsistence Sheefish Harvest	ADF&G
01-136	Northwestern Alaska Dolly Varden Genetic Diversity	ADF&G, USFWS
01-137	Northwestern Alaska Dolly Varden Spawning Stock Assessment	ADF&G
02-023	Qaluich Nigingnaqtuat: Fish That We Eat	AJ
02-040	Kotzebue Sound Whitefish Traditional Knowledge	ADF&G, MQ
03-016	Selawik River Harvest ID, Spring and Fall Subsistence Fisheries	USFWS
04-101	Selawik River Inconnu Spawning Abundance	USFWS
04-102	Selawik Refuge Whitefish Migration and Habitat Use	USFWS
04-109	Wulik River Dolly Varden Wintering Stocks	USFWS, ADF&G
04-157	Exploring Approaches to Sustainable Fisheries Harvest Assessment	ADF&G, MQ
07-151	Northwest Alaska Subsistence Fish Harvest Patterns and Trends	ADF&G, MQ

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Table A. 1. continued

Project Number	Project Title	Investigators (Lead listed first)
	Northwest Arctic (continued)	
08-103	Kobuk River Sheefish Spawning and Run Timing	ADF&G, USFWS
10-100	Selawik Drainage Sheefish Winter Movement Patterns	UAF, USGS, USFWS, NVK
10-104	Hotham Inlet Kotzebue Winter Subsistence Sheefish Harvest	USFWS
10-152	Climate Change and Subsistence Fisheries in Northwest Alaska	UAF
12-100	Selawik River Sheefish Spawning Abundance and Age Structure	USFWS
12-103	Kobuk River Sheefish Spawning Frequency, Location, and Run Timing	ADF&G, USFWS
12-104	Noatak River Dolly Varden Evaluation of Overwintering Populations	ADF&G, NPS
12-153	NW AK Key Subsistence Fisheries Harvest Monitoring Program	ADF&G, MQ
14-104	Selawik R Inconnu Spawning Population Abundance	USFWS
16-103	Kobuk River Dolly Varden Genetics	ADF&G, USFWS
16-104	Selawik Sheefish Age Structure and Spawning Population	USFWS
16-105	Kobuk River Sheefish Abundance	ADF&G
	Seward Peninsula	
01-224	Nome Sub-district Subsistence Salmon Survey	ADF&G, KI
02-020	Pikmiktalik River Salmon Site Surveys and Enumeration	USFWS, NPS, STB, KI
04-105	Pikmiktalik River Chum and Coho Salmon Enumeration	KI
04-151	Customary Trade of Fish in the Seward Peninsula Area	ADF&G, KI
05-101	Unalakleet River Coho Salmon Distribution and Abundance	ADF&G, NVU
06-101	Pikmiktalik River Chum and Coho Salmon Enumeration	KI
10-102	Unalakleet River Chinook Salmon Abundance Estimate	ADF&G, BLM, NSEDC
10-151	Local Ecological Knowledge of Non-Salmon Fish in the Bering Strait	KI
12-154	North Slope Salmon Fishery HM/TEK	ADF&G
14-101	Unalakleet River Chinook Salmon Abundance Estimate	ADF&G, BLM, NSEDC

Abbreviations used for investigators are: **ADF&G** = Alaska Department of Fish and Game, **AJ** = Anore Jones, **AKP** = City of Anaktuvuk Pass, **KI** = Kawarek Inc., **KIC** = Kaktovik Inupiat Corp., **MQ** = Maniilaq, **NSEDC** = Norton Sound Economic Development Corporation, **NVU** = Native Village of Unalakleet, **NSB** = North Slope Borough, **STB** = Stebbins IRA, **SWCA** = SWCA Environmental Consultants, **UAF** = University Alaska Fairbanks, **USFWS** = U.S. Fish and Wildlife Service, and **USGS** = U.S. Geological Survey.

APPENDIX B

The following Abstracts were written by the Principal Investigators and submitted to the Office of Subsistence Management as part of the proposal package. The statements and information contained in the Abstracts were not altered and may not reflect the opinions of the Office of Subsistence Management and/or the TRC.

Project Number: 18-103
Title: Unalakleet River Chinook salmon escapement assessment-continuation
Geographic Region(s): Northern Region
Data Type: Stock Status and Trends
Principal Investigator: Jenefer Bell, Alaska Department of Fish and Game

Project Cost:	**2018:** $144,288	**2019:** $156,895	**2020:** $161,047	**2021:** 160,415

Total Cost: $622,645

The Unalakleet River supports the largest Chinook salmon subsistence fishery in Norton Sound and over the last 10 years decreasing run size has led to increasing subsistence fishery restrictions. The recent 5-year (2011–2015) average subsistence harvest of Chinook salmon in Subdistrict 6 was 657 fish, 78% below the long-term (1994–2006) average subsistence harvest estimate of 2,913 fish.

Prior to 2010, management of Unalakleet River Chinook salmon was dependent on an enumeration tower on the North River, a tributary of the Unalakleet River, and radiotelemetry studies. Inconsistent operation of the counting tower due to funding and high water events called into question the efficacy of the project to guide management decisions. In recognition of significant data gaps and the need to make informed fishery management decisions, the United States Fish and Wildlife Service Office of Subsistence Management (USFWS OSM) funded a four-year resistance board-floating weir project on the Unalakleet River beginning in 2010, to address 3 objectives:

1. Estimate daily and total Unalakleet River Chinook salmon escapement from mid-June to August 15 each year.
2. Describe the timing of Unalakleet River Chinook salmon run.
3. Estimate age, sex, and length (ASL) composition of the Unalakleet River Chinook salmon escapement to achieve 90% and 95% confidence intervals of age and sex composition, respectively.

A resistance board weir will be placed in the Unalakleet River in mid-June and operated until August 15 to enumerate the Chinook salmon run. Counting periods will occur during three 8-hour shifts, 24 hours a day and flood lamps will be used during low-light conditions. Counting schedules will be adjusted for changes in diurnal migratory patterns or operational constraints such as suboptimal viewing conditions caused by high water levels. Salmon migrating upstream will be identified by species and recorded on multiple tally counters for a minimum of an hour or until fish passage diminishes. Individual counts of salmon passage throughout the night and day will be added together for a total daily passage by species.

Active sampling will be used to collect ASL samples from Chinook salmon. To ensure adequate temporal distribution ASL samples will be collected following a daily collection schedule in proportion to the previous 5-year average cumulative weir escapement by date. Sampling distributions and schedules will be adjusted inseason to address differences between expected and observed run abundance and timing. As a continuing project, The Unalakleet River weir escapement estimates and ASL data are being used to manage Chinook salmon subsistence and sport fisheries in Norton Sound Subdistrict 6, develop outlooks of run abundance for subsequent years, evaluate brood year productivity, and examine effects of harvest practices on the spawning escapement. Further, concurrent operation of the weir and the enumeration tower on the North River, has led to 5 years of accurate drainage wide escapement, which will be used to build run reconstructions and develop recruit-per-spawner analyses such that a scientifically defensible escapement goal can be established.

Project Number: 18-100
Title: Seasonal habitats and migrations of Arctic grayling of the lower Colville River relative to the Nuiqsut Subsistence fishery area
Geographic Region: Northern Alaska Region
Data Type: Stock Status and Trends (SST)
Principal Investigator: Andrew D. Gryska**,** Alaska Department of Fish and Game, Division of Sport Fish.

	2018 (4/1/18-3/31/19)	**2019** (4/1/18-3/31/19)	**2020** (4/1/18-3/31/19)
Project Cost:	$179,083	$59,120	$8,300

Total Cost: $246,503

Issue Addressed: Arctic grayling *Thymallus arcticus* are an important component of subsistence fisheries of the Colville River drainage (Fall and Utermohle 1993; Holen et al. 2012). Unfortunately, very little is known about this stock, and although the river and drainage are large, the available winter habitat may be limited. During winter, river discharge reaches annual lows and some streambeds go dry while others freeze to the bottom. To avoid these areas, Arctic grayling migrate to winter habitats some of which may become isolated refugia from which fish cannot migrate and are vulnerable to declines in water quality and quantity. Identification of overwintering habitats and timing of migrations to and from all seasonal habitats is needed to avoid or greatly reduce impacts associated with development, alterations of the hydrologic regime (e.g. droughts) due to climate change and narrowly directed fisheries at vulnerable times and places. This project directly addresses the FRMP priority information need for baseline information including abundance, distribution, movement, and health of Arctic Grayling in the Lower Colville River and its tributaries in the context of climate change.

Objective: The objective of this project is to use radiotelemetry to describe the seasonal movements and locations of mature Arctic grayling that inhabit the lower Colville River drainage between the Killik River and the village of Nuiqsut from August 2018 through December 2019.

Methods: Radio tags will be distributed throughout the study area systematically, and will be surgically implanted in 150 mature fish. The systematic distribution of the tags throughout the drainage will serve to maximize identification of seasonal habitats and migratory behavior for the majority of the population

from August 2018 through December 2019. Nearly all sample reaches are extremely remote. The lower 160 km (100 miles) of the Colville River near Nuiqsut will be accessed via small powerboats, while a small helicopter will be used to access small rivers and streams near Umiat. All Arctic grayling will be captured by hook and line or beach seines. Locations of radio tagged Arctic grayling will be determined using periodic flights during a 16-month period in a fixed wing aircraft. Seasonal locations and migratory periods will be described and depicted on detailed maps using ArcMap software.

Partnerships and Capacity Building: Local knowledge and involvement of residents of Nuiqsut and of the RAC is essential for the project's success. A local hire and/or contracted services of a local powerboat operator will be solicited. An ANSEP intern to hire a university student as an intern to work with this project. The BLM has offered logistical support in Umiat for this project. In addition, biologists at the North Slope Borough Department of Wildlife Management in Barrow will be invited to accompany the investigators during the experiment to become familiar with Colville River Arctic grayling ecology, radiotelemetry, and gain experience in conducting tracking surveys. Fishers from Nuiqsut will be approached to participate in fish collection and tagging whenever possible.

Project Number: 18-101
Title: Genetic diversity of Dolly Varden populations in Kobuk River
Geographic Region: Northern Alaska Region
Data Type: Stock Status and Trends (SST)
Principal Investigator: James Savereide, Alaska Department of Fish and Game, Division of Sport Fish and Penelope Crane, U. S. Fish and Wildlife Service, Conservation Genetics Laboratory

	2018 (4/1/18-3/31/19)	**2019** (4/1/18-3/31/19)
Project Cost:	$34,400	$21,400

Total Cost: $55,800

Issues Addressed: The Dolly Varden charr *Salvelinus malma* population that overwinters in the Wulik River is the most important subsistence fish resource for the residents of Kivalina, Alaska and one of the largest and most important overwintering sites for Dolly Varden in northwestern Alaska. Fish natal to the Noatak, Kivalina, Wulik, Kobuk, Buckland, Omikviorok, Rabbit, and Pilgrim rivers in Alaska, as well as the Anadyr and Amguema rivers in Russia have all used the Wulik River as an overwintering site. This project directly addresses two priority information needs in the Northern Alaska Region: 1) genetic diversity of Dolly Varden stocks harvested for subsistence use; and, 2) dispersal, distribution, abundance, and life history of Dolly Varden. We will improve the method developed by the co-investigator and the Conservation Genetics Laboratory (CGL) that identifies the origin of Dolly Varden harvested in the Wulik River subsistence fishery and our understanding of Dolly Varden life history in northwestern Alaska. Adding three of the four known Dolly Varden spawning stocks in the Kobuk River, the Hunt, Salmon, and Tutuksuk River stocks, to the established baseline will advance the mixed-stock analysis of this important subsistence fishery and allow managers to assess the impacts of harvest on Dolly Varden stocks represented in this overwintering aggregation.

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Objectives: The objective of this project will be to:

1. Collect and genetically analyze juvenile Dolly Varden fin clips taken from three known spawning streams in the Kobuk River drainage, to add to the Northwest Alaska genetic baseline for mixed-stock subsistence harvest analysis.

Methods: Two crews with two biologists will sample each river in July 2018 and if water conditions or catch rates impede our ability to collect necessary sample sizes, we will continue sampling in July, 2019. The Salmon, Tutuksuk, and Hunt rivers will be sampled for a minimum of three days using minnow traps baited with cured salmon roe. Fin clips will be sent to the U. S. Fish and Wildlife (USFWS) Conservation Genetics Laboratory (CGL) in Anchorage for analysis and archival.

Partnerships and Capacity Development: An ANSEP internship, up to four weeks in duration in August 2018–2019, will be available in the CGL. The principal investigator will work closely with local communities to learn about the rivers to be sampled and gain any insight from their knowledge of fish in those areas. Knowledge gained from local fishermen before and during study 16-103 will be applied while sampling in 2018–2019.

Project Number: 18-151
Title: Addressing priority knowledge needs for subsistence stocks of Dolly Varden (Aqalukpik) along the southern Chukchi Sea coastline
Geographic Region(s): Northern Region
Data Type: Stock status and trends (SST), and traditional ecological knowledge (TEK)
Principal Investigators: Dr. Trevor Haynes, Wildlife Conservation Society, Arctic Beringia Program
Co-Investigator: Mr. Alex Whiting, Native Village of Kotzebue

Project Cost:	**2018:** $214,850	**2019:** $214,909	**2020:** $214,469

Total Cost: $644,228

Issue: Our project will address three Priority Information Needs identified by the 2018 Fisheries Resource Monitoring Program through information gathered in Regional Advisory Committee Meetings. Those needs are: characterizing the genetic diversity of Dolly Varden harvested for subsistence in Northwest Alaska, synthesizing TEK on these fish harvested in subsistence fisheries, and gathering information on dispersal, distribution, abundance and life history of Dolly Varden.

Objectives:

1. Document TEK of Dolly Varden life histories across Northwestern Alaska through interviews or focus groups in Alaska Native Villages;
2. Conduct a field campaign that incorporates TEK knowledge into the study design, and collect Dolly Varden otoliths, genetic samples, tissue and diet samples for analysis;
3. Conduct laboratory analysis of samples from 200 individual Dolly Varden collected through field research and subsistence harvest;

4. Create a comprehensive picture of the life history strategies of Dolly Varden by coordinating our sampling, lab analysis, and TEK surveys;
5. Relate life history patterns to subsistence harvest and stock management needs.

Methods: Our project design reflects the co-production of knowledge through integration of input from experts about both scientific and the Traditional Knowledge (Objective 1) of Dolly Varden. These experts will design a sampling strategy for the four primary study areas (Kivalina, Noatak, and Kobuk rivers, and coastal lagoons neighboring these rivers). Tissue from samples taken at these locations (Objective 2) will be analyzed in laboratories for genetic, body condition, age, microchemistry, and diet data (Objective 3). The data requirements will be tuned to inform both the key questions forwarded by the RAC as impetus for this project, and to inform other relevant questions that arise during the assessment of TEK of Dolly Varden in the study area. Finally, through the sharing of information among all project partners (Objective 4), outreach materials and management recommendations will be produced (Objective 5).

Partnerships/Capacity Building: We partner with local fishermen/managers in each community to answer questions about Dolly Varden, building on their capacity to help manage their own subsistence needs. As Co-PI, Alex Whiting will coordinate all activities involving the Native Village of Kotzebue, a fundamental partner in collecting harvest samples and linking the project partners with members of the community. Similarly, we work with Kyle Sage from the Native Village of Kivalina, a prominent subsistence fisherman who WCS is currently funding through a National Science Foundation grant. He is instrumental in conducting TEK interviews, collecting harvest samples, and again performing community outreach. We maintain strong relationships with tribal governments and regional organizations that are interested in this work, and defer to their decisions about research conducted in their communities, including the Northwest Arctic Borough and Maniilaq, Inc.

Project Number: 18-150
Title: Bering Land Bridge National Preserve: Combining Traditional Ecological Knowledge and Scientific Surveys for a Contemporary Baseline
Geographic Region: Bering Land Bridge National Preserve, National Park Service
Data Type: Traditional Ecological Knowledge, Stock Status and Trends, and Harvest Monitoring
Principal Investigator: Dr. Carol Ann Woody, National Park Service, Subsistence Fisheries Division
Co-Investigator(s): Sarah Apsens M.S., Alaska SeaGrant Program Fellow.

Project Cost:	**2018:** $91,369	**2019:** $147,880	**2020:** $118,370	**2021:** $63,703

Total Cost: $421,322

Issue: Fish are a traditional and culturally important food source for Seward Peninsula residents and comprise a significant portion of subsistence harvests. For example, during 2009-2010 Shishmaref residents harvested an estimated 93,971 lbs. of non-salmon fish from waters in or near the Bering Land Bridge National Preserve (Raymond-Yakoubian 2013). Despite the importance of fish to area cultures and food security, basic information on subsistence fish including precise ID, essential habitat locations and

characteristics (e.g., spawning, rearing & feeding), basic population characteristics (anadromous? freshwater? age and size at first reproduction?) are lacking for fishes of the Bering Land Bridge National Preserve. The Federal Office of Subsistence Management listed the following priority information need, identified by the Seward Peninsula Subsistence Regional Advisory Council during the Nome Nov. 2016 meeting: "*An inventory and survey of fish species in the Bering Land Bridge National Preserve, utilizing traditional ecological knowledge from the communities of Shishmaref, Deering and Wales.* "

Objectives: Our overarching goal is to build on existing cultural knowledge by enhancing it with scientific surveys to create the first comprehensive freshwater fisheries baseline inventory for the Bering Land Bridge National Preserve. Working collaboratively with subsistence fishing experts from Deering, Shishmaref, and Wales during 2018-2020 we will:

1. Map (GIS) important subsistence fishing areas in & near the Preserve (2018-2019),
2. Map (GIS) known or documented essential fish habitats (spawning, rearing, feeding) TEK in and near the Preserve (2018-2020),
3. ID species and sample (age, length, sex, condition) subsistence harvests (2018-2019)
4. Compile and share important ecological knowledge on subsistence species (2018-2020)
5. Design & implement targeted systematic scientific fisheries survey focused on key subsistence tributary systems (2019).
6. Conduct a probabilistic scientific survey of tributaries and lakes in and near the Preserve to provide a better understanding of less accessible fish assemblages(2020)
7. Document essential fish habitat characteristics including: depth, flow, substrate, pH, O_2, conductivity, temperature.
8. Collaborate with villages to establish a long-term temperature and water quality monitoring program in important subsistence waters.

Methods: Tribal Councils in Deering, Shishmaref and Wales will identify and establish contact with recognized fishing experts in each village that are willing to work with us on this project. Semi-directed group and mapping interviews with fishing experts (Miraglia 1998) will be conducted with experienced anthropologists to share and gather fish ecology information (e.g. precise species ID, essential habitat locations, run time info. Etc.). The first trip will be planned to coincide with opportunities to sample key subsistence harvests. We will work to identify and train intern(s) in each village to: sample subsistence harvests, sample basic water quality, record results. This internship will be ongoing through the project. Remote temperature monitoring equipment will be installed in tributaries near each village to facilitate data extraction. Remote thermal monitoring sites will be selected based on ability to access sites to download data in the future.

Systematic fisheries surveys will be conducted in tributary systems identified by village fishing experts as important subsistence fishing habitats; fish and aquatic habitat sampling will follow USEPA (2013).

Probabilistic fisheries surveys will be based on GRTS see: https://science.nature.nps.gov/im/datamgmt/statistics/r/advanced/grts.cfm) to provide resource managers an overall fish assemblage and habitat baseline for tributaries and lakes in the Preserve. Standard electrofishing and trapping methods will be

used (USEPA 2013). Standard EPA protocols will be used to measure water quality and habitat parameters; this work will be helicopter supported.

Project Number: 18-102
Title: Life history and movement of an important subsistence species, the Dolly Varden char
Geographic Region(s): Northern Region
Data Type: Stock Status and Trends
Principal Investigator: Andrew C Seitz, University of Alaska Fairbanks
Co-Investigator: Randy Brown, U.S. Fish and Wildlife Service

Project Cost:	**2018:** $214,963	**2019:** $98,616

Total Cost: $313,579

Issue: To understand potential impacts of climate change and human activities on Dolly Varden, as well as to design potential management strategies in response to these stressors, it is imperative to have a sound understanding of their biology and ecology. Findings from recent research on Dolly Varden demonstrate variability in behavior between years and are challenging many long-standing assumptions, indicating the need to examine several basic aspects of the biology, ecology and behavior of Dolly Varden. Without this information, it is impossible to design well-informed management approaches that maximize fishing opportunity while minimizing the risk of overexploitation of this species, should the need arise in the future.

Objectives:

1. By capturing Dolly Varden near Kaktovik and attaching Pop-up Satellite Archival Tags to them, we will continue to collect information about the oceanic phase of Dolly Varden that summer in the Beaufort Sea, including:
    a. Movement and distribution
    b. Depth and temperature occupancy
2. Using genetic molecular techniques, we will describe the origin of Dolly Varden harvested in the Kaktovik subsistence fishery, including those from the Ivishak River.
3. Using sagittal otoliths collected from Dolly Varden in the Ivishak River, we will describe and reexamine life history information, including:
    a. Age and age-at-length
    b. Age at first seaward migration
    c. Frequency of seaward migration

Methods: Ultimately, the long term goal of our research is to understand the variability in biology, ecology and behavior of Dolly Varden that spawn in rivers of the North Slope to provide a landscape-wide understanding of this species on the North Slope. To accomplish this in a financially feasible manner, we propose an incremental approach in which we conduct a series of modest

research projects whose results can be combined in the future to achieve our long term goal. This OSM proposal represents the first modest research project, and we propose to:

1. Continue to examine the migration and behavior of Dolly Varden in the ocean to provide information that can be used to understand potential impacts of human activities, as well as provide information about the potential implications of changing ocean conditions on this species;
2. Describe the stock origin of Dolly Varden captured in a mixed-stock subsistence fishery near Kaktovik, which ultimately can be used to understand and potentially predict the variability in several aspects of catches; and 3. Collect basic life history information about Dolly Varden from the Ivishak River, which can be used to understand several aspects of the biology and ecology of this species in that drainage, particularly its population dynamics.

Partnerships/Capacity Building: The proposed project seeks to increase the collective knowledge about Dolly Varden on the North Slope of Alaska. While doing this, we will develop partnerships with residents of Kaktovik, AK to aid in the collection of tissue samples. Additionally, we will conduct public outreach through presentations and informal conversations to foster mutual exchange of knowledge about this species. With an increase in collective knowledge, residents, scientists and managers will be empowered to make more informed decisions regarding management of Dolly Varden, should an active management program need to be implemented in the future.

Project Number: 18-104
Title: Baseline Information on Broad Whitefish (*Coregonus nasus*) Health in Northern Alaska
Geographic Region(s): Northern Region
Data Type: Stock Status and Trends/TEK
Principal Investigator: Todd Sformo, PhD, North Slope Borough-Department of Wildlife Management

Project Cost:	**2018:** $54,100	**2019:** $41,925	**2020:** $41,925

Total Cost: $137,950

Broad whitefish (*Coregonus nasus*) is an invaluable subsistence resource on the North Slope of Alaska in general and on the Colville and Ikpikpuk River drainages in particular. Generations of Native subsistence fishing have taken place and continue to be activity pursued in this area for this species of fish. It is not only important nutritionally but it also functions as a driving force in the perpetuation of Inupiaq culture. I propose to establish baseline parameters of health of this fish by enlisting the assistance of subsistence fishermen through monitoring their catch and subsampling specimens. Monitoring and subsampling will produce 1) a field health assessment index based on a modified method of Goede (Goede and Barton 1990; Adams et al. 1993) that utilizes both organismic and hematological indices and 2) a enlist a professional fish pathologist, when necessary, to conduct histopathology on a subset of fish. The field health assessment index is a quantitative assessment that produces a fish health condition profile by population and will create a baseline health assessment that can be utilized statistically (Adams et al.

1993). In addition, baseline environmental parameters will be establishment by monitoring temperature salinity at individual subsistence nets and analyzing water quality once a month (especially May – January) and at key locations of potential broad whitefish spawning. Since a known emerging disease on broad whitefish in this area recently began in 2013, I will also use collected water samples to confirm presence of the freshwater mold *Saprolegnia* sp. over time. The specific project activities will examine broad whitefish from subsistence-caught specimens within the Colville and Ikpikpuk River drainages to establish baseline information on healthy vs. diseased fish and establish baseline environmental conditions where these fish are caught, including temperature, salinity, and water quality analyses. Anticipated outputs and outcomes will be establishing a Health Assessment Index (HAI) and publishing the results regarding the health and disease of broad whitefish from this area that will also include baseline environmental details.

Goals: Establish baseline information on broad whitefish health and environmental conditions through a comparison of subsistence-caught specimens, temperature recordings, and water quality within the Colville and Ikpikpuk river drainages.

Objectives:

1. Record catch (species, mass, fork length, other TEK) from subsistence-caught specimens
2. Create Goede organismic and hematological indices through gross measurement and necropsies
3. Deploy data loggers to subsistence fishermen to attach to nets to record water temperature and salinity and water level
4. Deploy loggers in waters where potential broad whitefish spawn independent of subsistence fishing

Collect and create a regular water sampling regime for not only water quality parameters but also for the seasonal occurrence and distribution of *Saprolegnia* sp.

ANNUAL REPORTS

Background

ANILCA established the Annual Reports as the way to bring regional subsistence uses and needs to the Secretaries' attention. The Secretaries delegated this responsibility to the Board. Section 805(c) deference includes matters brought forward in the Annual Report.

The Annual Report provides the Councils an opportunity to address the directors of each of the four Department of Interior agencies and the Department of Agriculture Forest Service in their capacity as members of the Federal Subsistence Board. The Board is required to discuss and reply to each issue in every Annual Report and to take action when within the Board's authority. In many cases, if the issue is outside of the Board's authority, the Board will provide information to the Council on how to contact personnel at the correct agency. As agency directors, the Board members have authority to implement most of the actions which would effect the changes recommended by the Councils, even those not covered in Section 805(c). The Councils are strongly encouraged to take advantage of this opportunity.

Report Content

Both Title VIII Section 805 and 50 CFR §100.11 (Subpart B of the regulations) describe what may be contained in an Annual Report from the councils to the Board. This description includes issues that are not generally addressed by the normal regulatory process:

- an identification of current and anticipated subsistence uses of fish and wildlife populations within the region;
- an evaluation of current and anticipated subsistence needs for fish and wildlife populations from the public lands within the region;
- a recommended strategy for the management of fish and wildlife populations within the region to accommodate such subsistence uses and needs related to the public lands; and
- recommendations concerning policies, standards, guidelines, and regulations to implement the strategy.

Please avoid filler or fluff language that does not specifically raise an issue of concern or information to the Board.

Report Clarity

In order for the Board to adequately respond to each Council's annual report, it is important for the annual report itself to state issues clearly.

- If addressing an existing Board policy, Councils should please state whether there is something unclear about the policy, if there is uncertainty about the reason for the policy, or if the Council needs information on how the policy is applied.
- Council members should discuss in detail at Council meetings the issues for the annual report and assist the Council Coordinator in understanding and stating the issues clearly.

- Council Coordinators and OSM staff should assist the Council members during the meeting in ensuring that the issue is stated clearly.

Thus, if the Councils can be clear about their issues of concern and ensure that the Council Coordinator is relaying them sufficiently, then the Board and OSM staff will endeavor to provide as concise and responsive of a reply as is possible.

Report Format

While no particular format is necessary for the Annual Reports, the report must clearly state the following for each item the Council wants the Board to address:

1. Numbering of the issues,
2. A description of each issue,
3. Whether the Council seeks Board action on the matter and, if so, what action the Council recommends, and
4. As much evidence or explanation as necessary to support the Council's request or statements relating to the item of interest.

Federal Subsistence Board

1011 East Tudor Road, MS 121
Anchorage, Alaska 99503 - 6199

FISH and WILDLIFE SERVICE
BUREAU of LAND MANAGEMENT
NATIONAL PARK SERVICE
BUREAU of INDIAN AFFAIRS

FOREST SERVICE

OSM 17054.EP

AUG 1 4 2017

Gordon Brower, Chair
North Slope Subsistence
Regional Advisory Council
c/o Office of Subsistence Management
1101 East Tudor Road, MS 121
Anchorage, Alaska 99503-6119

Dear Chairman Brower:

This letter responds to the North Slope Subsistence Regional Advisory Council's (Council) fiscal year 2016 Annual Report. The Secretaries of the Interior and Agriculture have delegated to the Federal Subsistence Board (Board) the responsibility to respond to these reports. The Board appreciates your effort in developing the Annual Report. Annual Reports allow the Board to become aware of the issues outside of the regulatory process that affect subsistence users in your region. We value this opportunity to review the issues concerning your region.

1. Food Security, Preventing Deflection of Caribou and User Conflicts.

The Council addressed pressing concerns in its previous annual report to the Board regarding food security for communities in the North Slope Region, user conflicts, and potential impacts from the deflection of caribou from traditional hunting areas by sport hunters. The Council appreciates the Board's reply but feels perhaps the gravity of the issue was underestimated. The Council would like to further address this issue with regards to the decline of the Western Arctic and Teshekpuk Caribou Herds. Subsistence is not only a food security issue but also the core of the social fabric of communities in the region. Food security is truly a matter of people going hungry. Council members heard that children in Anaktuvuk Pass came to school hungry because they had no access to caribou. Communities have been extremely stressed throughout the region where the caribou herd did not come through; struggling to feed their families, provide for their elders, and teach the younger generation the awareness and skills to hunt in a positive way. Sharing among communities has become strained as well. This fall the caribou finally came through Anaktuvuk Pass and were harvested there for the first time in a long while. When the caribou come, the traditional loving lifestyle of the culture starts to come back and people feel happy. The subsistence way of life, eating traditional foods, and providing for family

and community promotes goodwill and a sense of well-being. The social fabric of communities comes alive again. The Council feels the issue of food security and subsistence priority in areas where there are user conflicts needs to be taken more seriously. The Council has heard from residents of Unit 23 that the closure to non-Federally qualified users made a positive change to their hunting experience in their traditional hunting areas and is looking into similar options to help support the people of Anaktuvuk Pass to meet their subsistence needs. The Council recognizes the challenge of managing hunting activities to avoid deflection of the herd, but feels that it is a central issue in supporting a meaningful subsistence opportunity and priority. Because caribou are managed across State and Federal lands, it will be challenging to find a unified way forward. The Council feels research that illuminates how disturbance by hunters may deflect the caribou herds and why the migration has shifted away from Anaktuvuk Pass would be of great assistance for informed management for the resource. The Council would like to see further efforts for this type of research to be conducted by the Federal land management agencies and is hopeful for collaboration with State biologists as well.

Given that caribou is the primary subsistence food that feeds the people of Anaktuvuk Pass, it is imperative to ensure the subsistence priority is met. The Council seeks avenues through the Federal Subsistence Management Program to ensure that Federal subsistence priority for caribou is met, which includes ensuring that activities on non-Federal public lands do not deflect caribou from their migratory path through Anaktuvuk Pass. This is a very real matter of food security and the Council seeks the assistance of the Federal Subsistence Management Program to generate solutions to alleviate the situation. The Council will appreciate the support of Federal Subsistence Management Program staff in exploring possible pathways through both the Federal and State processes in the upcoming regulatory cycle.

Response:

The Board is pleased to hear that recent shifts in caribou migration patterns have improved access to this resource for some communities and we are dedicated to supporting efforts that help rural residents meet their subsistence needs. Previous testimony, particularly from residents of Noatak and Anaktuvuk Pass, have attested that shifts in caribou numbers and migration present severe food security concerns for rural residents. We recognize these concerns in light of ongoing declines in the Western Arctic, Teshekpuk, and Central Arctic caribou herds. Caribou migration patterns may shift in response to a number of variables, particularly when populations are substantially reduced. The Board is carefully monitoring the state of caribou populations on the North Slope and efforts by both the Federal Subsistence Management Program and the Alaska Board of Game to address conservation and subsistence issues pertaining to these herds. Because of jurisdictional boundaries across the range of these herds, we recognize the importance of working with Federal land management agencies and the State of Alaska, whenever possible, to address long-term management strategies. For this reason, the Board directed the Office of Subsistence Management to establish an interagency group to discuss these issues, particularly for the Western Arctic Caribou Herd.

The first meeting of the interagency working group took place in April of 2017. The meeting provided a forum for State and Federal agency personnel to come to the table to discuss their observations and concerns, and to offer suggestions for moving forward on these issues. The Board acknowledges that both herd declines and user conflicts are central to this issue and that both must be addressed in our efforts to effectively manage caribou populations. We recognize a long-history of concerns about user conflict and herd deflection in the vicinity of the Noatak, Squirrel, Agashashok, and Eli Rivers in Unit 23, as well as along the Dalton Highway corridor in Unit 26B. We furthermore recognize that subsistence activities provide more to rural residents than food alone. Title VIII of ANILCA affirms the sociocultural aspect of subsistence activities by stating explicitly states that subsistence opportunity "…is essential to Native physical, economic, traditional, and cultural existence and to non-Native physical, economic, traditional, and social existence."

The Board will continue to encourage our member agencies, the State of Alaska, academic institutions, and private organizations to undertake collaborative caribou research in the Arctic that would enhance our understanding of populations, migration patterns, and disturbance behavior. A recent study in the journal *Movement Ecology* titled "Effects of environmental features and sport hunting on caribou migration in northwestern Alaska" suggested that caribou migration through the Noatak River drainage is unlikely to be inhibited by sport hunting activity. However, the study was of limited scope and did not address variables such as the hunting of lead caribou, flying at low altitudes in proximity of the herd, and migration patterns through smaller drainages and mountain corridors. We hope that this research will be expanded in the future to begin addressing some of these outstanding questions.

Disturbance of caribou during migration is an issue the Board has heard about from Federally qualified subsistence users for many years. The Board supports recent efforts by the Councils to submit proposals to both the Board and the Alaska Board of Game. Restricting or limiting the use of aircraft, closing certain areas to caribou hunting, and restricting the take of cows during critical caribou migration periods are just a few issues that have been addressed in recent years. We are committed to remaining diligent and responsive in our management actions that affect the well-being of Federally qualified subsistence users and the animal populations they depend on.

2. Increased shipping traffic in the Chukchi Sea and potential impacts to subsistence.

Council member Steve Oomituk of Point Hope relayed concerns about the opening of the Northwest Passage and the potential impacts to subsistence from increased shipping traffic by coastal communities. The Council realizes the marine waters are beyond the jurisdiction of the Federal Subsistence Board, but seeks awareness about the interaction of all subsistence activities and the relationship between marine subsistence foods and those managed on Federal lands and waters. The Council also seeks the assistance of the Federal Subsistence Board in relaying these issues of concern to the relevant Federal agencies.

For coastal communities, the ocean is their garden. Subsistence foods of all kinds are provided to us with the ocean currents. When caribou are in low numbers or do not come through, then the ocean provides; the fish, the seal, walrus, whales, and the polar bear. Point Hope is located in an area where the currents come through and has provided for the community for thousands of years. It is the oldest continuously inhabited village in North America. The ocean is vital to us. It is our food supply and our identity as a people. It is a short migration time when the leads are open in the summer and all the animals migrate north to their feeding and calving grounds. The animals and our subsistence way of life are tied to both the land and the ocean. Point Hope and other communities have been experiencing increasing ship traffic and are very concerned about impacts to the ocean environment, the marine animals, and our subsistence way of life. The Council would like assistance relaying these concerns to the appropriate agencies and support in seeking avenues for protections from shipping pollutants being dumped at sea or near coastal communities and the emergency response systems in place to respond in the event of an accident or major spill.

Response:

The Federal Subsistence Board recognizes the importance of the Chukchi Sea to Federal subsistence harvesters and the possible impact that increased ship traffic could have on subsistence resources. The Chukchi Sea is a productive ocean ecosystem that provides habitat for a multitude of important fish and wildlife species. A surge in shipping traffic may increase the possibility of a vessel incident that could be harmful to those resources. As stated by the Council, the Federal Subsistence Board has limited jurisdiction or authority over Federal undertakings that occur outside of the Federal Subsistence Management Program. However, if there is a specific concern from the Council, the Board will consider the concern and if appropriate support the Council in conveying that concern to the appropriate Federal or State management agency. The Aleutian Bering Sea Landscape Conservation Cooperative has done some excellent modeling and assessment of marine traffic and the possible implications to the Aleutian Islands. This information may be of interest to the Council to evaluate and consider relative to future studies for the Chukchi Sea.[1]

3. Council membership and engagement with communities in the North Slope region.

The Council has been struggling to recruit new members to fill several vacant seats as well as to ensure that the Council has a membership representing each of the eight communities in the North Slope Region. Currently the Council is missing representation from the North Slope communities of Wainwright and Point Lay and was only recently able to fill vacant seats for members from Nuiqsut, Atkasuk and Anaktuvuk Pass. Application to serve on the Council from these communities was a direct result of having the opportunity to hold a meeting in Nuiqsut and Anaktuvuk Pass and the connections that were generated as a result.

Those two meetings were the first and only time that the North Slope Council has met in the region outside of Barrow. These meetings were very well attended, including youth, elders,

[1] Information can be found online at https://absilcc.org/SitePages/Home.aspx.

tribal members, and subsistence hunters who were all able to participate fully in ways that are not possible via teleconference. This was the first opportunity for these communities to learn about the Federal Subsistence Management Program and the Council directly. This was also the first opportunity for the Council to meet and interact directly with communities other than Barrow in order to learn more about their subsistence way of life and work to address their concerns.

The Council feels it is imperative to hold Council meetings in communities outside of Barrow in order to build understanding and relationships throughout the region and not only serve Barrow as the hub community. The Council greatly appreciates that the Office of Subsistence Management supported holding the meeting in Nuiqsut in fall of 2014 and Anaktuvuk Pass in fall of 2015. The Council was greatly encouraged by the high level of local participation at these meetings. Council and community members alike expressed just how much they learned from each other and the opportunity to participate directly in the subsistence management process.

Regional Advisory Council members are appointed to represent the whole region, not just the communities where they live or where meetings occur. The Council understands that budget restrictions play a role in meeting outside of a hub community but would like to stress that the Council and the Federal Subsistence Management Program is more effective in meeting its responsibilities to rural residents when they meet in rural communities throughout the region. The fact that the Council had never had an opportunity to meet outside of Barrow in its entire history until 2014 played a big role in the difficulty of engaging and recruiting new membership. If communities never meet with the Council or have a chance to learn firsthand what the Federal Subsistence Management Program does, then there is no incentive to participate. The Council would like consideration of this history to be evaluated along with cost in determining approval for meetings outside of Barrow.

The Council requests to meet in Wainwright for its fall 2017 meeting in order to make a connection directly with this community to encourage application to serve on the Council and more importantly, to address the community's subsistence concerns in light of the current decline of the Western Arctic Caribou Herd. The fall 2017 meeting in Wainwright would be timely given that the Council will be addressing wildlife proposals concerning caribou management and the community would have an opportunity to provide input directly on subsistence issues that are central to their way of life, social fabric, and food security.

Response:

The Board shares the Council's concern regarding decreased number of applications, and this is a problem not unique to the North Slope Region. Over the last decade, applications from all of the Councils above the Yukon River have been in decline. There have been some increases here and there in some regions, and that has been as a result of very aggressive, targeted outreach by the Council Coordinators for those regions. In recent years, your Council Coordinator has been very successful with her outreach efforts to get new applicants from several villages. While having meetings in new locations certainly may help, her efforts cannot be discounted.

Chairman Brower 6

The Board is pleased that the Council found its meetings in Nuiqsut and Anaktuvuk Pass to be productive. Everyone can agree that meetings in rural communities have considerable potential to benefit both the public and the Council. In recent years, it has been the practice of the Office of Subsistence Management to authorize meetings in non-hub communities approximately every two years, so long as the Council could provide a justification for meeting in that particular location and the costs were not too prohibitive. Several Councils have enjoyed the opportunity to meet outside of their hub communities, and the benefits of those meetings have been shown. However, in the face of anticipated steepening budget cuts, it may likely be the case that meetings in non-hub communities will be authorized under increasingly rare circumstances.

It is also worth noting that there is another factor which determines the Council's membership. Even when the Federal Subsistence Board receives applications from some of the target communities the Council mentioned, and recommends those individuals for appointment to the Secretary of the Interior, it is the Secretary who has final appointment authority. In some instances, applicants deemed highly-qualified by the Board for service on the North Slope Subsistence Regional Advisory Council were rejected by the Secretary, and for reasons unknown. And unfortunately, excellent outreach efforts and meetings in rural communities cannot ultimately control the membership on the Council.

In closing, I want to thank you and your Council for their continued involvement and diligence in matters regarding the Federal Subsistence Management Program. I speak for the entire Board in expressing our appreciation for your efforts and our confidence that the subsistence users of the North Slope Region are well represented through your work.

Sincerely,

Anthony Christianson
Chair

cc: Federal Subsistence Board
North Slope Subsistence Regional Advisory Council
Eugene R. Peltola, Jr., Assistant Regional Director, Office of Subsistence Management
Thomas Doolittle, Deputy Assistant Regional Director, Office of Subsistence Management
Carl Johnson, Council Coordination Supervisor, Office of Subsistence Management
Eva Patton, Subsistence Council Coordinator, Office of Subsistence Management
Jill Klein, Special Assistant to the Commissioner, Alaska Department of Fish & Game
Interagency Staff Committee
Administrative Record

Arctic Landscape Conservation Cooperative

Fall 2017 Newsletter

Wendy Loya
Coordinator
Wendy_Loya@fws.gov, (907)786-3532

Paul Leonard
Science Coordinator
Paul_Leonard@fws.gov, (907)456-0445

Joshua Bradley
Data Manager
Joshua_Bradley@fws.gov, (907)455-1847

LCC Future Scenarios

As you know, the President's 2018 budget request for the Department of the Interior (DOI) proposed reductions to the 2018 budget for the U.S. Fish and Wildlife Service (USFWS), relying primarily on eliminating funding for staff and science support for the Science Applications program, which includes the 22 Landscape Conservation Cooperatives (LCCs). On the other hand, the U.S. House of Representatives drafted an Interior Appropriations bill that provides continued funding for "cooperative landscape conservation" and "science support" at approximately FY2017 levels. The new Assistant Director for Science Applications, Dr. Benjamin Tuggle, is committed to ensuring that if the LCCs are funded, that they meet the needs of the Department of the Interior and USFWS under the current administration. Thus, we are working to develop operational scenarios that vary from closure to a variety of reduced, re-programed or non-DOI lead partnerships. Regardless of the outcome, the USFWS remains committed to working collaboratively with all partners. We welcome your thoughts and ideas on what is important to your work and agency and how we might work together to maintain momentum.

We see a great opportunity to assist in landscape analyses that help federal agencies, the State of Alaska, and North Slope governments, communities and industries with responsible resource development and evaluating the impacts and benefits of a warming Arctic on both natural resources and infrastructure.

Evaluating the Effects of Climate and Development on Arctic Ecosystems

The North Slope of Alaska is one of the areas receiving increased attention by the Department of Interior for expanded resource development. Specifically, areas inside the northeastern section of the National Petroleum Reserve –Alaska (NPRA) are projected to contain large deposits of economically recoverable resources. This area is also critical calving and insect-relief habitat for the Teshekpuk caribou herd as well as important molting grounds for Pacific Blank Brant and other geese. The Arctic LCC is well situated to contribute unique analyses and visualizations that may help inform oil and gas development scenarios around and inside the Teshekpuk Lake Special Area that protects critical habitat as well as infrastructure investment. These data include high-resolution landform, lake and landcover mapping, downscaled-climate information, susceptibility to changes in thermokarst, and nesting shorebird phenology.

Based on initial manager input and a survey of available data, we propose to synthesize information from the North Slope Science Initiative's Development Scenarios and NPRA 2013 Integrated Activity Plan coupled with new LCC and other science products to investigate cumulative impacts of climate change and development. Paul Leonard, Arctic LCC Science Coordinator, will lead the spatial analyses. We are in the process of reaching out to technical experts to bring together data and hope to schedule a working group session in late August or early September. Please contact us if you would like to be engaged or have ideas to share.

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Data Management

USFWS leadership has made data curation, archiving, and management a top priority for LCCs and the region leading into the end of the fiscal year. The Arctic LCC is working to finish documenting and uploading information from over 60 projects sponsored since its inception in 2010, including properly cataloged metadata. The Arctic LCC data manager, Josh Bradley, is leading a national effort to develop tools and software for data management and sharing, and has been working closely with all LCCs to ensure methods and protocols become standardized.

All projects and product data funded by the 22 LCCs will be included in the new LCC Network Science Catalog. The Science catalog will be hosted on ScienceBase, a cataloging and collaborative data management platform managed by the U.S. Geological Survey. Where appropriate, data products will also be listed on data.gov in compliance with federal requirements. Information in the Science Catalog will be available for download and query on lccnetwork.org.

New Products from LCC Funded Research

Millions of shorebirds migrate thousands of miles to spend the summer in the Arctic. There they feed in some of the most productive and pristine coastal wetlands and estuaries on Earth. With so much food available, they choose the Arctic for nesting and raising their young, a process repeated every year. The Arctic LCC partnership is interested in understanding how climate change might affect shorebird populations, and has supported research into how the timing of insects they eat may be changing as spring arrives earlier.

Towards filling this information need, we received two final reports from Rebecca Shaftel (UAA) and Dan Rinella (FWS) on their collaborative project with the Shorebird Demographic Network. In *Climate Effects on Arctic Food Resources: Predictive Models for Surface-Available Invertebrate Biomass*, the researchers describe the diversity and mean annual modeled biomass of invertebrates that shorebirds consume across 9 sites from Nome, Alaska (USA) to East Bay, Nunavut (Canada). Warmer temperatures had a positive effect on this food resource availability, with earlier spring warming resulting in earlier insect abundance. Increased wind had a negative effect on invertebrate availability. In a follow-up report, *Climate Effects on Arctic Food Resources: Retrospective Analysis of Rate of Advancement of Invertebrate Phenology*, they used the same models to look back ~60 years to understand how invertebrate food sources for shorebirds have changed across 6 of the shorebird monitoring sites. Changes in hind-casted invertebrate abundance were greatest at the northernmost camps and were on the order of 1 to 3 days earlier per decade.

Upcoming Steering Committee and Partners Meeting

Steering Committee meetings can resume after September 1st! We will be sending out a poll to find a good date to meet in late September with partners interested in joining in the conversation about the future of the LCCs and hopefully how the partnership will proceed in the future. In the meantime, feel free to contact us directly with ideas or updates.

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Arctic Landscape Conservation Cooperative

Informing Responsible Resource Development

Reducing Risk - Permafrost Mapping

Permafrost is found across the Arctic. Thawing permafrost under warmer conditions will cause subsidence, surface water redistribution, changes to groundwater and vegetation and habitat use changes. Knowing the depth and ice content of permafrost is critical for both understanding how Arctic ecosystems will be affected by climate change and also how infrastructure will be damaged. Arctic LCC-supported research produced a detailed map of permafrost characteristics to inform regional planning as well as climate and development impact assessments. More

As permafrost thaws, the ground under a home in Shishmaref, Alaska collapses from erosion.

Forecasting Changes to Wildlife, Habitat, and Infrastructure

Construction of ice roads in crucial for Alaskan North Slope operators to gain access for exploration in an economic and environmentally sound manner.
Photo: DOE

Smart investments depend on understanding what's ahead. The Arctic LCC initiated the Terrestrial Environmental Observation Network (TEON) to meet the need for a sustainable environmental observing network for northern Alaska. TEON is designed to follow water from the northernmost mountains to the sea. By monitoring snowmelt, streamflow and temperatures and using these data forecast changes in river flow and permafrost stability, we support management of fish and wildlife and inform infrastructure management and design in northern Alaska. More

Allowing Exploration, Avoiding Den Disturbance

The Arctic LCC partnership, including the Alaska Department of Fish and Game and industry, developed a desktop application that helps biologists map polar bear denning habitat on the Arctic coast. The app quickly identifies areas likely to have polar bear dens to help guide winter exploration and development activities. More

ArcticLCC.org

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Arctic Landscape Conservation Cooperative

Yukon North Slope Management Plan

Where do plans come from?

Natural resource managers and native communities have expressed a need for effectively synthesizing traditional knowledge and western science data. Often wildlife management plans are based on remotely sensed data and data collected by wildlife biologists. These data may not reflect the variables that are important to the local users, including the scale of information, names describing places or habitats, or how seasonality affects the wildlife available for harvest.

Inuvialuit Settlement Region

Local knowedge to drive regional management

The Inuvialuit residing on the North Slope of the Yukon Territory have long used their lands and waters for hunting, trapping, and fishing. Their Wildlife Advisory Council, a co-management body, comprised of federal, territorial, and Inuvialuit representatives, is working closely with researchers from the Round River Organization to develop a management plan that reflects how the Inuvialuit use Arctic resources and their understanding of seasonal habitat use by fish and wildlife. This process for integrating Traditional and Western science in the Inuvialuit Settlement Area will provide an important example for how other scienctists and managers can work with native communities to fulfill the need for wildlife and management plans in other places.

'Participants emphasized that caribou winter habitat selection focuses on areas where the wind will blow snow off of vegetation, making foraging easier, and that they will be found on different aspects based on wind direction.'

Interviews, workshops and reporting back

Researchers reviewed existing local knowledge publications and recorded information from local workshops and interviews to develop detailed maps and descriptions habitat for caribou, moose, grizzly and polar bears, Dolly Varden Char, Broad Whitefish, geese, muskox and Dall's sheep. Changes in distribution patterns and impacts from climate change have also been observed, especially for caribou. These changes include different migration routes and timing of migration. A report describing the knowledge gathered was submitted to the communities for review and use in the next phase of developing the management plan. The Inuvialuit Traditional Knowledge of Wildlife Habitat on the Yukon North Slope final report can be viewed at ArcticLCC.org.

A management plan for the people, by the people

Documenting local knowledge of wildlife habitat and distribution promises to be useful and effective in managing wildlife by local users. This baseline wildlife assessment will inform multiple products including habitat models and connectivity mapping based on traditional knowledge and Western science data.

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Winter 2018 Regional Advisory Council Meeting Calendar

February-March 2018

Meeting dates and locations are subject to change.

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Feb. 4	*Feb. 5* *Window Opens*	*Feb. 6*	*Feb. 7*	*Feb. 8*	*Feb. 9*	*Feb. 10*
Feb. 11	*Feb. 12*	*Feb. 13*	*Feb. 14*	*Feb. 15*	*Feb. 16*	*Feb. 17*
Feb. 18	*Feb. 19* ***PRESIDENT'S DAY*** ***HOLIDAY***	*Feb. 20*	*Feb. 21*	*Feb. 22*	*Feb. 23*	*Feb. 24*
Feb. 25	*Feb. 26*	*Feb. 27*	*Feb. 28*	*Mar. 1*	*Mar. 2*	*Mar. 3*
Mar. 4	*Mar. 5*	*Mar. 6*	*Mar. 7*	*Mar. 8*	*Mar. 9*	*Mar. 10*
Mar. 11	*Mar. 12*	*Mar. 13*	*Mar. 14*	*Mar. 15*	*Mar. 16* *Window Closes*	*Mar. 17*

EI — Fairbanks

SE — Wrangell

NS — Utqiaġvik

KA — Kodiak

WI — Anchorage

BB — Naknek (1st opt.)

NWA — Kotzebue

SC — Anchorage

SP — Nome

YKD — Bethel

BB — Naknek (2nd opt.)

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Fall 2018 Regional Advisory Council Meeting Calendar

Meeting dates and locations are subject to change.

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Aug. 19	*Aug. 20*	*Aug. 21*	*Aug. 22*	*Aug. 23*	*Aug. 24*	*Aug. 25*
Aug. 26	*Aug. 27*	*Aug. 28*	*Aug. 29*	*Aug. 30*	*Aug. 31*	*Sept. 1*
Sept. 2	*Sept. 3* **LABOR DAY HOLIDAY**	*Sept. 4*	*Sept. 5*	*Sept. 6*	*Sept. 7*	*Sept. 8*
Sept. 9	*Sept. 10*	*Sept. 11*	*Sept. 12*	*Sept. 13*	*Sept. 14*	*Sept. 15*
Sept. 16	*Sept. 17*	*Sept. 18*	*Sept. 19*	*Sept. 20*	*Sept. 21*	*Sept. 22*
Sept. 23	*Sept. 24*	*Sept. 25*	*Sept. 26*	*Sept. 27*	*Sept. 28*	*Sept. 29*
Sept. 30	*Oct. 1*	*Oct. 2*	*Oct. 3*	*Oct. 4*	*Oct. 5*	*Oct. 6*
Oct. 7	*Oct. 8* **COLUMBUS DAY HOLIDAY**	*Oct. 9* **SE — TBD**	*Oct. 10*	*Oct. 11*	*Oct. 12*	*Oct. 13*
Oct. 14	*Oct. 15*	*Oct. 16*	*Oct. 17*	*Oct. 18* **AFN — Anchorage**	*Oct. 19*	*Oct. 20*
Oct. 21	*Oct. 22*	*Oct. 23*	*Oct. 24*	*Oct. 25*	*Oct. 26*	*Oct. 27*
Oct. 28	*Oct. 29*	*Oct. 30*	*Oct. 31*	*Nov. 1*	Nov. 2	*Nov. 3*
Nov. 4	*Nov. 5*	*Nov. 6*	*Nov. 7*	*Nov. 8*	Nov. 9	*Nov. 10*

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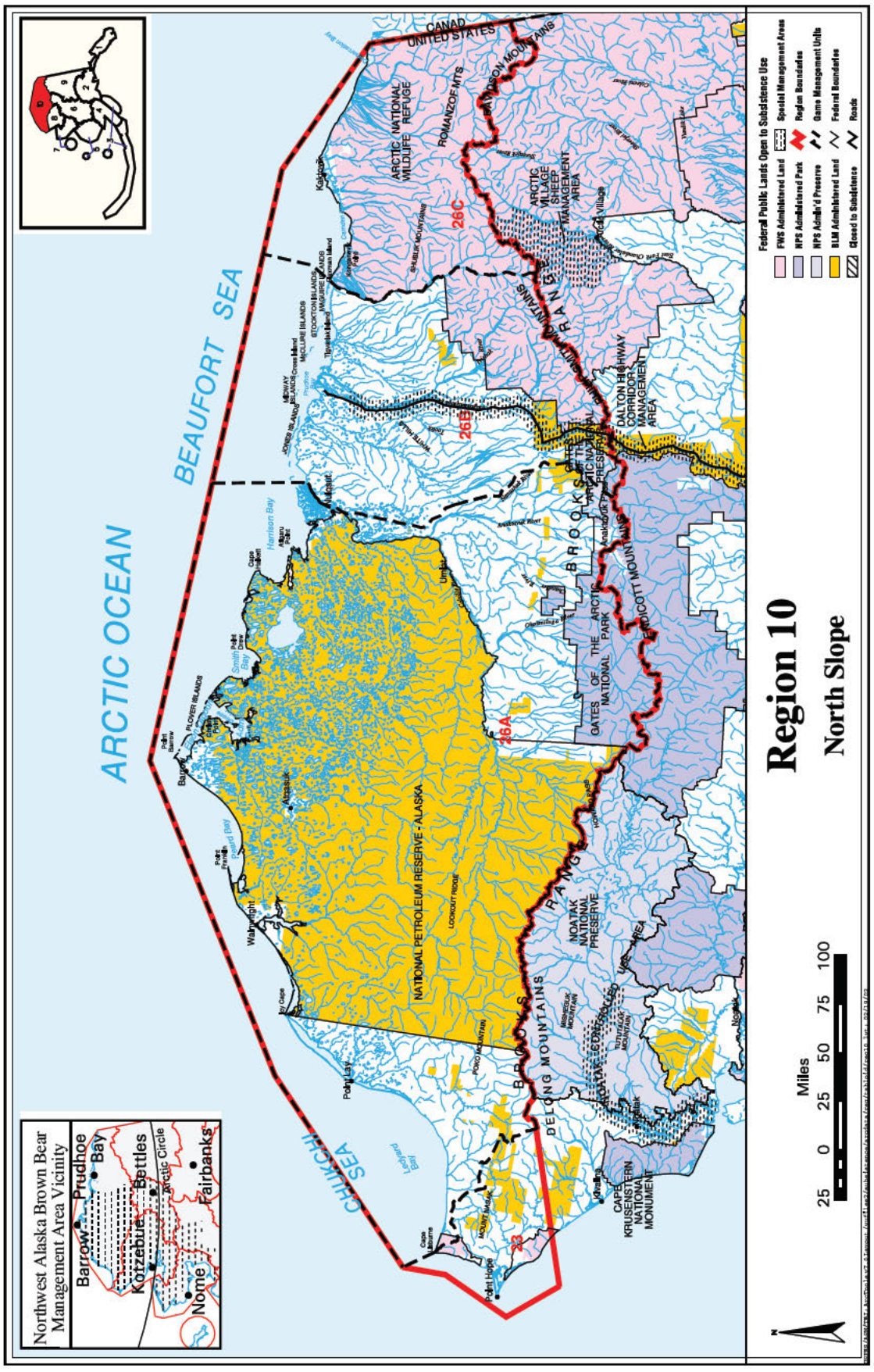
ARCTIC OCEAN
BEAUFORT SEA
CHUKCHI SEA
CANADA
UNITED STATES
Region 10
North Slope
Miles
25 0 25 50 75 100
Federal Public Lands Open to Subsistence Use
FWS Administered Land
NPS Administered Park
NPS Admin'd Preserve
BLM Administered Land
Closed to Subsistence
Special Management Areas
Region Boundaries
Game Management Units
Federal Boundaries
Roads
ARCTIC NATIONAL WILDLIFE REFUGE
ROMANZOF MTS
BARTER MOUNTAINS
ARCTIC VILLAGE SHEEP MANAGEMENT AREA
DALTON HIGHWAY CORRIDOR MANAGEMENT AREA
GATES OF THE ARCTIC NATIONAL PARK
ARCTIC NATIONAL PARK
BROOKS RANGE
ENDICOTT MOUNTAINS
NATIONAL PETROLEUM RESERVE - ALASKA
NOATAK NATIONAL PRESERVE
DE LONG MOUNTAINS
CAPE KRUSENSTERN NATIONAL MONUMENT
26C
26B
26A
23
Northwest Alaska Brown Bear Management Area Vicinity
Barrow
Prudhoe Bay
Kotzebue
Bettles
Arctic Circle
Nome
Fairbanks

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Secretary of the Interior

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From:	Gieryic, Michael
To:	Tracy Fischbach
Cc:	Mitch Ellis; Ryan Mollnow; Stephanie Brady; Socheata Lor; John Martin; Steve Berendzen; Joanna Fox; Doug Damberg; Joseph Darnell
Subject:	Re: 1002 EA Meeting - CONTAINS SOLICITOR ADVICE - DO NOT RELEASE
Date:	Friday, November 3, 2017 5:21:01 PM
Attachments:	ANWR_051713a.pdf ANWR_051713b.pdf

Tracy,

This message follows up on our group's meeting this past Wednesday, b5-DP/AC [redacted]

Here is a link to BLM's 2012 NPR-A Final Integrated Activity Plan/ Environmental Impact Statement: https://eplanning.blm.gov/epl-front-office/eplanning/planAndProjectSite.do?methodName=dispatchToPatternPage&currentPageId=14702

b5-DP/AC [redacted]

b5-DP/AC [redacted]

Additionally, I am attaching the State of Alaska's May 2013 proposed exploration plan for the 1002 area (in two parts). b5-DP/AC [redacted] (citing in some cases to other sources, including other BLM NEPA documents).

Regards,

Mike Gieryic
Attorney-Adviser
Office of the Regional Solicitor
U.S. Department of the Interior
4230 University Drive, Suite 300
Anchorage, AK 99508
Phone: (907) 271-1420; Fax: (907) 271-4143
mike.gieryic@sol.doi.gov

The Oil and Gas Resource Evaluation & Exploration Proposal for the Arctic National Wildlife Refuge 1002 Area

State of Alaska
Department of Natural Resources
Division of Oil and Gas
2013

Cover photo courtesy of USGS

This publication was produced by the Alaska Department of Natural Resources, Division of Oil and Gas. It is made available in electronic form on the Division's website at http://dog.dnr.alaska.gov and can be provided in print form by request.

Alaska Department of Natural Resources
Division of Oil and Gas
550 W. 7th Avenue Suite 1100
Anchorage, Alaska 99501
907-269-8800

The Oil and Gas Resource Evaluation & Exploration Proposal for the Arctic National Wildlife Refuge 1002 Area

Sean Parnell,
Governor

Daniel S. Sullivan,
Commissioner
Department of Natural Resources

May 2013

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Abbreviations

1002 Area	Alaska National Wildlife Refuge, Section 1002
ACES	Alaska's Clear and Equitable Share oil and gas tax
ADEC	Alaska Department of Environmental Conservation
ADF&G	Alaska Department of Fish and Game
ADLWD	Alaska Department of Labor and Workforce Development
ADNR	Alaska Department of Natural Resources
ADOR	Alaska Department of Revenue
ANILCA	Alaska National Interest Lands Conservation Act
ANS	Alaska North Slope
ANWR	Arctic National Wildlife Refuge
AOGA	Alaska Oil and Gas Association
AOGCC	Alaska Oil and Gas Conservation Commission
APDES	Alaska Pollutant Discharge Elimination System
APSC	Alyeska Pipeline Services Company
ASRC	Arctic Slope Regional Corporation
BBO	Billion barrels of oil
BIF	Best Interest Finding, Final Finding of the Director of the Division of Oil and Gas, for State of Alaska Areawide Oil and Gas Lease Sales
BLM	Bureau of Land Management
BOEM	Bureau of Ocean Energy Management (formerly MMS)
BS	Beaufort Sea, State of Alaska
CBO	U.S. Congressional Budget Office
CCP	Comprehensive Conservation Plan
CFR	Code of Federal Regulations
CWA	Clean Water Act
DPS	Distinct Population Segments, under the Endangered Species Act
DO&G	Division of Oil and Gas
DOI	U.S. Department of the Interior
EFH	Essential Fish Habitat
EIA	Energy Information Administration
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FERC	Federal Energy Regulatory Commission
KIC	Kaktovik Inupiat Corporation

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LEIS	Legislative Environmental Impact Statement
MBBO	Million barrels of oil
MLW	Division of Mining, Land & Water, ADNR
MMS	Minerals Management Service, U.S. Department of the Interior
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NPR-A	National Petroleum Reserve – Alaska
NS	North Slope, State of Alaska
NSB	North Slope Borough
NSBMC	North Slope Borough Municipal Code
NSFH	North Slope Foothills, State of Alaska
OHA	Alaska Office of History and Archaeology; Alaska Department of Natural Resources
OIP	Oil-in-place
OPMP	Office of Project Management and Permitting, State of Alaska
PLO	Public Land Order
PPT	Petroleum Profits Tax
RCA	Regulatory Commission of Alaska
SDWA	Safe Drinking Water Act
SHPO	State Historic Preservation Office, Alaska Department of Natural Resources
SOA	State of Alaska
TAPS	Trans-Alaska Pipeline System
TCF	Trillion Cubic Feet
TLUI	Traditional Land Use Inventory
UIC	Underground Injection Control Program
USACE	U.S. Army Corps of Engineers
USDOE	U.S. Department of Energy
USDOI	U.S. Department of the Interior
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
2-D	Two-dimensional seismic survey
3-D	Three-dimensional seismic survey

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Executive Summary

A. Introduction

The U.S. Arctic National Wildlife Refuge (ANWR) expands across the eastern portion of the northern tier of Alaska and is managed by the U.S. Fish and Wildlife Service (USFWS). A small portion of ANWR along the coastal plain has been specifically set aside to assess its oil and gas potential in the Alaska National Interest Lands Conservation Act (ANILCA) Section 1002 (the 1002 Area). This document consists of a compilation of existing information and a proposed Exploration Plan for the oil and gas resources in the 1002 Area.

Accurately defining the oil and gas resource potential is a critical part of understanding the value of the 1002 Area to the nation. It is also a critical factor in understanding the human environment associated with ANWR and Alaska's North Slope. Life in this area has changed dramatically with the discovery and development of Prudhoe Bay and the enactment of the Alaska Native Settlement Claims Act (ANCSA). However, the positive impacts of responsible development were not thoroughly considered in the 2011 Draft ANWR Comprehensive Conservation Plan/Environmental Impact Statement (CCP/EIS). This omission is contrary to the requirements of the National Environmental Policy Act (NEPA).

The North Slope of Alaska is one of the world's great hydrocarbon basins. Alaska oil production has been contributing to the economic prosperity and energy security of our nation for decades. Despite repeated efforts to access federal lands for oil and gas exploration and development within Alaska's borders, the overwhelming majority of federal lands on the North Slope of Alaska remain off limits, including the 1002 Area. The oil and gas resource potential of the ANWR 1002 Area is estimated to be in the billions of barrels of recoverable oil. Since the passage of ANILCA in 1980, the authority to allow oil and gas development in ANWR has resided with the U.S. Congress. Given that the federal government refuses to take the lead on fully understanding the resource potential of the 1002 Area, the State of Alaska has developed an Exploration Plan to accomplish this federal directive in ANILCA.

The State of Alaska's "Oil & Gas Resource Evaluation & Exploration Proposal for the ANWR 1002 Area" is a reasonable proposal that will help foster a cooperative effort between the State, local, and federal governments and private parties to responsibly assess and explore the 1002 Area. This work can be accomplished with little to no impact on the environment -- based on Alaska's high resource development and environmental protection standards -- using state of the art technology currently available on Alaska's North Slope. As stated in Governor Parnell's accompanying letter to Secretary of the Interior Jewell, the State of Alaska is willing to provide tens of millions of dollars of funding to help implement this Exploration Proposal. The goal of the State's Exploration Proposal is to provide updated and comprehensive information regarding the oil and gas resources in

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the 1002 Area. This will engender transparent and sound public policy decision-making by Congress regarding the management of this critically important area of the United States and State of Alaska.

B. Chapter-by-Chapter Overview

Chapter 1 provides a brief history of petroleum resource exploration in ANWR to date, along with a statewide perspective on oil and gas discoveries that have driven responsible petroleum resource exploration and development in the Alaskan Arctic. Oil and gas exploration in ANWR was authorized in 1980 when Congress passed ANILCA. USFWS subsequently issued regulations that would avoid significant adverse effects as required by ANILCA Section 1002(h). The previous limited 2-D seismic surveys conducted in 1983-85 in northern portions of ANWR and a single exploration well on Kaktovik Inupiat Corporation (KIC) lands have comprised the only petroleum assessment actions in ANWR. This review culminated in a legislative report to Congress that recommended oil and gas leasing in the coastal plain (Clough, et al., 1987). The areas of highest oil and gas potential in the coastal plain were not explored in detail, and efforts to definitively determine the oil and gas potential in the 1002 Area have since met with a myriad of issues and delays. Current planning efforts embodied in the CCP/EIS have not adequately addressed options to investigate oil and gas resources potential as a CCP alternative.

Chapter 2 discusses existing habitat, wildlife, fish, and subsistence uses in the 1002 Area. The two ecoregions in the 1002 Area, the Arctic coastal plain and the northern foothills of the Brooks Range, host a diverse network of terrestrial, wetland, and freshwater habitats. Resident and migrating wildlife and fish are present on the coastal plain, with highest population numbers present during summer months. Terrestrial habitats are used by a diversity of animals for grazing, nesting, breeding, and migration. The freshwater habitats of the coastal plain are important for spawning, rearing, and overwintering for migrating and resident fish populations.

The fish and wildlife of the coastal plain provide the resources for subsistence harvests, and for general fishing and hunting. ANILCA directs that subsistence activities for customary and traditional uses are part of the acceptable human uses of ANWR's coastal plain and are to be allowed by USFWS. Subsistence harvests are essential to many rural residents, who are able to access wide ranges and long seasons with modern equipment. General fishing and hunting are allowed within approved seasons. Protection of habitats and fish and wildlife populations during exploration is identified as a critical priority, and mitigation measures essential to preventing negative impacts to habitat, wildlife, fish, and subsistence uses during exploration operations are discussed.

Chapter 3 addresses the currently available data and interpretations of the geology and petroleum potential in ANWR. The 2-D seismic surveys from 1983-1985 are the only data available, and lack quality and statistical stability in the spatial

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context to make detailed assessments of the oil and gas resources in the area. Several federal agency assessments were published in 1987 (USDOI: Clough, et al.), 1988 (USFWS), and 1998 (USGS), that attempted to characterize the potential plays containing oil and gas.

This document discusses the possibilities provided by modern technology to definitively assess the locations and volumes of hydrocarbon resources, and provides an economic analysis of feasible oil and gas production scenarios. Without definitive seismic and drilling data, an adequate determination of technically and economically recoverable resources cannot be made. Only additional 3-D seismic surveys and exploration drilling will yield the necessary data and provide new information for important long term management decisions about ANWR. Bottom line: we have the ability with new technology to undertake a detailed exploration program that will have minimal impact on the environment.

Chapter 4 opens with descriptions of the historic exploration efforts using 2-D seismic surveys and geophysical investigations for some areas of ANWR. These prior exploration activities did not provide enough detailed information about potential oil and gas resources in ANWR, but were a positive first step. Chapter 4 goes on to describe the typical exploration methods currently used to understand subsurface zones of interest and to estimate the shape, extent and character of potential oil and gas resources. Geophysical and 3-D seismic surveys have improved significantly since the 1983-85 program, and can provide more accurate resource assessments with minimal surface impact. Winter drilling using ice roads and ice pads has minimal impact on the surface and surrounding environment. Ice-based facilities (roads, pads, airstrips) provide low to no impact access. Proven and new technologies, many in common use in Arctic regions, can accurately maximize the ability to assess the oil and gas resource potential with minimal surface impacts.

Chapter 5 presents a framework for a primarily winter-based exploration alternative for collecting information about petroleum potential, the subsurface geology, and the geographic extent of potential and recoverable resources. The proposed exploration program encompasses three phases over a seven-year life cycle with each phase determining the value of and need for the next phase. Field activities would include winter 3-D seismic surveys (Phase 1), summer site clearance activities to meet exploration permitting requirements (Phase 2), and construction and use of ice-based roads and pad facilities for winter-only exploration drilling (Phase 3). Expected activities and methodologies are described for 3-D seismic acquisition, construction of ice-based roads, pads, and airstrips, and seismic data evaluation to definitively assess the oil and gas resources of the ANWR 1002 Area. The exploration proposal uses the proven technological advances for the Arctic with minimal, if any, impacts, based on the extent of surveys, site evaluation, and exploratory drilling. Importantly, the State of Alaska is willing to support these activities through existing exploration tax credits and other means.

Chapter 6 provides a detailed consideration of impacts expected from an exploration program similar to one previously authorized by Congress in the early

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1980s, but improved with current technology and the highest environmental standards – which currently exist in Alaska. Exploration activities are primarily proposed for winter, when wildlife populations are absent or not present in large numbers. Coordination with local and rural residents reduces conflicts with subsistence, fishing, and hunting uses. Planning and approved permitting of these activities ensures the proposed exploration methods, timing, and locations optimize data collection and timing and significantly reduce the potential for negative effects. Project plans will determine the necessary regulatory permits, methods, and site locations for the actual exploration program (Phase 3). This resource study provides evidence that multiple land uses and definitive oil and gas exploration can occur concurrently in the 1002 Area with minimal impacts, given the use of proven Arctic technologies and strategies.

Chapter 7 identifies and evaluates the benefits to the nation and the State of Alaska that a thorough study of ANWR's resources would provide. Increased domestic oil and gas production supports the possibility of achieving domestic energy independence. Revenues from development support Alaska's economic health, and are critical to maintaining the social health of communities at modern day levels. Development provides opportunity and sustained commerce throughout Alaska and the nation. A published economic budget report from the Congressional Budget Office (CBO) estimated $5 billion from leasing for a mid-case scenario over the life of development in ANWR, depending upon commercial interests (CBO, 2012). The State's further analysis presents a projected income from leasing revenues ranging from $1.3 to $8.3 billion. Royalties from oil and gas production for one scenario can be projected to realize ranges near $78 billion for the United States (CBO, 2012).

In addition to these economic benefits, increased oil and gas production could provide increased employment, the growth of goods and services, and an additional multiplier effect for the industry and support sectors. Trade, transportation, and service industries are integral components of the Alaskan economic network. It is estimated that for every oil company job, nine other jobs are generated in the state, and that for each dollar earned by oil company employees, three and a half payroll dollars are generated in Alaska. Increased employment would provide positive impacts for the national, state, and local community workforce. Further, increased oil production is critical to prolonging the operational life of the Trans-Alaska Pipeline System (TAPS). TAPS is essential to bring Alaska's petroleum resources to market and its continued operation is critical to Alaska's future.

Chapter 8 provides a summary of the outcomes that may result from exploration and resource assessment. These include, and are not limited to: increasing domestic supply of crude oil to bolster energy security and independence; added oil throughput for TAPS; increased national, state, and local economic benefits through financial revenues; increased demand for goods and services, employment and national networks for commodity transport, and advancement of viable Arctic technologies for locating and developing conventional and unconventional oil and gas resources; and potential increase in natural gas resources for export.

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As this exploration proposal details, oil and gas exploration resulting in a much more certain resource assessment will provide solid scientific evidence that Congress should consider when making decisions about ANWR. Oil and gas development that meets national energy objectives and provides sustained economic returns for the U.S. should be a viable use of these lands. The path forward for the long-term, multiple use of the ANWR 1002 Area will depend upon balanced policies and planning. Social and economic aspects of the human environment must be considered during the federal, state, and local project reviews, permitting, and authorizations that are part of this planning process.

Congress and land managers in the mid-1980s recognized the unassessed potential and values this northern tier of Alaska holds. ANILCA provided the foundation for wise stewardship of the area's natural resources, and the opportunity to fully evaluate and realize the benefits within the 1002 Area. Understanding the subsurface oil and gas resource potential underlying the 1002 Area is an integral part of any decision making regarding the management of the area. By completing this study, management decisions can be aligned with the original intent of ANILCA and consistent with the requirements of NEPA. Without completing a more thorough study of the oil and gas potential of ANWR, the decisions being considered in the CCP/EIS will ignore valuable scientific information and will not comply with ANILCA and NEPA.

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Chapter 1
Introduction

Final Environmental Impact Statement and Preliminary Final Regulations, Proposed Oil and Gas Exploration Within the Coastal Plain of the Arctic National Wildlife Refuge, Alaska, 1983:

"The coastal plain has been identified by the U.S. Geological Survey (USGS) and the oil and gas industry as highly prospective for significant accumulations of oil and gas (Mast and others, 1980). Exploration activities to be conducted on ANWR will be designed to identify those areas having oil and gas production potential and to estimate the volume of potential resources. The results of these exploratory activities should provide valuable information for evaluating how the potential oil and gas resources of ANWR relate to the national need for domestic sources of energy."

(USDOI, 1983 p. I-1)

Arctic National Wildlife Refuge, Alaska, Coastal Plain Resource Assessment Report and Recommendation to the Congress of the United States and Final Legislative EIS, 1987, Purpose and Need:

"3. To prepare a "Report to Congress" which describes the fish and wildlife resources of the 1002 Area; identifies and estimates the volume and areal extent of potential hydrocarbon resources; assesses the potential impacts of development; discusses transportation of oil and gas; discusses the national need for domestic sources of oil and gas; and recommends whether further exploration, development, and production of oil and gas should be allowed."

(Clough, et al., 1987; USDOI, p. 3)

"I recommend that the Congress direct the Secretary of the Interior to conduct an orderly oil and gas leasing program for the entire 1.5-million-acre 1002 Area at such a pace and in such circumstances as he determines will avoid unnecessary adverse impacts on the environment."

(USFWS 1988, citing to Donald Paul Hodel, Secretary of the Interior, p. 475)

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A. A Brief Factual Chronology

In 1987, the U.S. Department of the Interior published its recommendation regarding the coastal plain under the 1002 Area. This report was the result of more than a decade of debate, years of studying the landscape and biology of the area, and analyzing whether it was possible to balance oil and gas development with other uses of the area. In this report, "The 1987 Arctic National Wildlife Refuge, Alaska, Coastal Plain Resource Assessment Report and Recommendation to the Congress of the United States and Final Legislative EIS" (1002(h) Report), the U.S. Department of the Interior (USDOI) recommended oil and gas development of the coastal plain area of ANWR (Clough, et al., 1987).

Since 1987, technological advancements have supported the foresight demonstrated in the Secretary's 1987 recommendation. Through improved data analysis, the U.S. Geological Survey (USGS) has been able to estimate greater volumes of technically recoverable oil and gas reserves than previously believed to be present. Today, improved drilling technology and mitigation measures significantly minimize environmental impacts of oil and gas exploration and development. Winter exploration programs are the industry norm in Alaska. These kinds of innovations continue to allow oil companies to produce more oil and gas in challenging environments with fewer and less impacts.

The role of oil in economics, global stability and national security is increasingly significant and complex because international demand has increased and crude oil prices have reached unprecedented highs. International production of crude oil is not always controlled by U.S. allies, a situation that continues to jeopardize the steady flow of petroleum products to the American market and threaten economic security. In short, our country's need for secure energy resources has increased while the potential for adverse environmental impacts has decreased.

In the last quarter century, circumstances have also changed in Alaska. When the USDOI recommended conducting "an orderly oil and gas leasing program" in the 1002 Area in 1987, Alaska was experiencing record levels of oil production. Today, Alaska is focused on filling the Trans-Alaska Pipeline System to levels adequate to retain future operations. Alaska's oil production in 2012 is approximately one fourth of 1988 levels (ADNR, 2012b).

Despite the critical energy issues facing the nation and the State of Alaska, the USDOI ignores its own 1987 recommendation to Congress to authorize oil and gas leasing in the 1002 Area. The options considered by the draft Comprehensive Conservation Plan/Environmental Impact Statement (CCP/EIS) would permanently foreclose the opportunity to even understand the potential resources underlying the 1002 Area, let alone develop oil and gas resources there.

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1. Alaska Oil and Gas History and Current Needs for Increased Production

Interest in oil and gas exploration started in Alaska in the late 1890s as oil claims began to be filed and Alaska's first exploration well was drilled. Decades passed as several major oil companies and the federal government (the United States Navy and United States Geological Survey) attempted to strike major oil finds on the North Slope and in southcentral and southeastern Alaska without success. In 1957 and 1959, major oil discoveries in the Swanson River area hastened a rush of oil companies to Alaska's Cook Inlet and contributed greatly to Alaska becoming the 49th state. Nearly a decade later, Alaska changed dramatically and permanently with the discovery of North America's largest oil field at Prudhoe Bay in 1967. Huge amounts of money began to flow into the state with the start of the construction of the Trans-Alaska oil pipeline in 1974, and production in the field beginning in 1977. Since that time, smaller connected fields have added to the production on the North Slope. For over two decades, Alaska's North Slope produced about 20 percent of the domestic oil used in the United States, with peak production of 2.2 million barrels per day in 1988.

Since that time, Alaska oil production has been declining. Most of the 1988 peak was from North Slope production. The giant Prudhoe Bay and Kuparuk oil fields have matured and been in decline for years. Few new fields have been brought to production in the last two decades. Today, Alaska's daily production hovers around 575,000 barrels per day. Alaska's oil revenues accounted for about 93 percent of the state government's unrestricted revenues in FY 2012 (ADOR, 2012a). Oil production is critical for private sector business and employment and is critical to the many state and federal agencies that conduct business in Alaska. Without oil revenues, Alaska would become significantly more dependent on the federal government.

Several federal areas in Alaska along the highly prospective Barrow Arch, stretching east from Wainwright, AK to the Canadian border, have been closed to oil and gas activities, even as this production decline has continued. Even in the context of high oil prices, lands in the National Petroleum Reserve – Alaska (NPR-A) are just beginning to be explored, in part because of delays and uncertainty related to permitting. Furthermore, areas within NPR-A that are considered the most prospective have been deferred from oil and gas leasing, with even more lands closed to leasing in the final NPR-A Integrated Activity Plan issued December 28, 2012 (USDOI, 2012).

2. History of ANWR's Land Status

In 1943, the entire North Slope of Alaska was withdrawn from all types of entry by the federal government for unspecified war purposes by Public Land Order (PLO) 82. That PLO was revoked for a portion of the withdrawn land, including the future 1002 Area, in 1957, just two years prior to Alaska gaining statehood. These actions would have allowed the possibility of commercial oil and gas

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development. However, also in 1957, Fred Seaton, Secretary of the Department of the Interior, filed an application to preserve the northeast corner of the North Slope, thereby segregating the lands from disposal and transfer of ownership. When Alaska was formally admitted into the union in 1959, the lands detailed in the application, including the submerged lands under rivers and near shore, could not be transferred to the new state.

Despite opposition by the new State of Alaska and the USGS, in 1960, PLO 2214 set aside 8.9 million acres in the northeast corner of Alaska, establishing the Arctic National Wildlife Range. In 1972, the State of Alaska and the USDOI attempted to exchange sensitive waterfowl habitat elsewhere in Alaska for the prospective acreage within the Range; however, that effort was unsuccessful.

In 1980, the Alaska National Interest Lands Conservation Act (ANILCA) established the Arctic National Wildlife Refuge (ANWR), which consisted of the original Range and over nine million acres of additional public lands. Section 702(3) of ANILCA designated approximately eight million acres of the original Range as Wilderness. Section 1002 of ANILCA provided for "*a comprehensive and continuing inventory and assessment of the fish and wildlife resources of the coastal plain….; an analysis of the impacts of oil and gas exploration, development and production, and to authorize exploratory activity within the coastal plain….*" Pursuant to this direction, the Secretary of Interior prepared the 1002(h) report and recommended that Congress authorize oil and gas development in the 1002 Area. However, to date, Congress has not acted on the recommendation and, pursuant to Section 1003 of ANILCA, only Congress can authorize oil and gas leasing or development in the 1002 coastal plain (Clough, et al., 1987).

The only opportunity for industry to assess oil and gas resources was a limited seismic survey and a single well drilled on Kaktovik Inupiat Corporation (KIC) lands after the Chandler Lake land exchange between the Arctic Slope Regional Corporation and the U.S. Fish and Wildlife Service. Since the late 1980s, members of Congress have introduced dozens of bills to open the 1002 Area to leasing and development. In 1995, President Clinton vetoed a bill passed by both bodies of Congress to develop the 1002 Area. Since then, no other bills to authorize oil and gas leasing and development or designate wilderness have been approved by Congress. However, technology has greatly advanced in the almost 20 years since President Clinton's veto. The surface impacts of exploration have significantly decreased. Three-dimensional (3-D) seismic surveys are regularly used to obtain subsurface data. Drilling has become more efficient, and directional and extended reach technology have greatly increased the reach of wells from each surface location. Despite these developments, information about the oil and gas resources of the 1002 Area have not been updated since the 1987 study.

Over the last 20 years, every Alaska Legislature has passed bills and resolutions supporting the opening of ANWR. Recently, in 2011, two Senate bills and one House bill that would open the coastal plain to oil and gas leasing and development were before Congress: The American Energy and Security Act of 2011, S.

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Fig 1-1:

Arctic National Wildlife Refuge, Alaska

Source: ADNR-DO&G, 2012

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352; the No Surface Occupancy Western Arctic Coastal Plain Domestic Energy Security Act, S. 351; and the American Energy Independence and Price Reduction Act, H.R. 49, would allow exploration, leasing, development, and production of oil and gas from all or portions of the 1002 Area. A recent Gallup opinion poll shows that Americans' support for oil exploration in ANWR is steadily increasing, joining the over 75 percent of Alaska residents who have consistently favored responsible exploration and development in the 1002 Area. (Saad, 2011; Arctic Power 2013).

3. 2009-current USFWS Comprehensive Conservation Plan (CCP)

On April 7, 2010, the U.S. Fish and Wildlife Service (USFWS) issued a Notice of Intent to develop a revised CCP/EIS for the Arctic National Wildlife Refuge (75 FR 17765). The notice indicated the revised plan would include a wild and scenic river review and a wilderness review for the purpose of potentially recommending new wild and scenic rivers and designated wilderness, but would not consider oil and gas development in the 1002 Area. Even though Congressional authorization is required for all three actions - to designate wilderness, designate wild and scenic rivers, and authorize oil and gas development in the 1002 Area - the notice only cites the need for Congressional authorization as the justification for not considering oil and gas development in the EIS.

The draft CCP/EIS analyzed six alternatives, two of which recommend designating the 1002 Area as Wilderness and two that recommend designating a wild and scenic river within the 1002 Area. Citing both ANILCA and the National Environmental Policy Act (NEPA), the State strongly opposed new wilderness and wild and scenic river reviews and advocated for including an oil and gas alternative in the CCP. Public comments on the draft plan included a broad range of perspectives regarding wilderness designations, wild and scenic river designations, and oil and gas development authorizations.

Only Congress can designate wilderness and wild and scenic rivers. While ANILCA Section 1003 currently prohibits oil and gas leasing or exploration until authorized by Congress, designation of the coastal plain as wilderness would effectively foreclose the opportunity to assess oil and gas resources permanently. Any future Congressional action to allow oil and gas activities would have to overturn a wild and scenic river designation or a wilderness designation, and the public perceives these designations as permanent.

B. ANILCA and NEPA Considerations

1. Alaska National Interest Land Conservation Act Issues

Through ANILCA, Congress established ANWR and designated approximately eight million acres as Wilderness. Congress explicitly set aside ANWR's 1002 Area for a continuing inventory and assessment of fish and wildlife resources, an analysis of the potential impacts of oil and gas exploration and development,

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and a report based on explicitly authorized oil and gas exploration activities. The resulting 1987 Coastal Plain Resource Assessment 1002(h) Report, which evaluated a range of alternatives from opening the entire 1002 Area for oil and gas development to wilderness designation, recommended that Congress authorize oil and gas development in the coastal plain. ANILCA Section 1002(c) required the report be completed within a specified time frame but also provided that DOI "... *shall thereafter publish such revisions thereto as are appropriate as new information is obtained.*" In spite of these requirements and the Secretary's recommendation to conduct an orderly oil and gas leasing program, the draft CCP/EIS does not include an oil and gas alternative nor does it meaningfully address the negative economic and resource development consequences of a potential wilderness designation in the 1002 Area. This is contrary to ANILCA's emphasis on an "analysis of the impacts of oil and gas exploration, development, and production and to authorize exploratory activity within the coastal plain gas resources" in Section 1002. Also contrary to ANILCA, the draft CCP/EIS includes proposals for new wilderness and wild and scenic river reviews in the 1002 Area. Such reviews are contrary to ANILCA Section 1317, which provided for a one-time wilderness review of ANWR, and Section 1326(b), which prohibits further studies for the single purpose of establishing Conservation System Units (CSU) or for similar purposes, unless authorized by Congress.

Modern resource evaluation is continually improved by advancing technology and the findings would add value to ANWR management decisions. But unlike review of many of the environmental and surface values of ANWR, which can be monitored by remote sensing from air and space, oil and gas exploration requires on-the-ground activities. With modern technology these activities could occur with minimal impact, and scientific information could be gathered on all of ANWR's resources, both above and below ground.

2. National Environmental Policy Act (NEPA)

NEPA sets out clear guidelines for the consideration of alternatives when an agency undertakes a significant federal action (42 USC 4321-4347; 4371). These alternatives are considered in an EIS. The draft CCP/EIS for ANWR ignores key NEPA requirements including the need to consider "all reasonable alternatives," to acknowledge "incomplete or unavailable information" and address "foreseeable significant adverse effects on the human environment" (40 CFR 1502.14, 1502.22).

While some impacts on the human environment are considered in the draft ANWR CCP/EIS, NEPA's regulatory definition of "human environment" includes situations where the "economic or social and natural or physical environmental effects are interrelated" (40 CFR 1508.14). These economic and social effects are not discussed in the draft CCP/EIS.

For example, North Slope oil development supports the economic and social health of the residents of the North Slope Borough while protecting a traditional

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subsistence lifestyle and the natural environment. The Alaska Native Claims Settlement Act (ANCSA, 43 USC 33.1601 et seq.) supported the ability of local residents to make their own decisions about development and its benefits by vesting landownership in regional and village corporations. These events have enabled the culture on the North Slope to include a cash economy with improved public services.

It is not known what economic and social benefits development in ANWR could provide because there is no definitive scientific assessment of the oil and gas resources. The draft CCP/EIS does not provide an alternative to obtain this information and does not even acknowledge its absence. These defects are inconsistent with NEPA and may deny local residents real social and economic opportunities.

A primary residential "human environment" that would be affected by federal management decisions for ANWR is the village of Kaktovik, the only settlement in the 1002 Area (ASRC, 2013). Kaktovik residents have lived on Barter Island using a barter economy and subsistence lifestyle for centuries. A prehistoric village on the island was a seasonal home for nomadic ancestors of the present day Kaktovikmuit people (Jacobson and Wentworth, 1982). The island was an important commercial whaling and trading post, and grew as an important bartering center among the Alaska Iñupiat and Canadian Inuit (ADCRA, 2012). It became a permanent settlement in 1923. The U.S. Coast Guard and Geodetic Survey brought some wage employment to the island in 1945, and a Distant Early Warning (DEW Line) system was built. The U.S. Air Force built an airport in 1947. Kaktovik's history has shown a growth of lifestyles that blend subsistence and wage economies.

USFWS ignores the effects the draft CCP/EIS may have on the village of Kaktovik and its ANCSA landholdings. ASRC and Kaktovik Iñupiat Corporation (KIC) own 92,000 subsurface and surface acres in the Coastal Plain - a small but significant portion of ANWR's 19.8 million acres. This acreage surrounds the village of Kaktovik and is presently leased to Chevron, Texaco and BP with the intent to generate returns for the ASRC and KIC shareholders. Planning and management decisions that ignore the potential for oil and gas development within ANWR severely limits the ability of these Alaska Native corporations to develop their own lands and to provide business opportunities for residents and corporation shareholders. Failure to consider these effects are contrary to NEPA and its regulations, and additionally violate the public interest policies of Alaska's Constitution.

C. Purpose of the ANWR Resource Evaluation and Exploration Proposal

The State of Alaska Department of Natural Resources, Division of Oil and Gas (ADNR-DO&G), manages the state's oil, gas, and geothermal resources and encourages responsible development of these resources. Its mandate stems from Article VIII of the Alaska State Constitution, which governs the State's natural

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resource responsibilities. Article VIII, Section 1, requires "the development of [the state's] resources by making them available for maximum use consistent with the public interest." The Department has drawn on its expertise to prepare this document to address the federal administrative and management deficiencies discussed above. ADNR-DO&G has compiled publicly available information to provide a more balanced discussion and fully inform Congress in their deliberations. This document includes:

- Information on ANWR oil and gas resources;
- Potential production levels and economic benefits;
- A proposed exploration program; and
- An environmental impact analysis.

The proposal is intended to provide Congress with information not disclosed in the ANWR draft CCP/EIS nor considered by the Department of the Interior when it developed alternatives that would designate the coastal plain as Wilderness. Such action would effectively close the 1002 Area to oil and gas exploration activities without knowing the extent and potential value of the resources that are in the ground. Without a full assessment, the valuable economic opportunities that development may provide remain unknown. Furthermore, the residents of the North Slope Borough could receive substantial social and economic benefits if it was determined that oil and gas activity in the 1002 Area was appropriate. These kinds of economic activities are an essential part of the "human environment" that must be considered under NEPA.

The ANWR Resource Evaluation and Exploration Proposal draws on ADNR-DO&G's 2003 report entitled Oil and Gas in the ANWR? It's Time to Find Out! (ADNR, 2003) and was developed in a manner similar to the 1987 USDOI 1002(h) Report. The ANWR Resource Evaluation and Exploration Proposal is presented in the style of the documents used for Final Findings of the Director for State of Alaska oil and gas lease sales. The proposal presents and assesses factual information relative to the coastal plain, including:

- Property description and location;
- The petroleum potential of the area;
- Fish and wildlife species and their habitats in the area;
- Current and projected uses of the area, including uses and value of fish and wildlife;
- Governmental powers to regulate the exploration, development, and production of oil and gas;
- Reasonably foreseeable effects of exploration, development and production of oil and gas, including effects on subsistence uses, fish and wildlife habitat and populations, and historic and cultural resources;

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- Potential mitigation measures to prevent and mitigate releases of petroleum products and discussion of the protections offered by these measures;
- Method(s) most likely to be used to transport oil or gas from the area, and the relative advantages and disadvantages of each;
- Reasonably foreseeable fiscal effects of any future development on the state and affected communities;
- Reasonably foreseeable effects of exploration, development, production and transportation of oil and gas on communities within or near the area.

This proposal presents oil and gas exploration as a critical alternative to consider for the CCP/EIS, and outlines a plan to assess the current resource potential in the 1002 Area. It provides a foundation of information that is already available and technologies that are currently in use to lay out a path for the activities that are needed for this definitive assessment. Without solid knowledge of the oil and gas potential of the 1002 Area, federal management decisions will not be consistent with NEPA, ANILCA, or the policy interests of Alaska and the United States. Furthermore, the Congressional debate on ANWR will be based on preliminary and outdated information that is almost 30 years old.

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Chapter 2
Habitats, Wildlife, Fish, and Human Uses

A. Habitats, Wildlife, and Fish

This chapter focuses on the wildlife, fish, natural habitats and the seasonal cycles that are associated with the 1002 Area. It does not address wildlife, fish, habitats, or human activities in the Beaufort Sea or the uplands, foothills and higher elevations of the Brooks Range that are not located near the area of the proposed exploration program.

This document presents only some of the large volume of publicly available information addressing the habitats of the Alaska Arctic coastal plain and its wildlife and uses. This summary is based on substantiated data and reviewed publications that emphasize protections for habitats, populations, and Endangered Species Act (ESA) listed and overwintering species. Continued successful subsistence hunts and other human uses are directly influenced by sustained wildlife and fish populations of the coastal plain.

The discussion that follows establishes a foundation for moving forward with management of the resources of the coastal plain through understanding of its surface. With this foundation in place, policy makers can move forward to develop comparable levels of information and understanding of the geology and the oil and gas resources beneath the 1002 Area.

1. Ecoregions

The habitats in the 1002 Area can be divided into two ecoregions: the Arctic coastal plain and the northern foothills. Additionally, wetland habitats occur across the North Slope and throughout ANWR, and their characterization is of

Photo: Gil Mull

DEW Line (Distant Early Warning) site, Kaktovik

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key interest to scientists, ecologists, government, and industry. Freshwater rivers, streams, and lakes flow north toward the Arctic Ocean. Habitat types in the 1002 Area of the Arctic coastal plain are wetlands, tussock meadows, and riverine corridors that provide food, nesting, and shelter for a wide variety of resident and migrating populations.

a) Arctic Coastal Plain

The Arctic coastal plain ecoregion of the ANWR 1002 Area is bounded on the north by the Arctic Ocean and Beaufort Sea, and is a poorly drained, treeless plain underlain by permafrost (Gallant et al., 1995). It gradually slopes from the ocean to the foothills of the Brooks Range to the south. Networks of ice-wedge polygons and pingos are common at the surface. There is about 5 inches (0.13 m) of precipitation annually, including a snowfall averaging 20 inches (0.5 m) (ADCRA 2012). Winds are persistent and strong year round (Gallant, et al., 1995).

Along the Beaufort Sea coast, adjacent to the ANWR boundary, saltwater-dependent habitats merge into freshwater habitats. Salt water intrudes in soils and groundwater flows. Coastal vegetation is influenced by sea spray two to three miles inland. Stream slope and freezing action in winter generally determine the distance at which salt water reaches upstream (ADGC, 1985).

The Arctic coastal plain is poorly drained, and thaw lakes cover 20 to 50 percent of the surface. The tundra surface is marked by lakes, thaw ponds, frost cracks, and polygonal ground formations. Successive freezing and thawing of moisture-laden soils causes frequent draining and reforming of lakes and surface peat. The soil beneath the tundra freezes each winter, thaws in spring, and is saturated with salt water or fresh water throughout the summer. The freeze-thaw process causes these lakes to reform each year. Tundra and grasses of the barrier islands are also exposed to freeze-thaw processes (AEIDC, 1975).

Streams originate in the south and flow toward the coast. Most streams dry up in winter, exposing sand or gravel streambeds (Gallant, et al, 1995). Some of the coastal river corridors from west to east include the Canning, Staines, Tamayariak, Katakturuk, Hulahula, Akutoktak, Okpilak, Jago, Angun, Aichilik, and Kongakut rivers, and Marsh, Carter, and Nataroarok creeks. ANWR and coastal plain waterway habitats are discussed in more detail later in this chapter.

The distribution of vegetation types on the Arctic coastal plain is strongly associated with microtopographic features which affect soil drainage. Wet soil conditions support wet graminoid herbaceous communities dominated by sedges or grasses. Dwarf scrub communities grow where soil conditions are drier, such as at thaw lake margins, along river bluffs, or other more elevated areas which provide a rooting zone above the standing water table (Gallant, et al., 1995).

Most sedge communities are dominated by *Carex aquatilis* and *Eriophorum angustifolium* (narrow-leaf cottongrass). Mosses (usually *Scorpidium spp*. or *Drepanocladus spp*.) may be common (Gallant, et al., 1995). Grass communities on the Arctic plain are dominated by *Dupontia fischeri* and *Alopecurus alpinus* (moun-

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tain foxtail); however, *Arctophila fulva* (pendent grass) dominates in surface waters of 6 to 79 inches (15-200 centimeters) in depth. Dwarf scrub communities include *Dryas integrifolia, Vaccinium vitis-idaea, Cassiope tetragona, Arctostaphylos alpina, Arctostaphylos rubra, Salix reticulata,* and *Salix phlebophylla* (Gallant et al., 1995). Secondary species include common names of lousewort and buttercup in the wetter sites, and heather and purple mountain saxifrage in the raised, drier habitats (AEIDC, 1975).

Photo: Gil Mull

Tundra ponds, ANWR coastal plain

The coastal plain joins the Beaufort Sea in the Arctic coastal zone. The near-shore area support waterfowl and shorebird nesting habitats, caribou calving and feeding grounds, and polar bear denning sites. Caribou also are influenced by availability of food in their preferred summer habitat on the coastal plain (ADGC, 1985). The coastal zone provides important spawning habitats for marine fish and invertebrates that provide waterfowl and marine birds with plentiful sources of food (ADGC, 1985). Rivers flowing into the Beaufort Sea host species that are indirectly influenced by the coastal zone. The coastal plain also includes coastal wet tundra habitat (ADGC, 1985).

b) Northern Foothills

The northern foothills consist of rolling hills and plateaus that extend from the Arctic plain to the Brooks Range (Gallant et al., 1995). The region is underlain by permafrost reportedly less than 3.3 feet (1 meter) thick. The permafrost is less thick under rivers prone to deeper thawing. Ice-related surface features include pingos, ice-wedge polygons and beaded stream drainages (Gallant et al., 1995). Smaller streams dry up or freeze to the bottom in winter. Flooding and channel shifting occur during spring snow melt and river breakup. Lake shores may experience ice-push pressure ridges up to 6.5 feet (2 meters) high. The foothills' southern extent is generally delineated at the 1,960 feet (600 meters) elevation contour of the Brooks Range. The transition environments are generally alpine tundra ecosystems (Gallant et al., 1995).

The distribution of vegetation in the northern foothills region of ANWR is also affected by soil conditions, elevation, and drainage. The region hosts tussock-sedge, dwarf-shrub, moss tundra (ARCUS, 2012). Major streams flowing from the Brooks Range are controlled by bedrock. Plant communities in lakes form concen-

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tric bands that correspond with water depth. Lakes deeper than 5 feet (1.5 meters) do not usually support aquatic plant life (Gallant, et al., 1995).

Plant communities are commonly dominated by mesic graminoid herbs and dwarf scrub. Mesic graminoid herbaceous communities are commonly dominated by tussock-forming sedges, and include *Eriophorum vaginatum* and *Carex bigelowii*. Low shrubs, such as *Betula nana* (dwarf Arctic birch), *Empetrum nigrum* (crowberry), *Ledum decumbens* (Labrador tea), and *Vaccinium vitis-idaea* (mountain cranberry) may also dominate plant communities along with sedges. Mosses and lichens are common between tussocks (Gallant, et al., 1995).

Dwarf scrub communities are dominated by *Dryas spp*., ericaceous species, and *Salix reticulata* and *Salix phlebophylla* (prostrate willows). Low scrub communities are dominated by *Alnus crispa* (alder), and *Salix lanata*, *Salix planifolia*, and *Salix glauca*. Mosses are commonly abundant (Gallant, et al., 1995). These plant communities provide an important source of nutrition for caribou as they forage on their summer range.

Waterbirds depend on or prefer certain habitat types, and attempts have been made to rank the value of these habitats. Large ungulates (caribou, muskoxen) are equally dependent on all of the vegetation habitats of the North Slope.

c) Wetlands

Wetlands are lands where saturation with water is the dominant factor in determining the nature of soils and the types of plant and animal communities living in the soil and on the surface. Wetlands occur where the water table is at or near the surface, the land at least periodically supports plants that grow partly or entirely in water (hydrophytes), and the substrate or surface is saturated with water or covered by water at some time during the growing season each year (Cowardin, et al., 1979).

For the purposes of carrying out the provisions of Section 404 of the Clean Water Act, Cowardin et al. (1979) developed a wetlands classification system for the U. S. Fish and Wildlife Service (USFWS). Subsequently, a U.S. Army Corps of Engineers (USACE) Wetlands Delineation Manual was developed for use by USACE field inspectors who make wetland determinations (USACE, 1987:7). A supplement to the manual was issued in 2007 (USACE, 2007). Since 1979, numerous classification systems have been developed for wetland habitat characterization. Today, the USACE may use many classification systems in making wetland determinations. More information and detail on site-specific characteristics would improve USACE's ability to make wetland determinations (Carpenter 1997).

Bergman, et al. (1977) identified eight wetland designations related to birds. Meehan and Jennings (1988) studied the distribution and behavior of birds on the Colville River delta, and derived nine habitat classes for large waterbirds (tundra swan, greater white-fronted goose, Pacific loon, yellow-billed loon, and brant).

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They ranked the importance of habitat classes relative to usage by key bird species. Discrete lakes were used the most, followed by wet-moist polygons, brackish flats, wet graminoid, and wet-moist flooded tundra. Tapped lakes and shrub-dominant areas received an equal amount of use after the top six, followed by sedge-tussock tundra and barrens which were used the least. The authors caution that although the classes may apply to habitats across the North Slope, the ranking should only be applied to the Colville River delta, located west of the 1002 Area. For this document's purposes, it can be interpreted as a representative habitat in the Arctic coastal plain.

In a remote sensing study of snow goose brood-rearing habitat on the nearby Sagavanirktok River delta, also located to the west of ANWR, researchers Burgess and Ritchie (1988) followed the classification scheme of Walker and Weber (1980) to derive a similar habitat classification.

More complex vegetation classification systems have been developed for oil and gas development proposals; some are species-specific and some focus on terrain types. Field surveys are expensive, and increased complexity in project proposal documents provides agencies with more information to make permitting decisions. For example, in the Alpine Development Project, habitats on the Colville River delta are described with 24 habitat types, a system developed by Viereck, et al. (1992) and modeled after Cowardin, et al. (1979).

Regardless of the habitat or wetland classification system used in planning, the important points to consider are which plant species are associated with various life stages of important animals (feeding, nesting, incubation, brood rearing, etc.), and what is the most appropriate and practical way to identify those terrains and important species. For caribou, some plant species may provide greater nutritional value for migrating, gestating, and newborn animals. Because nearly all of the North Slope is wetland habitat, uplands are rare and may become more valuable to species like caribou, especially during the insect season. Non-wetland habitats include pingos, high-top polygons, steep riverbanks, gravel bars, and dunes (Carpenter, 1997). The following section discusses the habitats in the 1002 Area and some of the fish and wildlife that utilize them.

2. Terrestrial Habitats and Wildlife

The terrestrial habitats in ANWR's 1002 Area provide important habitat for wide-ranging mammal species including caribou, moose, brown bear, polar bear, muskoxen, and other furbearers. Several species of birds also find nesting habitat for migrating, and several resident bird populations are also found in the area. While ANWR is managed by the USFWS as a National Wildlife Refuge, the ADF&G manages general hunting in ANWR's Game Management Unit (GMU) 26C, which is bounded in the south by the uplands of the Brooks Range in GMU 25A.

The Federal Subsistence Board is a decision-making body that oversees the Federal Subsistence Management Program on federal lands in Alaska. The board is made up of regional directors from U.S. Fish and Wildlife Service, National

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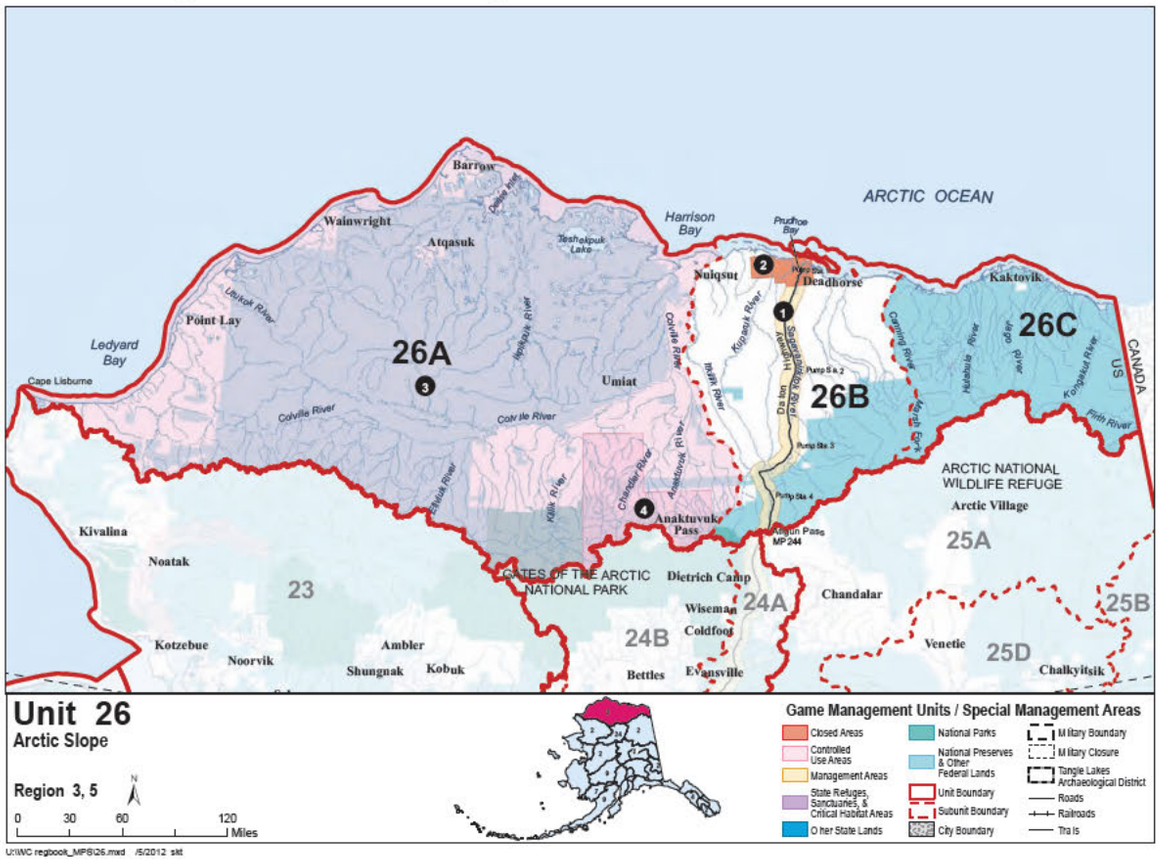
Figure 2-1

Game Management Units Arctic Region



Source: ADF&G 2012b, Game Management Unit (BMU) information, Unit 26

Park Service, Bureau of Land Management, Bureau of Indian Affairs, the U.S. Forest Service, and three public members appointed by the Secretaries of the Interior and Agriculture (USFWS, 2013). The program provides for public participation through the Board and ten Regional Advisory Councils. While most of the subsistence harvest on federal lands in Alaska is managed under ANILCA, other federal laws also govern the harvest of some species. For example, the harvest of waterfowl and other migratory birds is co-managed by the USFWS and Alaska Natives under the Migratory Bird Treaty Act (USFWS, 2013).

a. Caribou habitats

Caribou (*Rangifer tarandus*) are members of the deer family. Two of the four North Slope caribou herds use the coastal habitats within and adjacent to ANWR, the Porcupine and the Central Arctic caribou herds. A herd is defined as a group of caribou which establishes a calving area distinct from any other group and calves there repeatedly (ADF&G, 1994). The Porcupine caribou herd ranges in ANWR, south from the Beaufort Sea coast, from the Canning River eastward

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into Canada (Figure 2-2; USGS, 2002). The range of the Central Arctic caribou herd extends from the southern foothills of the Brooks Range to the Beaufort Sea and from the Colville River to east of the Canning River (Figure 2-2; USGS, 2002).

Photo: Steve Schmitz, ADNR-DO&G

North Slope Caribou.

Caribou must keep moving to find adequate food. This distributes feeding pressure and tends to prevent overgrazing. Caribou are great wanderers and very efficient at moving across both boggy and rugged terrain. They commonly travel vast distances to reach suitable foraging sites on widely separated seasonal ranges. Feeding opportunities are limited in windswept insect relief areas, so caribou move inland to better foraging areas whenever insect harassment temporarily subsides, and return to the coast when harassment increases. In summer, caribou eat a wide variety of plants, apparently favoring the leaves of willows, grasses, sedges, and herbaceous and flowering plants. During winter, they use windswept upland areas or areas of lighter snow cover where they can dig through the snow to feed on lichens, "reindeer moss," and dried sedges (ADF&G, 1994).

Caribou normally move toward the coast to calve and escape the predators of their winter range. Caribou summer on the Arctic coastal plain. Calving occurs in late May or early June mostly within 30 miles of the coast. Coastal areas seem to be preferred calving habitats, but calving occurs further inland as well (Baker, 1987). Newborn calves can walk within an hour of birth. After a few days, they can outrun a man and swim across lakes and rivers.

In midsummer, from mid- to late June through July, caribou are often harassed by hordes of mosquitoes, warble flies, and bot flies (or nose bot flies). Movement during the summer is closely tied to insect harassment. In response, caribou move from inland feeding areas to windswept, vegetation free coastal areas where the insects are limited. Sometimes the animals run in frenzies for long distances, stopping to rest only when exhausted or when wind offers relief from the insects (ADF&G, 1994). Most insect relief areas are found within two miles of the coast (ADF&G, 1986b); however, caribou also tend to congregate on gravel drilling pads and roads which are generally raised above the tundra and more exposed to the elements (USACE, 1984).

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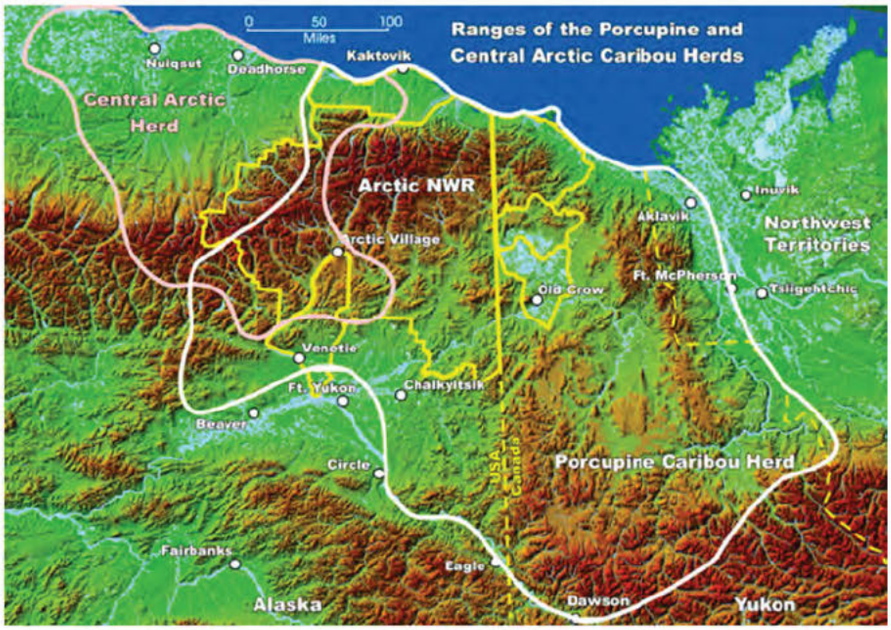
Figure 2-2 *Ranges of the Porcupine and Central Arctic Caribou Herds*



Source: USFWS 2012a

Porcupine Caribou Herd (PCH)

The PCH migrates from uplands in Alaska and central Yukon to the coastal plain of the Yukon and ANWR (ADF&G, 2009a). In 2008, field observations located caribou from the Babbage River, Yukon, to the Konagakut River, Alaska, during calving. No radio-collared cows were located in the 1002 Area of ANWR. Previous observations in the 1980s and 1990s located PCH caribou calving that included areas in the 1002 Area (ADF&G, 2009a). It was also reported that during 2002-2008 calving on the coastal plain occurred primarily in the Yukon between the Alaska-Canada border and Babbage River, Yukon. In summary, since 2002, important calving areas are from the Jago River, Alaska to the Babbage River, Yukon, and may be weather-dependent as a result of deep snow that delays migration.

Summer range of the PCH is annually variable but includes the coastal plain and the foothills and mountains of the Brooks Range on both sides of the continental divide. The PCH fall migration occurs from August through November and results in caribou distribution extending from summer range to winter range. The winter distribution of PCH is annually variable but primarily includes the south side of the Brooks Range in Alaska, the Old Crow Flats and Ogilvie Mountains in Yukon Canada, and the Richardson Mountains in Northwest Territories, Canada. The PCH is rarely found in the 1002 Area during the winter when most exploration activities would take place.

The most recent photocensus of the PCH occurred in 2010 which resulted in a population estimate of 169,000 caribou (Caikoski, 2011, pre-publication).

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Central Arctic Caribou Herd (CAH)

CAH calving occurs in late May or early June mostly within 30 miles of the coast of the Beaufort Sea. The CAH spends June through mid-August near the Arctic coast primarily between the Colville and Canning rivers, located to the west of ANWR (Whitten, 1995)(Map Figure 2-2). Since 2008, the CAH has expanded its summer range (particularly during the first 2 weeks of July) into ANWR as far east as the Canadian border.

The CAH fall migration south begins in late August and ends by late November. During both the spring and fall migrations, the CAH tends to move along or near major river drainages.

Since 2001, most of the CAH wintered in the southern foothills of the Brooks Range, east of the Dalton Highway. Small groups of the CAH remain on the coastal plain during winter. The CAH is not found in the 1002 Area during the winter when most exploration activities would take place.

Caribou calf survival and adult mortality are primary factors affecting the size and growth of caribou herds. The ADF&G reported that the Central Arctic caribou herd (CAH) has grown sharply in numbers since 2002. This herd occupies areas in the Prudhoe and Kuparuk oil fields, and population estimates grew from 32,000 animals in 2002 to 67,000 animals in 2008 (RDC, 2009). A photocensus conducted in July 2010 resulted in a count of 70,034 caribou with an annual rate of increase of 9.4 percent between 1995 and 2001 (Lenart, 2011a).

b. Moose

Moose (*Alces alces gigas*) are currently distributed across the North Slope region, but concentrated along riparian habitat of major rivers flowing north from the Brooks Range. Following the snow melt, usually in May, moose may disperse across the tundra coastal plain. Many move into small tributaries and upland hills surrounding riparian habitat.

Photo courtesy of Alaska Division of Tourism

Moose occur sporadically on the North Slope.

Moose breed annually and calves are born anytime from mid-May to early June (ADF&G, 1994). Rutting occurs during the fall between late September and early October. During this period, moose may aggregate in groups of up to 30 bulls and cows, with movement of individuals between the groups (ADF&G, 1986a). During late fall, as snow cover accumulates, moose move to riparian corridors of the large river systems, such as the Canning, on the west boundary of ANWR (ADF&G, 2010a; ADF&G, 1986a). Moose may not be observed in large numbers on the Arctic coastal plain in winter.

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Moose eat a variety of plants, particularly sedges, equisetum (horsetail), pond weeds, and grasses. During summer, moose feed on forbs, vegetation in shallow ponds, and the leaves of birch, willow, and aspen. Willow stands along rivers and streams provide essential habitat for moose. These riparian areas are especially important during winter when forage is mainly confined along major drainages where shrubs will not be covered by drifting snow (Sousa, 1992).

Following the snow melt, usually around the beginning of May, moose occasionally disperse across the tundra, but are mainly found at varying elevations in the foothills. Calving also occurs at this time. Deep, crusted snow that can lead to malnutrition, and predation by wolves and bears can combine to limit the growth of moose populations in Alaska (ADF&G, 1994).

The North Slope habitat also sharply limits the potential size of moose populations (ADF&G, 2010a). Moose in the ANWR region are generally associated with narrow strips of shrub communities along drainages, and may undertake extensive movements within or between these drainages (Lenart, 2004). The distribution of moose on Alaska's North Slope has historically been characterized as sporadic, or at low densities (ADF&G, 2010a). Moose were scarce in Arctic Alaska prior to the early 1950s (LeResche, et al., 1974).

Historic moose population estimates for GMU 26B and 26C, the central and eastern coastal plain on the North Slope, reportedly peaked during the late 1980s, estimated at about 1,400 animals (ADF&G, 2010a, citing to Lenart 2004, Martin and Garner 1984, Mauer and Akaran 1994). Dramatic declines in moose populations noted during the early 1990s were probably due to a combination of factors including disease, weather, habitat limitations, insect harassment, and heightened predation by wolves and brown bears. No actual surveys were conducted in the 1990s, but estimates from anecdotal observations suspected very low numbers (ADF&G, 2010a). By 2003, state biologists observed increases in moose populations over much of the region, and surveys found concentrations of moose along the Canning River, along the western ANWR boundary (Lenart, 2004). Surveys in the 2000s in the coastal plain of central GMU 26C indicated about 50 to 60 moose (ADF&G, 2010a). In 2011, 339 moose were observed in eastern Unit 26C in the northern foothills of the Brooks Range, in the upper Kongakut and Firth Mancha rivers (ADF&G, 2011a, unpublished files). The moose survey and population information support that moose may, therefore, be found in limited numbers on the Arctic coastal plain in winter.

c. Brown Bear

Brown bears (*Ursus Arctos*) travel major river corridors in the spring and summer and frequently den along riverbanks in the fall. The bears feed extensively in riparian areas in spring and summer because these areas provide them with the greatest diversity of foods.

In the winter, when food is unavailable or scarce, brown bears enter dens to hibernate. Brown bears enter their dens from mid-October through November

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where they may spend 5 to 7½ months (Ott, 1997). On the coastal plain, bears den in low hills, dry lake margins, pingos, and stream banks to within at least 20 miles of the coast (Ott, 1991). Recent ADF&G brown bear research confirms that some of the bears in the vicinity of the oil fields den within a mile of the coast (Ott, 1997). On the eastern North Slope, male bears emerge from their dens during April, and female brown bears with cubs emerge from mid-May through the end of May.

Except for females with offspring and breeding animals, bears are typically solitary and avoid other bears. Exceptions to this occur where food sources are concentrated, such as marine or terrestrial mammal carcasses. In the spring, brown bears are commonly found in major river valleys. They later move to small tributaries and poorly drained areas to feed.

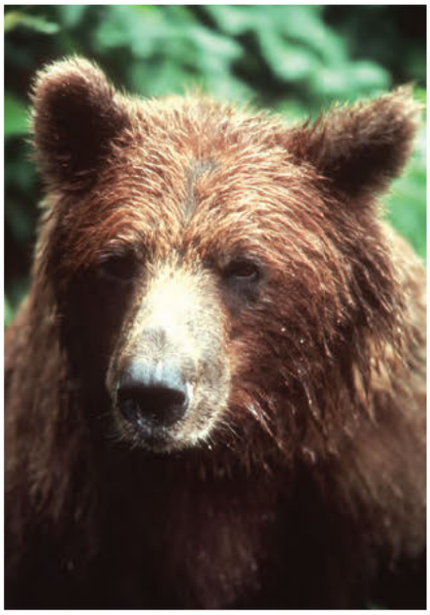

Photo courtesy of Alaska Division of Tourism

Brown bears frequently den along riverbanks.

Mating takes place from May through July with the peak of activity in early June. The young are born the following January or February in a winter den. Bear populations vary depending on the productivity of the environment. In areas of low productivity, studies have revealed bear densities as low as one bear per 300 square miles (ADF&G, 1994).

Brown bears consume a wide variety of foods including berries, grasses, sedges, horsetails, cow parsnips, fish, ground squirrels, ungulates (especially neonate ungulates), and roots of many kinds of plants. On the eastern North Slope, brown bears also prey on adult and calf muskoxen, particularly during April through June. Bears also eat all types of carrion as well as garbage in human dumps. Brown bears have an especially good sense of smell and under the right conditions may be able to detect odors more than a mile distant (ADF&G, 1994). During the summer bears most frequently feed in wet sedge meadows, late snow bank areas, and tussock tundra, concentrating on grasses, sedges, and the fruiting and vegetative stems of horsetails. In the fall, bears use the floodplains of large creeks and rivers, dry ridge areas or mountain slopes to feed on roots, berries, and ground squirrels (ADF&G, 1986a).

The population of brown bears in GMU 26C, in the eastern coastal plain of ANWR, is estimated to be about 390 bears and is based on a 1993 estimate. The availability of habitat in the area has not changed substantially since 1993. Harvest has been below a sustainable yield of 5 percent since 1993 and most harvest has been male bears and likely did not affect the size of the bear population (ADF&G, 2009c).

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d. Polar Bear

Polar bears (*Ursus maritimus*) are found in both the terrestrial and marine habitat types in and off the coast of ANWR. They are marine mammals and are protected under the Marine Mammal Protection Act of 1972, as well as listed as a threatened species under the federal Endangered Species Act (ESA).

Polar bear numbers have dramatically increased over 30 years as a result of conservation measures enacted through international agreements and the Marine Mammal Protection Act. According to the International Union for Conservation of Nature and Natural Resources (IUCN), it is estimated that there are currently 20,000 to 25,000 polar bears, a substantial increase from the early 1970s. Although no Distinct Population Segments (DPS) have been identified across the Arctic circumpolar region, the IUCN has established 19 management units for purposes of research and management (IUCN, 2006). Two of these overlap Alaska, the Southern Beaufort and the Chukchi Sea sub-populations.

Polar bears breed from late March to May (ADF&G, 1994). During late October and November, pregnant females search for banks, slopes, or rough ice in which to dig a den, either on land or on sea ice (ADF&G, 1994). Litters of one to three cubs are born in December or January (Smith and Walker, 1995). In late March or early April, polar bears emerge from the den with their cubs and begin making excursions to drifting sea ice (ADF&G, 1994).

Photo by Robert Angell, Alaska Division of Tourism

Polar bears have increased significantly in numbers as a result of conservation measures.

Polar bears from the South Beaufort Sea are not dispersed evenly throughout their range (USFWS, 2010a, citing to Stirling et al., 1999, Durner, et al., 2004, Durner, et al., 2006, and Durner, et al., 2009). Radio collar surveys indicate that the Beaufort Sea population dens locally, and is not dependent on reproduction from other known denning areas outside of the region (Amstrup and Garner, 1994). Polar bears have historically denned on both the sea ice and land (USFWS, 2010a), and do not exhibit site fidelity in denning, but return only to the general substrate and geographic area upon which they had previously denned: on ice or on land, and in the eastern or the western Beaufort respectively. The most preferred region for land denning is located in the northeast corner of Alaska and adjacent to Canada (Amstrup and Garner, 1995). The reported main terrestrial denning areas for the Southern Beaufort Sea population in Alaska is reported to be on the barrier islands from Barrow to Kaktovik and along the sea coast up to 25 miles inland in ANWR (USFWS, 2010a, citing to Amstrup and Garner, 1994, Amstrup, 2000, Durner, et al., 2001, Durner, et al., 2006).

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Polar bears' primary food is reported as the ringed seal that inhabits the Arctic ice areas (ADF&G, 1994). The presence of the ringed seal attracts polar bears to the coastlines and the southern edge of sea ice, and they may make extensive seasonal movements related to the ice edge (ADF&G, 1994). Other prey include bearded seals, walruses, and beluga whales, and polar bears will eat small mammals, bird eggs, and vegetation. Polar bears also feed on whale, walrus and seal carcasses (ADF&G, 1994).

Beaufort Sea polar bear population ranges between 1,500 and 1,800 bears from data collected from 1986 through 2006. (Regehr et al., 2006, USFWS, 2010a). These populations, as with other polar bears across the Arctic, are being studied for the risk of population decline due to melting sea ice.

e. *Muskoxen*

Alaska's muskoxen (*Ovibos moschatus*) are well adapted to the Arctic climate. The original populations disappeared in the mid- or late 1800s as a result of a combination of over-hunting and climate factors. They were re-introduced into the Arctic National Wildlife Refuge (ANWR) in 1969 (51 animals) and in 1970 (13 animals).

Muskoxen are not migratory, but they may move in response to seasonal changes in snow cover, vegetation, and natural behavior. Riparian habitat is preferred by muskoxen for virtually their entire annual cycle. River systems that provide diverse low shrub forbs and tall willow communities in proximity to relatively snow free uplands, hillsides, and plateaus are important to muskoxen (Sousa, 1992). Bare cover was selected as habitat for all seasons, except spring. Mountain terrain was avoided in all seasons (USGS, 2002, citing to Reynolds, 1998).

Photo: Christina Holmgren-Larson, ADNR

Muskoxen right outside Deadhorse, North Slope.

Muskoxen are relatively sedentary in the winter (October — May), possibly as a strategy for conserving energy. Muskoxen tend to remain in one location for winter, and form larger groups of 6-60 animals in size (ADF&G, 2011b). Many bull muskoxen move from mixed-sex groups during the summer to bull groups during the winter. Females calve from early April to mid-June. The rutting season generally begins in August (Sousa, 1992).

Muskoxen eat a wide variety of plants, including grasses, sedges, forbs, and woody plants. In summer and fall, both sexes may be found along major river

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drainages where they feed on willows and forbs. In winter and spring, muskoxen groups of 10 to 20 animals may be found in uplands adjacent to river drainages, which afford forage of tussock sedges and have less snow cover (Clough, et al., 1987). Muskoxen are poorly adapted for digging through heavy snow for food, so winter habitat is generally restricted to areas with shallow snow accumulations or areas blown free of snow (ADF&G, 1994).

During the 1980s and 1990s, the muskoxen herd grew substantially and expanded their range both to the west into Units 26A and 26B and to the east into Canada. The muskox herd peaked in the 1990s to about 800 muskoxen, including the 100 animals that had moved into Yukon, Canada (Lenart, 2011a). Beginning in 1999, the muskox population in ANWR began to decline; by 2003 muskoxen numbers in ANWR had fallen to about 29 muskoxen, and counts of one to 44 animals in years 2004-2008 (ADF&G, 2011b, citing to Reynolds, 2008). In 2012 ADF&G reported that 17 muskoxen were observed on the Canning River, on the west boundary of ANWR (ADF&G, 2012e). Muskoxen declines may have been caused by brown bear predation, disease, mineral deficiencies, adverse weather conditions, and long snow seasons that reduce access to winter forage (ADF&G, 2011b; USFWS, 2005).

f. Furbearers

Other species that may be found in the area include arctic fox, red fox, wolf, and wolverine. Information on the abundance and distribution of these species is limited.

Arctic foxes (*Alopex lagopus*) are found within ANWR, and the southern boundary of the known habitat on the North Slope is the southern extent of the coastal plain (Burgess, 2000, citing to Smits and Slough, 1993). Arctic foxes may move long distances over sea ice. A fox tagged along the coast of Russia was captured a year later near Wainwright, Alaska (ADF&G, 1994).

Arctic fox pups are born in dens excavated by the adults in sandy, well-drained soils of low mounds and river cut banks. Most dens have southerly exposure. They extend from 6 to 12 feet underground. Enlarged ground squirrel burrows with several entrances are often used as dens (ADF&G, 1994).

Mating occurs in early March through early April. Pups emerge from the den at about three weeks old and begin to hunt and range away from the den at about three months. Arctic foxes attain sexual maturity at nine to ten months, but many die in their first year (ADF&G, 1994).

Arctic foxes have increased in the Prudhoe Bay oil fields, where their population densities are greater than in surrounding undeveloped areas. They commonly feed, den, and rest around development sites (BLM, 2005). Arctic foxes are omnivorous. In summer, they feed primarily on small mammals, including lemmings and tundra voles. They sometimes eat berries, eggs, and scavenged remains of other animals. Many foxes venture onto the sea ice during winter to eat the re-

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mains of seals killed by polar bears. In areas where lemmings and voles are the most important summer prey, fox numbers often rise and fall with cyclic changes of their prey. Fewer pups are successfully reared to maturity when food is scarce. There is evidence that competition for food among young pups accounts for some of the heavy mortality in this age group (ADF&G, 1994).

Photo: Christina Holmgren-Larson, ADNR

Red Fox, North Slope

Wolves (*Canis lupus*) are adaptable and exist in a wide variety of habitats including the Arctic tundra along the Beaufort Sea. Wolves are members of the family Canidae. They are highly social animals and usually live in packs averaging six to seven animals (ADF&G, 1994).

Wolves normally breed in February and March, and litters averaging about five pups are born in May or early June. Pups are usually born in dens dug as deep as 10 feet into well-drained soil. Adult wolves generally center their activities near dens, but may travel as far as 20 miles in search of food, which is regularly brought back to the den. Wolf pups are weaned gradually during mid-summer. In mid- or late summer, pups are usually moved some distance away from the den and by early winter are capable of traveling and hunting with adult pack members. Wolf packs often travel 10 to 30 or more miles in a day during winter. Dispersing wolves have been known to move from 100 to 700 miles from their original range (ADF&G, 1994).

In spite of a generally high birth rate, wolves rarely become abundant because mortality is high. In much of Alaska, hunting and trapping are the major sources of mortality, although diseases, malnutrition, accidents, and particularly preying by other wolves act to regulate wolf abundance (ADF&G, 1994).

Wolves are carnivores, feeding primarily on moose and caribou. During summer, small mammals including voles, lemmings, ground squirrels, snowshoe hares, beaver, and occasionally birds and fish are supplements in the diet. Wolves are opportunistic feeders; very young, old, or diseased animals are preyed upon more heavily than other age classes. Under some circumstances, however, such as when snow is unusually deep, even animals in their prime may be vulnerable to wolves (ADF&G, 1994).

Wolf populations fluctuate according to changes in prey populations (caribou and moose), and hunting by humans. Some of the highest wolf densities on the

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Photo by Robert Angell, Alaska Division of Tourism

Wolves are adaptable and live in a wide variety of habitats.

North Slope occur along the riverine systems, such as the Colville River. The ADF&G reports that wolf populations in ANWR appear to be stable (ANWR GMUs 25A, 25B, 25D, 26B, and 26C) (ADFG, 2009b).

Wolverines (*Gulo gulo*) are primarily found in Alaska's wilder and more remote areas (ADF&G, 1994). They frequent all types of terrain and often utilize rivers as territorial boundaries (Clough, et al., 1987). Wolverines occur throughout the Arctic coastal plain but are considered more common in the mountains and foothills of the Brooks Range (BLM, 2005). Wolverines travel extensively in search of food. They are opportunistic; eating about anything they can find or kill and are well adapted for scavenging. Wolverines can survive for long periods on little food. Their diet varies from season to season depending on food availability. In the winter, wolverines rely primarily on the remains of moose and caribou killed by wolves and hunters, or animals that have died of natural causes (ADF&G, 1994). Wolverine harvests have not been reported in GMU 26C on the Arctic coastal plain in the hunter harvest surveys conducted in 2006 through 2008 (ADF&G, 2010b).

g. Birds and Waterfowl

Major concentrations of birds have been documented to occur in and near portions of ANWR's 1002 Area during several months of the year (see Table 2-1). Several habitat categories listed in Table 2-1 are located outside the proposed exploration program area. These habitat categories are presented only as informational, representative data for the bird populations found on the North Slope of Alaska. A variety of bird species are found among the several habitat types within the coastal plain, mostly in the summer months. However, the reported migration lifecycles of these birds show evidence that most of these species are not present in the Arctic coastal plain in winter.

The discussion below is presented to demonstrate the large volume of publicly available information of migrating and resident bird species and their habitats. This information is sufficient for proceeding with a plan for balanced management of the 1002 Area that could include oil and gas resource exploration. The discussion is general in scope for various habitats and the birds found on the Arctic coastal plain. However, the proposed exploration program will occur primarily in winter, and data supports that very low numbers of birds will be present during winter activities in the 1002 Area.

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Table 2-1 Birds and Bird Habitats Common to the Alaska North Slope and ANWR

Common Name	Scientific Name	Offshore Areas[a]	Barrier Islands/ Lagoons[b]	Estuary	Wetlands Tide flat[c]	Rivers, Lakes, Streams	Uplands
Yellow-billed loon	*Gavia adamsii*	X	X	X	X	X	
Pacific loon	*Gavia arctica*	X	X	X	X	X	
Red-throated loon	*Gavia stellatastellate*	X	X	X	X	X	
Tundra swan	*Cygnus columbianus*			X	X	X	X
White-fronted goose	*Anser alibifrons*			X	X	X	X
Snow goose	*Chen caerulescens*			X	X	X	X
Canada goose	*Branta Canadensis*			X	X	X	X
Black brant	*Branta bernicla*		X	X	X	X	X
Mallard	*Anas platyrhynchos*				X	X	X
Pintail	*Anas acuta*				X	X	X
Green-winged teal	*Anas crecca carolinensis*				X	X	X
American wigeon	*Anas Americana*				X	X	X
Northern shoveler	*Anas clypeata*				X	X	X
Greater scaup	*Aythya marila*				X	X	X
Lesser scaup	*Aythya affinis*				X	X	X
Common eider	*Somateria mollissima*	X	X	X	X	X	
King eider	*Somateria spectabilis*	X	X	X	X	X	
Steller's eider	*Polysticta stelleri*	X	X	X	X	X	
Spectacled eider	*Somateria fischeri*	X	X	X	X	X	
Long-tailed duck	*Clangula hyemalis*	X	X	X	X	X	
Surf scoter	*Melanitta perspicillata*	X	X	X	X	X	
White-winged scoter	*Melanitta deglandi*	X	X	X	X	X	
Red-breasted merganser	*Mergus serrator*			X	X	X	
Rough-legged hawk	*Buteo lagopus*			X	X		
Northern Harrier	*Circus cyaneus*				X		X
Golden eagle	*Aquila chrysaetos*				X		X
Gyrfalcon	*Falco rusticolus*				X		X
Peregrine falcon	*Falco peregrinus*				X		X
Willow ptarmigan	*Lagopus lagopus*						X
Rock ptarmigan	*Lagopus mutus*						X
Semipalmated plover	*Charadrius semipalmatus*		X		X	X	X
American golden plover	*Pluvialis dominica*		X		X	X	X
Killdeer	*Charadrius vocifeurs*		X		X	X	X
Black-bellied plover	*Pluvialis squatarola*		X		X	X	X
Bar-tailed godwit	*Limosa lapponica*				X	X	X
Buff-breasted sandpiper	*Tryngites subruficollis*		X		X	X	X
Long-billed dowitcher	*Limnodromus scolopaceus*				X	X	X

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Ruddy turnstone	*Arenaria interpress*		X		X	X	X
Common Name	Scientific Name	Offshore Areas	Barrier Islands/ Lagoons	Estuary	Wetlands Tide flat	Rivers, Lakes, Streams	Uplands
Common snipe	*Capella gallinago*		X		X	X	X
Whimbrel	*Numenius phaeopus*		X		X	X	X
Spotted sandpiper	*Actitis macularia*		X		X	X	X
Pectoral sandpiper	*Calidris melanotos*		X		X	X	X
Rufus-necked sandpiper	*Calidris ruficollis*	X		X	X	X	
White-rumped sandpiper	*Calidris fuscicollis*		X		X	X	X
Dunlin	*Calidris alpinaalpine*		X		X	X	X
Baird's sandpiper	*Calidris bairdii*		X		X	X	X
Sanderling	*Calidris alba*		X		X	X	X
Semipalmated sandpiper	*Calidris pusilla*	X		X	X	X	
Red phalarope	*Phalaropus fulicaria*	X	X	X	X	X	X
Northern phalarope	*Phalaropus lobatus*	X	X	X	X	X	X
Parasitic jaeger	*Stercorarius parasiticus*	X	X		X		X
Pomarine jaeger	*Stercorarius pomarinus*	X	X		X		X
Long-tailed jaeger	*Stercorarius longicaudus*	X	X		X		X
Glaucous gull	*Larus hyperboreus*	X	X	X	X	X	X
Thayer's gull	*Larus thayeri*	X	X	X	X	X	X
Herring gull	*Larus argentatus*	X	X	X	X	X	X
Mew gull	*Larus canus*	X	X	X	X	X	X
Black-legged kittiwake	*Rissa tridactyla*	X					
Sabine's gull	*Xema sabini*	X	X	X	X	X	X
Arctic tern	*Sterna paradisaea*	X	X	X	X	X	X
Thick-billed murre	*Uria lomvia*	X					
Black guillemot	*Cepphus gryllegrille*	X	X				
Short-eared owl	*Asio flammeus*				X		X
Snowy owl	*Nyctea scandiaca*				X		X
Horned lark	*Eremophila alpestris*				X		X
Common raven	*Corvus corax*				X		X
Black-billed magpie	*Pica pica*				X		X
Robin	*Turdus migratorius*				X		X
Gray-cheeked thrush	*Catharus minmus*				X		X
Northern shrike	*Lanius exubitor*				X		X
Wheatear	*Oenanthe oenanthe*				X		X
Bluethroat	*Luscinia avacica*				X		X
Arctic warbler	*Phylloscopus borealis*				X		X
Yellow wagtail	*Motacilla flava*				X		X
Water pipit	*Anthus spinoletta*			X	X		
Wilson's warbler	*Wilsonia pusilla*				X		X
Hoary redpoll	*Carduelis hornemanni*				X		X
Common redpoll	*Carduelis flammea*					X	X
Savannah sparrow	*Passerculus sandwichensis*					X	X

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Tree sparrow	*Spizella arborea*						X
Common Name	Scientific Name	Offshore Areas	Barrier Islands/ Lagoons	Estuary	Wetlands Tide flat	Rivers, Lakes, Streams	Uplands
White-crowned sparrow	*Zonotrichia leucophrys*					X	X
Fox sparrow	*Passerella iliaca*					X	X
Dark-eyed junco	*Junco hyemalis*					X	X
Lapland longspur	*Calcarius lapponicus*					X	X
Snow bunting	*Plectrophenax nivalis*					X	X

Source: Ott, 1992; ADNR, 1990.
a , b , c - Note: Several habitat categories listed are located outside the proposed exploration program area (offshore areas, barrier islands/lagoon, wetlands/tide flats). These habitat categories are presented only as informational, representative data for the bird populations found on the North Slope of Alaska.

Very important nesting and breeding areas for waterfowl include river deltas, including the Canning River (MMS, 1996). These river deltas provide brood-rearing habitats for tundra swans, black brant, snow geese, and Canada geese. As an example, Howe Island, located in the Sagavanirktok River delta, west of ANWR, is the location of one of the few known snow goose nesting colonies in the United States (Sousa, 1992). Several Beaufort Sea islands are important for nesting common eider. Thousands of long-tailed ducks concentrate near Flaxman Island, near northwest ANWR, to molt (Bright, 1992). Greater white-fronted geese are also found nesting and rearing in the major river deltas and other coastal plain areas (Ott, 1997).

The most abundant marine and coastal species of birds on the North Slope include red phalarope, northern pintail, long-tailed duck, glaucous gull, and king and common eider. Nearly all of these species are migratory and are found in the Arctic seasonally, generally from May through September. Shortly after spring migration, most shorebird and waterfowl populations disperse to nesting grounds, primarily on tundra and marshlands of the Arctic slope. Beginning in late June, large concentrations of long-tailed ducks and eider occur in coastal waters inshore of islands where the birds feed and molt before fall migration. Use of lagoons and other coastal habitats peaks in August to late September before and during the fall migration (MMS, 1996). Additionally, the Steller's eider and the spectacled eider are listed as threatened under the ESA and may be found in ANWR.

Northern pintails are among the Arctic coastal plain's most common duck species (BLM, 2005). Numbers fluctuate from year to year and, though no significant population trends have been reported in the Arctic coastal plain, declines in northern pintail populations have been documented in the lower 48 states and Canada (BLM, 2005, citing to USFWS, 2003). Northern pintails winter in other locations distant from the Arctic coastal plain area (BLM, 2005).

Long-tailed ducks are common and together with northern pintails make up about 85 percent of the total Arctic coastal plain duck population (BLM, 2005). Nests consist of small, cup-like hollows. In the Beaufort Sea area, most eggs hatch from July 16 to July 28. Male long-tailed ducks begin moving in late June

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to protected coastal areas in lagoons and large lakes and form massive molting flocks (Ott, 1997). Fall migration away from the coastal plain begins in late September or early October (Johnson and Herter, 1989).

Red phalaropes are common migrants and breeders throughout the Beaufort Sea coast. They appear in late May or early June. Nesting takes place in hummocky, moss-sedge tundra interspersed with numerous ponds. The fledging period is 16 to 18 days. Males then abandon the young and depart the breeding area. Adult migration commences from early June to mid-August. The young depart the nesting areas from mid-August to early September (Johnson and Herter, 1989). Phalaropes winter in locations distant from the ANWR coastal plain (BLM, 2005).

Glaucous gulls are common migrants and breeders in the Beaufort Sea area. They usually arrive during May. Glaucous gulls select several types of nesting sites, depending on availability. Pairs nest either on low islands and sandbars near the coast, or on inland river bars or small islands in lakes. They are most common on barrier islands immediately offshore from rivers that flood in the spring and thereby protect the nests from foxes. On level terrain, nests may be as much as a meter high and are composed of vegetation. Occasionally, nests consist of a simple depression in the beach and have little or no lining material. Egg-laying begins in mid-June and continues through late June. Hatching begins in the second week of July. Chicks are attended by both parents until they fledge in 45 to 50 days. During the breeding season these gulls prey heavily on the eggs and chicks of other birds. Fall migration away from Alaska habitats begins in mid-September with the young remaining somewhat later than most adults (Johnson and Herter, 1989).

King eiders remain the Arctic coastal plain's most abundant eider species even though counts of migrating birds passing Point Barrow suggest the king eider population has declined by approximately 56 percent since 1976 (BLM, 2005). Despite reports of earlier declines, Larned et al. (2003) recorded an increasing trend between 1993 and 2003 for king eiders on the Arctic coastal plain during summer seasons. King eiders winter as far north as open water is available in the Bering and Chukchi Seas and through the Aleutian Islands to Kodiak Island (BLM, 2005).

Common eiders are abundant in the Beaufort Sea area. Sometimes called Pacific eiders, these sea ducks arrive from late May to early June. Nearshore coastal distributions conducted on the Arctic coastal plain during nesting surveys suggest that breeding pairs are most numerous along the coast between the Colville River delta and the Canadian border (BLM, 2005). Common eiders most frequently nest on barrier islands and spits from mid- to late June. Nests are usually placed in well-protected areas near logs, in driftwood, between rocks, or in thick vegetation. Young are usually led directly to water soon after they hatch. Fledging occurs from 6 to 12.5 weeks after hatching. Males then leave nesting areas for molting areas in the vicinities of Point Lay, Icy Cape, and Cape Lisburne in western Alaska. Females and their young begin the fall migration in late August or early September (Johnson and Herter, 1989). Most Beaufort Sea common eiders likely winter from the Bering Sea pack ice south to the Aleutian Islands and Cook Inlet (BLM, 2005), and are not present on the ANWR coastal plain in winter.

Tundra swans are common breeders on the coastal plain of the North Slope. The Colville River delta supports densities of breeding tundra swans that are three to five times greater than other Arctic areas of Alaska. Tundra swans begin nesting during the last week of May and the first two weeks of June. Nests are large (approximately 1 meter high and up to 2 meters in diam-

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eter) and widely scattered. The nests are generally located on sedge tundra. After hatching in late June or early July, broods are reared in nesting territory (Smith, et al., 1993). Adults molt from mid-July through August. Fall migration occurs from late September to early October, and these birds are not found on the coastal plain in winter (BLM, 2005).

Black brant are common migrants and breeders along the Beaufort Sea coast. These small, coastal geese nest on islands in the deltas of the Colville and Sagavanirktok Rivers. Nesting takes place in June. Newly hatched goslings leave the nest within 48 hours and move to nearby tidal flats where they spend the brood-rearing period. Brood-rearing ends and the fall migration begins around the second week of August. Some brant remain in the Beaufort Sea area until late September or early October, but are not found in the Beaufort over winter (Johnson and Herter, 1989).

Photo: Steve Schmitz, ADNR-DO&G

King eider, North Slope

Snow geese may frequent ANWR, but nest in three colonies in Alaska in locations west of ANWR. Snow geese arrive in the Arctic coastal plain, specifically in the Sagavanirktok River delta to the west of ANWR, during the last week of May and occupy nesting habitat on the coastal Howe Island for the first days of June. They lay their eggs within four days to a week after they arrive in nests of grass and bits of willow built on high ground. Eggs usually hatch during the last week of June or the first week of July. Goslings fledge at about seven weeks. They leave the brood-rearing areas by approximately August 15 to August 20 and congregate in immense flocks on the coastal tundra to feed almost continuously. Snow geese from the Howe Island colonies often move to the Kadleroshilik River delta to rear in the salt marshes, also located west of ANWR (Ott, 1992). Half of the snow geese from the Howe Island colony take their broods to the Kadleroshilik River salt marshes for the months of July and August (Sousa, 1992). Fall migration begins in the second or third week of September (Johnson and Herter, 1989). These birds are reportedly not present during winter months.

Canada geese arrive along the Arctic coast during the last two weeks of May and the first week of June. They nest primarily away from the sea coast, on bluffs along the Colville River. However, some isolated pairs have been found nesting in moderate densities in coastal wetlands near Prudhoe Bay. They usually lay their eggs during the first or second week of June. Eggs hatch within the first two weeks of July. After the goslings have fledged in mid-August, flocks begin dispersing along the Beaufort Sea and begin their southward migration away from the coastal plain (BLM, 2005). They are not expected to be found in ANWR.

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Greater white-fronted geese are common breeders along the Beaufort Sea coast. They reach Beaufort Sea breeding areas from the second week of May to the first week of June. Females usually select nest sites on well-vegetated scrub willow tundra and well-elevated habitat near lakes or rivers. Eggs are laid during the last half of May or the first two weeks of June. Fall migration may begin as early as August 10 with the last greater white-fronted geese leaving the Alaska coastal plain area by the end of September (Johnson and Herter, 1989).

Pacific loons are the most abundant loon species of the Arctic coastal plain; aerial surveys conducted over the past decade indicate the region's population is stable. Pacific loons frequently return to nest at the same lake or pond in successive years (BLM, 2005). Egg incubation period is about 23-25 days, and young birds fledge in 60-65 days (Ehrlich, et al., 1988). These birds are not found on the coastal plain during winter months.

Red-throated loons are less abundant than Pacific loons on the Arctic coastal plain. Although recent surveys conflict, Mallek, et al., (2003) reported increasing trends while Larned et al., (2003) observed decreasing trends in the regional population — the birds are relatively common on the Colville River delta (BLM, 2005). Young birds fledge in 49-51 days (Ehrlich, et al., 1988). These birds are reportedly not found on the coastal plain in winter.

Yellow-billed loons are the least abundant loon species on the Arctic coastal plain, and are not expected to be found there in winter (BLM, 2005). The greatest yellow-billed loon concentrations in Alaska are found on the North Slope, with the highest densities in locations west of ANWR, between the Meade and Ikpikpuk Rivers, on the Colville River Delta, and in areas near Teshekpuk Lake in the NPR-A (USFWS, 2006).

Yellow-billed loons arrive in the coastal plain in late May. They may frequent ANWR, but concentrate during spring with other species of loons in early-melting areas off the deltas of the Sagavanirktok, Kuparuk, and Colville Rivers, located west of ANWR. Yellow-billed loons prefer gently sloping shores of deep tundra lakes as nest sites. The nest is usually a built-up mound of turf and mud on the shoreline of a lake or occasionally on the shoreline of a large river. Egg laying begins as early as the second week of June and hatching takes place in July and early August. The age at which yellow-billed loons fledge has not been recorded precisely but may be similar to common loon chicks, which is 45 days. The peak fall migration for yellow-billed loons is in late August or early September (Sousa, 1995; Johnson and Herter, 1989).

The population in the Arctic coastal plain has been stable since at least 1986 (BLM, 2005). A Conservation Agreement has been developed as a cooperative effort among local, state, and federal resource agencies for the conservation of this species. The purpose of this agreement is to protect yellow-billed loons and their breeding, brood-rearing, and migrating habitats in Alaska, such that current or potential threats in these areas are avoided, eliminated, or reduced to the degree

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that they do not cause the species to become threatened or endangered from these threats in the foreseeable future (USFWS, 2006). The USFWS has determined that listing the yellow-billed loon as a threatened or endangered species is warranted under the ESA, but that listing is precluded by other higher-priority species.

Endangered Species Act (ESA) Threatened Bird Species

Steller's eiders were listed as threatened under the ESA on June 11, 1997 because of a reduction in the number of breeding birds and a suspected reduction of breeding range in Alaska (BLM, 2005). The birds are known to breed in Arctic Russia and Alaska. Their range on the Arctic coastal plain is thought to have once extended from Wainwright east to Canada's Northwest Territories. Steller's eiders are currently reported to range east at least as far as Prudhoe Bay, though no recent records place them east of the Sagavanirktok River. Very few sightings are currently reported east of the Colville River, which includes the 1002 Area (BLM, 2005).

Steller's eiders nest on tundra habitats often associated with polygonal ground near the coast and inland. The nest is a deep cup in the tundra; it consists of curly, coarse grasses and various mosses and lichens and is well lined with down and feathers. Females incubate their eggs for about three weeks. Hatching along the Beaufort Sea apparently begins during the first or second week of July. Most young are probably ready to fly by August. Steller's eiders migrate away from the Beaufort Sea and coastal plain during late September and early October (Johnson and Herter, 1989).

Spectacled eiders have a reported historic breeding range that includes the coastal tundra areas of the North Slope from Barrow to the U.S.-Canada border (Sousa, 1992). The species is listed as a threatened species under the ESA and has critical habitat designation on the North Slope from Point Lay to Prudhoe Bay as well as in western Alaska (USFWS, 2001). Causes for the declines are not known but may include some combination of reduced food supplies, pollution, over-harvest, lead shot poisoning and increased predation.

Spectacled eiders occur predominantly in areas located to the west of ANWR, in areas of the coastal Beaufort, Bering and Chukchi Seas. Important habitats for Arctic-breeding spectacled eiders include large river delta, tundra rich in lakes, and wet coastal plains with numerous water bodies (USFWS, 1996). Fall migration from the Beaufort Sea by males may begin in midsummer. Most spectacled eiders have left the coastal plain area by September 20th each year (Johnson and Herter, 1989).

3. Freshwater Habitats

The freshwater habitats of ANWR consist of several large river systems, lakes, streams, and wetlands. These areas provide habitat and vegetative cover for spawning, rearing, and overwintering; and are frequently used as corridors and migration routes for wildlife (ADF&G, 2006). The size of these freshwater habi-

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tats range from small, intermittent streams to large rivers, and from small ponds to large lakes. Water sources for these habitats include glacial melt, snowmelt, precipitation, and groundwater such as springs and upwelling areas. Lake and pond habitats are influenced by substrate, bathymetry, and geologic structures (ADF&G, 2006).

Nearshore waters and lagoon systems provide migration corridors and important feeding habitat for the amphidromous and anadromous fish (Clough, et al., 1987). Summer river runoff combined with melting coastal ice creates warm, brackish conditions in nearshore areas, particularly near the mouths of rivers (BLM, 2005). These warmer nearshore waters contain an abundance of amphipods, isopods, euphausids, coelenterates, and chaetognaths (Gertler, 1988), which provide important food sources for amphidromous and anadromous fish.

Table 2-2

ANWR coastal plain - List of Anadromous Rivers and Creeks, west to east

1	Staines River
2	Canning River
3	Tamayariak River
4	Nulvarik River
5	Katakturuk River
6	Lower Marsh Creek
7	Carter Creek
8	Nataroarok Creek
9	Hulahula River
10	Okpilak River
11	Akutoktak River
12	Jago River
13	Kimikpaurauk River

14	Siksik River
15	Sikrelurak River
16	Angun River
17	Kogotpak River
18	Aichilik River
19	Egaksrak River
20	Ekaluakat River
21	Matsutnak River
22	Siksikpalak River
23	Kongakut River
24	Pagilak River
and several unnamed streams	

Source: ADF&G Fish Resource Monitor - Interactive Mapping Online
http://gis.sf.adfg.state.ak.us/FlexMaps/fishresourcemonitor.html?mode=awc
From Johnson and Klein, 2009, Anadromous Waters Catalog. Accessed 12/17/2012.

Representative of nearby North Slope rivers, the Colville to the west of ANWR discharges fresh water into the Beaufort Sea, forming a zone of warmer brackish water along the coast. This zone is an important factor affecting the distribution and abundance of all Beaufort Sea fish because of its importance to several species for feeding and migrating.

A lack of overwintering habitat is the primary factor limiting Arctic fish populations. Rivers freeze to the bottom over much of their lengths, leaving only the deeper sections available for

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overwintering fish habitat (Sousa, 1992). The overwinter lifecycle factors are important for protection and continued success of these fish populations.

The identified anadromous waters in the ANWR 1002 Area are, from west to east, the Staines, Canning, Tamayariak, Nulvarik, Katakturuk, Hulahula, Okpilak, Akutoktak, Jago, Kimikpaurauk, Siksik, Sikrelurak, Angun, Kogotpak, Aichilik, Egaksrak, Ekaluakat, Matsutnak, Siksikpalak, Kongakut and Pagilak Rivers, and Lower Marsh, Carter, and Nataroarok Creeks (Table 2-2). Other major waterways are located in ANWR, but have not been established as anadromous waters as part of the ADF&G anadromous waters catalog.

The type of habitat provided by streams and rivers is defined by the substrate, which ranges from large boulders, cobble, gravel, glacial silt, clay, and mud. Stream and river morphology also contributes to defining the habitat, including such characteristics as straight, meandering, or braided; and morphologic complexity is an important contributor to habitat quantity and quality (ADF&G, 2006).

a. Fish

Important fisheries are found in the coastal plain. Freshwater fish present include Arctic grayling, lake trout, northern pike, burbot, and several species of whitefish and ciscoes (Ott, 1995). Area fish species are anadromous, amphidromous or resident types.

Anadromous fish are those fish that spend most of their lives at sea, and return only to spawn. These fish mature in the sea and enter freshwater rivers and streams to spawn. Examples are some Pacific salmon species, i.e. pink, chum, Chinook and coho (Reynolds, 1997).

Amphidromous fish are those that spawn and overwinter in rivers and streams, but migrate during the ice-free summer from freshwater into coastal waters to feed. Some examples of these fish are Dolly Varden, Arctic char, Arctic cisco, and broad whitefish (Reynolds, 1997).

Fish that reside in freshwater for their entire lifecycle are called resident fish, such as Arctic grayling, burbot and lake trout (Reynolds 1997). Stream-resident Arctic char occur in the Sagavanirktok and Colville drainages, to the west, but are not known to be amphidromous in these systems. Dolly Varden may occur as both amphidromous and resident forms (Ott, 1997).

Many of the fish that winter in freshwater habitats and river deltas of the coastal plain disperse along the coast to feed in the prey-rich nearshore waters, which may extend several miles offshore (BLM, 2005). The amphidromous fish of the coastal plain typically leave rivers and enter the nearshore waters of the Beaufort Sea during spring breakup, from mid- to late June. They initially occupy open-water leads near shore before dispersing along the coast to feed as the ice cover melts and recedes. Small fish tend to remain near overwintering rivers such as the Colville, while larger fish may migrate distances of 80 miles or more in search

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of feeding habitat. It is during this summer period that coastal fish achieve most of their annual growth and accumulate fat and protein reserves needed to survive the Arctic winter (BLM, 2005, citing to Fechhelm and Griffiths, 1990). Migration back to rivers varies by species, but most amphidromous fish return to fresh water, where they spawn, by mid-September (ADNR, 1991).

As with most amphidromous fish species, whitefish spend much of their life cycle in salt water. They feed in salt water during the summer, but, unlike other amphidromous fish, generally remain in freshwater plumes extending out from river mouths and in marine waters of lower salinity. As with Arctic char, these species move upriver around mid-August and spawn in late September or October (Roguski, et al., 1971).

Arctic cisco are among the most abundant anadromous fish captured in the Prudhoe Bay and Sagavanirktok delta areas, located to the west of ANWR. Arctic cisco inhabit the nearshore environment and spawn in the fall. The Colville River to the west is a major overwintering area for Arctic cisco. During the ice-free period Arctic cisco undertake extensive migrations through the nearshore area (NSBCMP, 1984). No spawning areas for Arctic cisco have ever been identified in Alaska (BLM, 2005). Arctic cisco of the Colville River are migrants from natal streams and tributaries of the Mackenzie River delta system in Canada. Newly hatched Arctic cisco from Canada move westward into the Alaska Beaufort Sea during late July to early August, especially in years with a prevalence of easterly winds. Thus, these fish must pass through the area of coastal development associated with the Prudhoe Bay and Kuparuk oil fields. Arctic cisco of the Colville River delta spend most of the summer feeding in nearshore coastal waters, and then return to the river's channels and lakes in September and October to overwinter (Fechhelm and Griffiths, 1990).

Non-migratory freshwater fish inhabit fresh water year-round. Virtually all Arctic grayling are found exclusively in fresh water throughout the year (Ott, 1997). Dolly Varden and broad and humpback whitefish are amphidromous (BLM, 2005) and remain in fresh water for several months or years, depending on the species, before migrating to coastal waters, returning to inland waters to spawn and overwinter (ADNR, 1990). Broad whitefish also use ephemeral stream systems to move into lake habitats of adequate depth for overwintering (Morris et al., 2006).

As mentioned previously, a critical and limiting habitat factor affecting the freshwater fish populations is the available suitable habitat in the winter (Sousa, 1992). Fish overwinter areas represent a small percentage (about 3 percent) of the total water volume available during the summer (Schmidt, et al., 1989). Fish that overwinter in Arctic freshwaters rely on these protective havens for the success of their populations. The fish of all stages may crowd into the same unfrozen river area for the entire winter (Schmidt et al., 1989). Different fish species overwinter in dissimilar habitat types. For example the Arctic char are found in the middle and upper rivers, as compared to other anadromous species that prefer deep pools and river deltas for overwintering habitats (Schmidt, et al., 1989, citing to Craig

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Table 2-3

Fish Common to the Alaska North Slope and ANWR

Freshwater Species		**Anadromous Species**	
Common name	*Scientific name*	Common name	*Scientific name*
Sheefish	*Stenodus leucichthys*	Least cisco	*Coregonus sardinella*
Round whitefish	*Prosopium cylindraceum*	Arctic cisco	*Coregonus autumnalis*
Lake trout	*Salvelinus namaycush*	Broad whitefish	*Coregonus nasus*
Arctic char	*Salvelinus alpinus*	Humpback whitefish	*Coregonus pidschian*
Northern pike	*Esox lucius*	Pink salmon	*Oncorhynchus gorbuscha*
Lake chub	*Couesius plumbeus*	Chinoook salmon	*Oncorhynchus tshawytscha*
Longnose sucker	*Catostomus catostomus catostomus*	Chum salmon	*Oncorhynchus keta*
Trout-perch	*Percopsis omiscomaycus*	Coho salmon	*Oncorhynchus kisuctch*
Burbot	*Lota lota*	Rainbow smelt	*Osmerus mordax dentex*
Ninespine stickleback	*Pungitius pungitius pungitius*	Arctic lamprey	*Lethenteron japonicum*
Slimy sculpin	*Cottus cognatus*	Dolly Varden	*Salvelinus malma*
Threespine stickleback	*Gasterosteus aculeatus aculeatus*		
Alaska blackfish	*Dallia pectoralis*		
Arctic grayling	*Thymallus arcticus arcticus*		

Source: USFWS 2010b

and McCart, 1974). The anadromous fish populations have reduced risk of extinction by spreading their members over different overwintering sites (Schmidt et al. 1989, citing to Craig, 1989).

B. Foreseeable Human Uses of ANWR Habitats, Wildlife, and Fish

The fish and wildlife of the coastal plain area provide the resources for subsistence fishing and hunting, small sport fisheries, and general hunting and fishing. The community of Kaktovik is located on the coast, and residents utilize this area for year-round subsistence hunting and harvesting. Other residents who may also subsistence hunt and fish on the coastal plain of ANWR may travel from the villages of Anaktuvuk Pass, Venetie, Chaklyitsik, Fort Yukon, Beaver, and Arctic Village. There are also recreation, tourism, and Arctic research uses in the coastal plain and throughout ANWR. Permitted uses and activities must comply with federal, state, and local requirements. This section discusses those foreseeable uses of the Arctic coastal plain.

1. Subsistence Uses

Subsistence is an important component of the multiple uses of the North Slope environment (Bryner, 1995). Title VIII of ANILCA, which addresses Subsistence

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Management and Use, defines subsistence usage as "the customary and traditional uses by rural Alaska residents of wild, renewable resources for direct personal or family consumption as food, shelter, fuel, clothing, tools, or transportation; for the making and selling of handicraft articles out of non-edible byproducts of fish and wildlife resources taken for personal or family consumption; for barter, or sharing for personal or family consumption; and for customary trade" (16 U.S.C. Section 3113). ANILCA finds that the continuation of the opportunity for subsistence uses by rural residents of Alaska, including both Natives and non-Natives, on the public lands and by Alaska Natives on Native lands is essential to Native physical, economic, traditional, and cultural existence and to non-Native physical, economic, traditional, and social existence (P.L. 96-487, Section 810 (1)).

The Alaska Board of Game and the Alaska Board of Fisheries are responsible for developing regulations that provide subsistence harvest opportunities consistent with sustained yield management (AS 16.05.258 (b)). They must set the amount reasonably necessary for subsistence uses, based upon the sustained yield principle (ADF&G, 2012c). The Division of Subsistence within the Alaska Department of Fish and Game provides information and recommendations to these boards to ensure that these opportunities are available (AS 16.05.094). The Division of Subsistence also serves a critical role in sustaining subsistence hunting and fishing which are economically and culturally important for many Alaskans (ADF&G, 2012d).

Residents of the North Slope of Alaska live in a mixed subsistence-cash economy that includes both a reliance on subsistence resources and wage employment. Subsistence resources are obtained by hunting, fishing, and gathering. Subsistence equipment, such as boats, all-terrain vehicles, snow machines, fuel, and gear are generally purchased with cash. Kruse (1991) reports that there is an increase in labor force participation, and an increase in household income on the North Slope. The study findings also suggest that continued subsistence activity "is not simply a matter of necessity; it is also a matter of individual choice. Subsistence harvest and distribution activities may offer benefits well beyond nutrition that are less commonly available in wage jobs" (Kruse, 1991).

Many traditional hunting, fishing, and gathering sites are on federally or state managed land. Private and public ownership of lands and waters can determine where, when, and how people may hunt. To assure subsistence opportunities are protected, harvest locations and traditional use areas must be identified and considered for prevention of negative impacts. Also, it is essential and legally mandated that healthy populations of fish and wildlife be conserved. When it is necessary to restrict the taking of fish and wildlife, subsistence uses are given priority over all other consumptive uses. For a discussion on the potential effects of the proposed exploration program on subsistence uses, see Chapter 6.

Kaktovik Subsistence Harvests

Kaktovik (population 247, ADCRA 2012) is on the north shore of Barter Island,

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between the Okpilak and Jago rivers, to the north off the coast of ANWR. Residents of Kaktovik have a unique set of natural resources available for subsistence, and have hunting and fishing opportunities year round. Because of Kaktovik's location, hunters have access to terrestrial, riparian, and marine resources. Subsistence harvest areas range from east of the Canada border to Camden and Mikkelson Bays. Important locations in the Kaktovik Traditional Land Use Inventory (TLUI) in the ANWR area include Flaxman Island, Brownlow Point, and Tigutaaq at the confluence of the Tamayariak and Canning Rivers. Primary early winter camps are located along the Hulahula and Sadlerochit Rivers (Jacobson and Wentworth, 1982).

Subsistence activities, particularly those surrounding the bowhead whale hunt, are central to the structural organization and cultural identity of Kaktovik residents. The bowhead whale is the primary marine mammal subsistence species; seals and polar bears are also important food sources. Whales are hunted in spring and fall, and seals are hunted year round. Residents harvest both marine and freshwater fish. The species of fish harvested are Arctic cisco, Dolly Varden, sculpin, Arctic cod, Arctic flounder, Arctic grayling, and chum salmon (Brower et al., 2000).

Kaktovik residents conduct subsistence hunting throughout the year, and travel to the mountains and along rivers to hunt and fish (ADF&G, 1986). Caribou are the most important terrestrial subsistence resource, but sheep, muskoxen, and grizzly bears are also harvested (Galginaitis and Koski, 2002). Bird species harvested include geese and ptarmigan (URS Corp., 2005). The residents of Kaktovik primarily hunt caribou during summer months following the calving period, and the annual harvest likely is not greater than 200 caribou (ADF&G, 2009a). Caribou hunting is unlikely to occur on the coastal plain during the winter months.

In a 1998 study, subsistence resources made up at least half the food consumed for 83 percent of households. This decreased to 69 percent of households in 2003 (URS Corp., 2005 citing to Shepro et al., 2003). Residents have noted that they are involved in a wider range of activities and responsibilities, and that they travel away from the village more often for a wide variety of reasons. These lifestyle changes may limit their subsistence activities and constrain the timing of subsistence activities. Some residents prefer seasonal work because it allows them to participate more fully in subsistence activities (EDAW/AECOM, 2007). These changes reflect a balancing of a traditional lifestyle with a partial cash economy and modern conveniences such as motorized access and air travel.

2. Sport Fishing

Sport fishing in the interior region of Alaska is lighter than in other regions of the state (ADF&G, 2007f). Sport fishing on the coastal plain focuses on Dolly Varden and Arctic grayling, with smaller harvests of salmon, trout, whitefish, northern pike, and burbot (NRC, 2003, citing to Howe, et al, 2001).

Dolly Varden and Arctic char are grouped together for sport fishing regulatory

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purposes because of the difficulty in distinguishing the species based on external characteristics (Scanlon, 2008). Dolly Varden and Arctic char populations can generally support only low rates of exploitation. Anglers can access the coastal plain rivers through various means and access locations. The nearby Sagavanirktok River, to the west of ANWR, is the only specific location for which sport effort and harvest estimates are available: effort averaged 1,232 angler-days, harvest of Dolly Varden averaged 272 fish, and harvest of Arctic grayling averaged 205 fish from 1998-2007. Harvest statistics are for the entire Sagavanirktok River.

Increases in catch and harvest are expected from increased visitors floating rivers of the ANWR, particularly the Kongakut, Hulahula, and Canning rivers (Scanlon, 2008). Fishing effort and harvest of Arctic char, Dolly Varden, Arctic grayling, and lake trout were expected to increase on the North Slope when the entire Dalton Highway was opened to the public in 1994, and again when improvements were made to the road south of Atigun Pass in 2001 and 2002. However, effort and harvest statistics show that this has not occurred (Scanlon, 2008).

3. General Hunting and Trapping

Alaska resident (local and non-local) and nonresident harvest of big and small game in ANWR is managed by federal and state agencies. Hunting seasons and guidelines are determined by the Alaska Board of Game, and administered by ADF&G. As described previously, the ANWR 1002 Area is entirely within the GMU 26C. Hunting harvest statistics collected by ADF&G are not specific to the 1002 Area, but are estimates of the harvest by GMU or combined areas of several GMUs (ADF&G, 1996). During the regulatory year 2007-2008, the general reported harvest in the eastern coastal plain GMU 26C included 11 brown bear, 2 wolves, 69 Dall sheep, and 41 caribou (ADF&G 2009b; 2011a; 2012e). The general reported harvest in GMU 26C includes harvest mostly by non-local Alaska residents or nonresidents. Harvest by local residents of Unit 26C is described in the section “Kaktovik Subsistence Harvests”.

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C. Conclusion

The management of both habitat protection and surface land uses associated with oil and gas exploration will encompass the balancing of:

- protection and conservation of habitat;
- encouragement of oil and gas exploration priorities;
- continued successful subsistence and general hunting and fishing.

Awareness of current and foreseeable uses of land and water in the 1002 Area can provide information necessary to foster coordinated exploration, while reducing negative impacts through prevention and mitigation. There is a long history of how oil and gas exploration and development on the North Slope has moved forward in a coordinated manner with concurrent successful subsistence seasons and successful exploration seasons without conflict. Chapter 3 discusses the available information about the probable oil and gas resources that may be found within the 1002 Area in the coastal plain of Alaska. Oil and gas exploration must take a balanced approach to provide comprehensive information on the resources underlying ANWR given what is known about the flora, fauna, and people that inhabit its surface.

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Chapter 3

Assessment of Oil and Gas Resources

The petroleum potential of the North Slope's coastal plain, including that of ANWR, has been the object of speculation and geological exploration since roughly 1906. Oil seeps and exposed oil-stained rocks across the North Slope long hinted of the area's petroleum potential. Within the 1002 Area of the ANWR coastal plain, several oil seeps and surface exposures of oil-stained rocks occur along the Katakturuk and Jago rivers and at Manning Point and Angun Point on the sea coast. According to the most recent comprehensive assessment, most geologists regard the area as the most prospective unexplored onshore area in North America. It is in the interest of ADNR to effectively characterize the 1002 Area, as it is adjacent to the prolific Badami-Point Thomson area. ADNR manages these state lands according to the "maximum use for the public interest" principle embedded in Article VIII of the Alaska Constitution, and the 1002 Area should be similarly managed in a way that supports the best interests of Alaskans and the United States.

The 1002 Area consists of 1.5 million acres of highly prospective terrain in the northeastern portion of the North Slope along the northern coast of ANWR. The region is situated between the prolific North Slope oil fields to the west and the petroleum-rich Canadian Mackenzie Delta province to the east. Both areas have proven reserves of interest to each nation. In the United States, a gas field with a significant volume of recoverable liquid hydrocarbons is being developed at Point Thomson just west of the ANWR boundary.

A. Geology and Petroleum Potential

For an accumulation of hydrocarbons to be recoverable, the geology of the subsurface must have certain physical attributes formed in a location and at a time to allow petroleum formation, migration, and storage. All of the key geologic elements needed to produce major hydrocarbon accumulations — a structure, reservoir rock, and source rock — occur beneath the coastal plain of the ANWR. More significantly, these ingredients of effective petroleum systems are all present and connected to each other in the necessary spatial and temporal relationships.

Based upon field observations of oil seeps and oil-stained reservoir rocks at surface outcrops in the area, as well as from regional subsurface data trends, it is evident that oil has been generated and perhaps has been trapped within reservoir rocks in these prospective features. Geological studies and seismic, gravity and magnetic geophysical data suggest thick successions of potential reservoir rocks, especially in the Brookian turbidite and topset sandstone plays. These are similar

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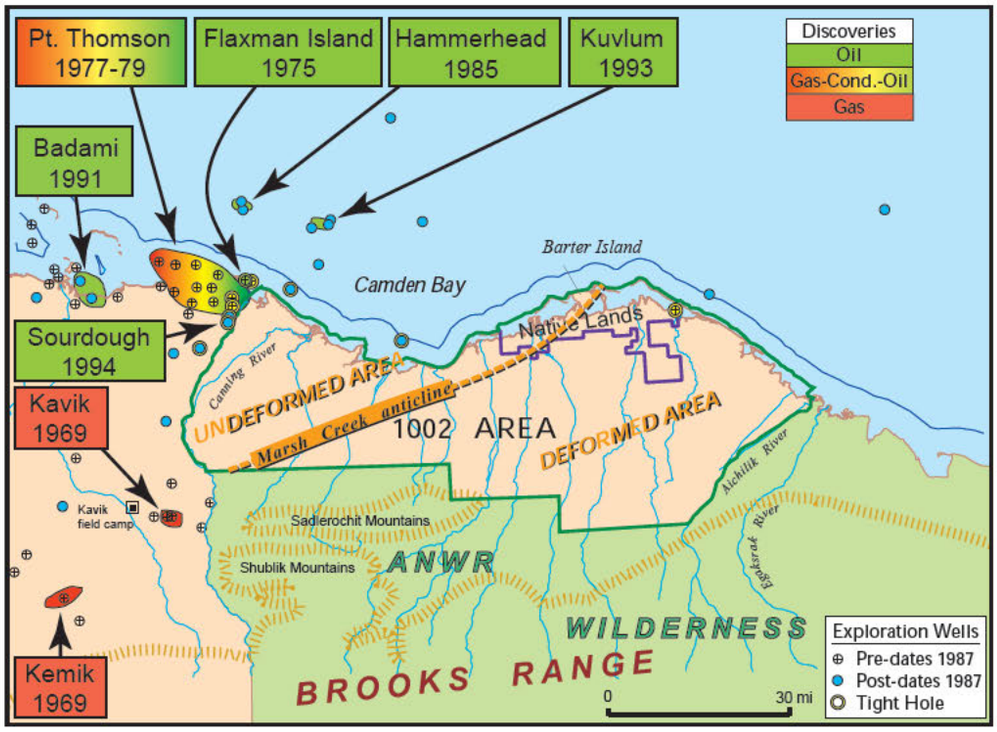
to those found in the oil rich Prudhoe-Kuparuk area to the west and the gas bearing Mackenzie Delta area to the east, and are inferred to be present in the subsurface of the ANWR coastal plain.

Interpretation and re-interpretation of the 2-D seismic data collected in the 1980s has identified numerous prospective structures and structural and stratigraphic leads beneath the surface of the ANWR coastal plain. Many stratigraphic and combination traps can be inferred from the subsurface knowledge of the Brookian sequence underlying the 1002 Area. The geologic history of the area is favorable for hydrocarbon generation and expulsion from pods of thermally mature source rocks in areas generally referred to as "kitchens." Source rocks are thought to have expelled much of their oil and gas after the reservoirs and traps were in place to receive and contain the hydrocarbon charge.

Interpretation of seismic data shows that the structural style of the area becomes increasingly complex from west to east and that the region can be divided into two structural zones, the undeformed zone and the deformed zone.

Figure 3-1

Undeformed/deformed zones



Source: USGS, 1998; Bird, 1999

The boundary between the two zones lies along the Marsh Creek anticline. Rocks in the undeformed zone in the northwest part of the coastal plain are characterized by nearly flat-lying strata cut by faults with only small displacements. Fault-block traps and subtle anticlinal traps may be present in this area.

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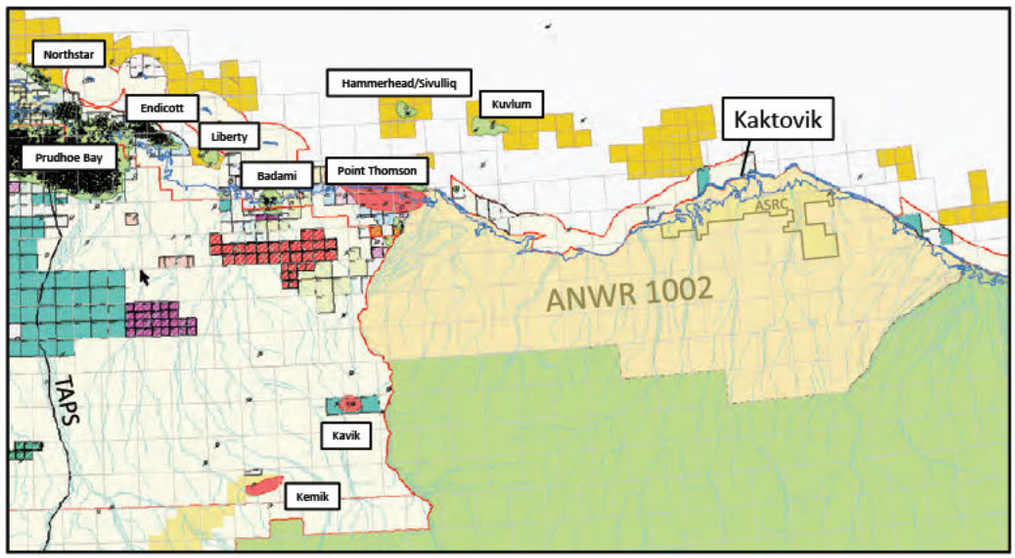
Figure 3-2

Area map of current development and communities



Source: ADNR-DO&G 2012

The deformed zone is characterized by thrust-faulted basement highs overlain by northeast-trending, complexly deformed structures. Within both zones the probability of encountering stratigraphic traps is moderate to high. However, such subtle features are extremely difficult to locate and identify with the existing 2-D seismic grid. Identification of the potential resources available will require an exploratory program including 3-D seismic to identify drillable prospects, and, based on those, based on findings, exploration wells.

Oil accumulations are concentrated in "plays" or rock volumes exhibiting similar geological characteristics and which are conducive to entrapment of petroleum. These plays occur at different depths and have different sizes and different petroleum potential. Several major accumulations are known to adjoin the western boundary of ANWR's coastal area. Directly abutting the northwest boundary of ANWR is the Point Thomson Unit, where development of production facilities and a pipeline is underway. This field is expected to produce 8 TCF of natural gas and perhaps as much as 400 MMB of natural gas liquids, the latter potentially transportable through the nearby Badami facilities to the Trans-Alaska Pipeline System (TAPS). In the 1990s, British Petroleum Alaska and Chevron-Texaco announced discovery of a 100 million barrels of oil (MMBO) field at their Sourdough field, also within the Point Thomson Unit. Offshore, north of the undeformed area, industry has shown interest in what may be undiscovered or discovered and undisclosed large fields. Although costly to develop offshore

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in the Beaufort Sea, fields of a large size would more quickly and more likely be brought on line were they located onshore. Most significant, however, is the probability that the geology in the undeformed zone within the 1002 Area is very similar to that of the Point Thomson, Sourdough, Hammerhead, and Kuvlum accumulations to the west and to the north, where oil and gas are known to occur in large quantities.

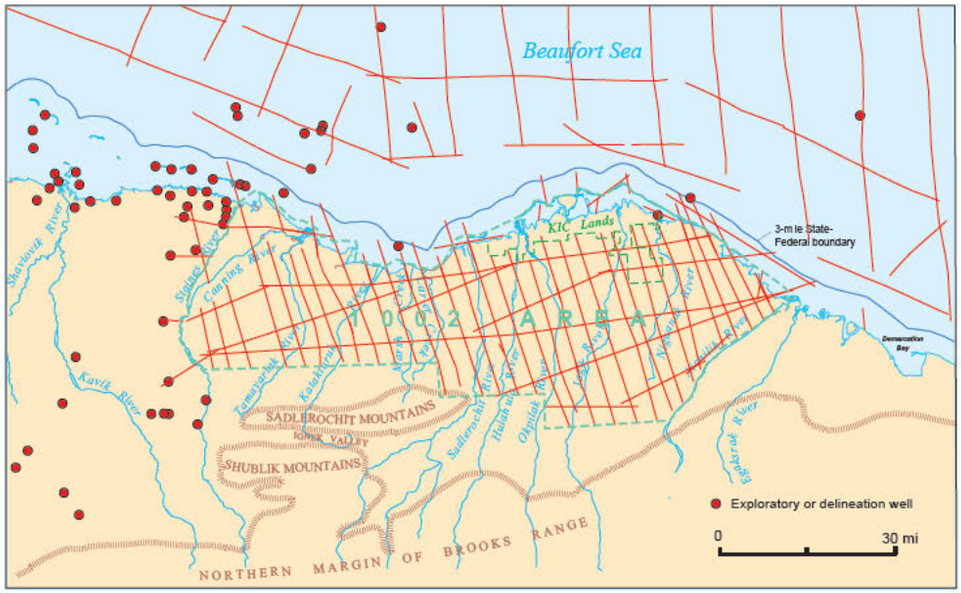
Whether petroleum reserves exist in these plays as they extend under the 1002 Area remains the primary reason for proposing exploration. It is reasonable to assume that the same reservoirs are likely to occur beneath the ANWR coastal plain which would make the area the most prospective unexplored onshore area in North America.

B. History of Exploration

ANILCA Section 1002(d) instructed the Secretary of the Interior to "…establish initial guidelines governing the carrying out of exploratory activities…" and that the guidelines "…shall include such prohibitions, restrictions, and conditions on the carrying out of exploratory activities as the Secretary deems necessary or appropriate to ensure that exploratory activities do not significantly adversely affect the fish and wildlife, their habitats, or the environment…" These guidelines were subsequently codified as regulations for an exploration program for the 1002 Area (50 CFR 37, 1983, as amended 1984, 2002).

Figure 3-3

Seismic lines from 1983-1985 programs.



Source: USGS, 1998; Bird, 1999

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To that end, a group of twenty-two oil companies joined to conduct a widely-gridded (3 miles by 6 miles) 2-D seismic, gravity and shallow geology survey of the 1002 Area during the winters of 1983-84 and 1984-85. Approximately 1,450 line-miles of seismic and gravity data were acquired all across the coastal plain and adjacent lands. In addition, individual companies also conducted surface geology studies within ANWR during the summer months, accessing the area by helicopter.

In a separate proprietary program, Chevron and predecessor companies of BP Amoco conducted a smaller geophysical survey of the Kaktovik village selection lands in the north-central area of the ANWR coastal plain. Subsequently this group drilled the "KIC-1" well in 1985, the only exploration well drilled within the 1002 Area to date. Results of the geophysical survey and the well have been kept confidential and are unavailable for public resource assessments.

Industry submitted the collected 2-D seismic data to the U.S. Department of Interior (USDOI) for its use in preparation of the petroleum potential assessment of the 1002 Area. This data was the basis for the 1987 Report to Congress required by section 1002(h) of ANILCA that recommended oil and gas leasing in the 1002 Area. Since 1985, no additional seismic exploration has been conducted within the 1002 Area.

2-D and reprocessed 2-D seismic data are useful to map out large-scale structures, but inadequate to identify stratigraphic traps. Acquiring an extensive 3-D survey is necessary to map prospective plays, identify potential hydrocarbon accumulations, and locate potential drilling sites.

3-D seismic field acquisition and processing methods have evolved to the point where potential reservoirs and traps as thin as several hundred feet wide can be identified at substantial depths. Modern digital seismic recording and processing methods allow certain attributes to be extracted from the data and analyzed to better locate and characterize the exploration target.

Furthermore, experienced exploration professionals have come to recognize various seismic attributes from 3-D surveys in specific oil fields that are characteristic of reservoir potential in the area. These seismic attribute interpretation techniques have also advanced to the point where repeated 3-D seismic surveys (4-D seismic) can be used to design and monitor secondary recovery programs.

The use of 3-D seismic, and other technological advances such as extended-reach drilling, have substantially increased the probability of commercial success, thereby lowering finding costs significantly. From 1995 to 2001 inclusive, the commercial success rate on the North Slope was at least 32 percent (at least 8 of 25 exploration wells). Statistics published by ADNR-DO&G indicate that the commercial success rate between 1959 and 1995 (prior to the use of 3-D seismic as an exploration tool and the advent of modern directional drilling technology) was only 3.3 percent. The ten-fold increase between 1995 and 2001 is attributable to the improved subsurface knowledge now attainable from 3-D seismic data and the advances in drilling methods.

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In addition to the lack of 3-D seismic surveys in the 1002 Area, federal authorities have not even considered the proposal to conduct a 3-D survey with modern technologies and in compliance with modern regulations and mitigation measures. The result of such a survey would contribute significantly to a more definitive assessment of the 1002 Area's petroleum potential. Combined with modern directional drilling engineering methods, 3-D seismic allows selection of drill-sites having the least environmental impact within a prospective area.

C. Resource Assessments

At least eight assessments of the hydrocarbon potential of the 1002 Area have been released since 1986 – one by ADNR-DO&G, one by the Energy Information Administration, three by the BLM, and three by the USGS. Results of these resource assessments differ somewhat because, over time, additional data have become available on surrounding lands. In addition, analytical methods have changed, lower-cost technology has evolved, and significant technical data-collection and data-processing advances have occurred. Some assessments were restricted to only the 1002 Area and others encompassed broader regions, including surrounding onshore and offshore areas owned by the State of Alaska and Native tribes. Consequently, there is not a common denominator for all of the assessments. The two most pertinent assessments are summarized below.

1. 1987 – BLM - Coastal Plain Resource Assessment

The first comprehensive resource assessment of the coastal plain of ANWR was the result of the initial exploration program permitted by USDOI in 1983-1985, pursuant to ANILCA 1002(d) and the regulations at 50 CFR 37 (Clough, et al., 1987).

The details of this assessment will not be discussed in detail here, as more recent assessments are believed to portray a more accurate representation of the petroleum potential of the area. As previously stated, the differences in more recent assessments reflect the capabilities of improved seismic processing and analytical methods and the inclusion of geological analogs derived from recent drilling results near the 1002 Area. Furthermore, modern understanding of the geohistory of the ANWR 1002 Area suggests that the deformed zone, underlain by more thermally mature sediments than the undeformed zone, may be more prospective for gas than for oil.

2. 1998 - USGS - ANWR 1002 Petroleum Assessment

The USGS's most recent comprehensive assessment of undiscovered oil and gas resources in ANWR was prepared in 1998 (Arctic National Wildlife Refuge, 1002 Area, Petroleum Assessment, 1998; OFR 98-34) (USGS, 1998). The assessment encompassed the federally managed 1002 Area, Native corporation lands of the coastal plain, and the adjacent State-owned submerged lands under the Beaufort Sea. Other parts of ANWR, including the original Range boundaries and the millions of acres added by the passage of ANILCA were not assessed. It is im-

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portant to note that in this assessment the resources are quantified as "technically recoverable," which is generally defined as the volume of hydrocarbons that can be recovered with existing technology without consideration of commodity price.

The 1998 assessment cannot be meaningfully compared to many of the earlier 1002 Area assessments because the methods used in some of the earlier studies are not documented. However, both the BLM assessment submitted in the 1987 Report to Congress and the 1998 USGS assessment did attempt to similarly quantify the estimated oil-in-place (OIP) resource.

The 1998 USGS assessment addressed the uncertainty of predicting undiscovered resources by adopting a probabilistic approach, using statistical distributions to capture the range of possible outcomes. Results were reported with a range of probabilities including the 95 and 5 percent probabilities as well as the expected, or mean, probability. The 95 and 5 percent numbers represent reasonable maximum and minimum values that could be expected.

One significant difference between the 1987 and the 1998 studies, which is discussed in detail below, is the distribution of the resource. The 1987 assessment approximated 75 percent of the estimated mean OIP to be in what is now identified as the deformed zone in the eastern portion of the 1002 Area, while the 1998 assessment assigns only 15 percent of the mean OIP to the deformed zone. The 1987 assessment approximated the remaining 25 percent of the OIP to be in the undeformed zone on the northwestern coastal plain. Current thinking is that 85 percent of the OIP occurs in the undeformed zone.

The 1998 assessment also shows an increase in the absolute volume of the estimated OIP. The 1987 study concluded that the range of OIP in the 1002 Area alone is between 4.8 and 29.4 billion barrels of oil (BBO), with a mean estimate of 13.8 BBO. The lower number signifies the amount of OIP assessed with 95 percent probability; the higher number the amount of OIP estimated with 5 percent probability. The 1998 assessment estimates the OIP to be between 11.6 BBO (95 percent probability) and 31.5 BBO (5 percent probability), with a mean estimate of 20.7 BBO.

Table 3-1

Estimates of oil in place (OIP) in different parts of the assessment area, in billions of barrels.

Study Area	95% probability	Mean probability	5% probability
Entire Assessment Area	15.6	27.8	42.3
Federal 1002 Only	11.6	20.7	31.5

Source: USGS, 1998

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D. Technically Recoverable Oil

In 1998, the USGS estimated that the entire assessment area, including State and Native interests, contains between 5.7 and 16 BBO of technically recoverable oil, with a mean (expected value) of 10.4 BBO (USGS, 1998). Most of this volume of oil, 74 percent, was ascribed to the federally controlled 1002 Area, with the range of predicted technically recoverable oil between 4.3 and 11.8 BBO, with a mean of 7.7 BBO. For comparison, the Prudhoe Bay field, the largest oil field in North America, was originally estimated to hold 9.6 BBO that was deemed technically recoverable by its primary operator, BP. Cumulative production to date has exceeded 12 billion barrels of oil. The Prudhoe Bay field was the impetus for the construction of TAPS and sent Alaska oil production to a peak level of 2.2 million barrels per day in 1988. Alaska daily production has dropped below 600,000 barrels per day in 2012.

Table 3-2

Estimates of technically recoverable oil in different parts of the assessment area, in billions of barrels.

Study Area	95% probability	Mean probability	5% probability
Entire Assessment Area	5.7	10.4	16.0
Federal 1002 Only	4.3	7.7	11.8

Source: USGS, 1998

These estimates of technically recoverable oil represent approximately one-third of the OIP in both the entire assessment area and the federally controlled 1002 Area.

As stated above, the 1998 estimates were somewhat different than earlier estimates because the existing 2-D seismic data had been reprocessed and re-evaluated using more modern processing and analytical techniques, and the results of nearby wells drilled since the earlier assessments were incorporated in the evaluation. Although these estimates were developed using all the data and standardized assessment methods available at the time, they are still inherently speculative in nature. Accurate estimates can only be obtained by systematic exploration of the subsurface through the drilling of exploration and delineation wells.

E. Distribution

Unlike earlier assessments, the 1998 study estimates that the quantities of technically recoverable oil are not expected to be uniformly distributed throughout the federally controlled portion of the 1002 Area (USGS, 1998). Because reprocessed seismic data and recent well data were incorporated and more rigorously evaluated than in the past, the USGS was able to better identify the distribution of plays

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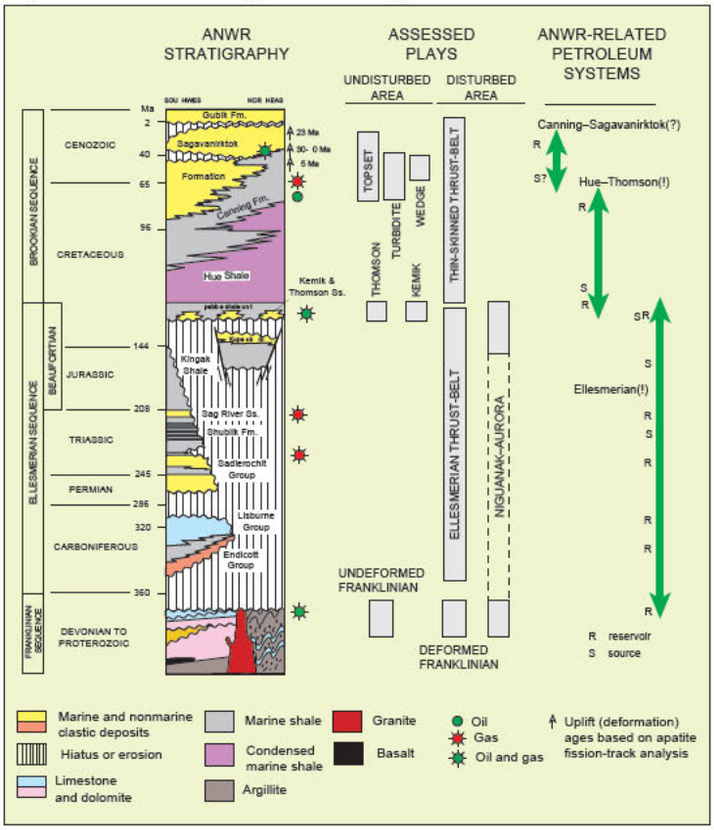
Figure 3-4

Stratigraphy and relationship to analog fields outside of the 1002.Area



Summary of ages, names, and rock types present in the ANWR 1002 Area. The occurence of recoverable petroleum in these rock formations outside the ANWR 1002 Area is indicated by green and red circles. Grey bars at right indicate the ten petroleum plays evaluated in the assessment and their corresponding rock formations (to the left). Note the grouping of plays according to deformed and undeformed areas as shown in figure 3-1. The names and stratigraphic extent of petroleum systems in the 1002 Area are also shown.

Source: USGS, 1998

across the 1002 Area. The 1998 USGS assessment distributes the potential of the 1002 Area among ten prospective plays, each an extension of a play type known to exist in neighboring petroleum-bearing areas and, on the basis of geological and geophysical data, thought to extend beneath the study area. While earlier assessments generally assumed uniform distribution of plays and resources across the coastal plain, the 1998 study concludes that the play type, the number of prospects, potential field size and potential technically recoverable resource are differentially distributed across the undeformed and deformed zones because of the differing geologic histories of the undeformed and deformed zones.

The undeformed zone, the northwestern one-third of the 1002 Area, is estimated to contain over 80 percent of the technically recoverable resource, between 3.4 and 10.2 BBO with a mean of 6.4 BBO. This area is defined as containing sedi-

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mentary rocks that are likely to host petroleum systems which have remained nearly undeformed since their deposition. Several intervals of the stratigraphic succession are prospective as exploration plays, but about two-thirds of the oil resource is predicted to occur in just one of them, the "Topset" play. Topset reservoirs would consist of sandstones and conglomerates deposited in river channels and deltaic settings on the ancient coastal plain and shoreline north of the growing Brooks Range. This play is analogous to the known offshore accumulations at Hammerhead and Kuvlum, among others.

Additional plays analyzed in the undeformed zone include the Turbidite, Wedge, Thomson, Undeformed Franklinian, and Kemik plays, most of which are analogous to known offshore and onshore reservoirs such as Flaxman Island, Badami, Point Thomson, and possibly Sourdough (Bird, 1999; Schuenemeyer, 1999). The undeformed zone also lies closer to existing infrastructure, a significant technical and economic advantage.

The deformed zone, the southeastern two-thirds of the 1002 Area, is estimated to contain a much smaller share of the recoverable oil resource between zero and 3.2 BBO with a mean of 1.2 BBO. There, sedimentary formations were strongly deformed by the folding and faulting that uplifted the mountain ranges just to the south. The more recent episodes of this deformation occurred after the initial stages of hydrocarbon generation and migration in the area, and much of the early-generated oil may have migrated through the area without encountering traps. Furthermore, some oil may have been detained in early-formed structures and stratigraphic traps, perhaps to be spilled as those traps were disrupted by younger deformation. Most of the resources in the deformed zone are thought to be structurally trapped in reservoir rocks deposited from erosion of the ancestral Brooks Range. The Thin-skinned Thrust-belt play is expected to contain the majority of oil resources in the deformed zone. However, the thermal history of the rocks in this part of the coastal plain makes it more prospective for natural gas than for oil.

Table 3-3

Estimates of technically recoverable oil in different zones of the assessment area, in billions of barrels

Study Area	95% probability	Mean	5% probability
Undeformed Zone	3.4	6.4	10.2
Deformed Zone	0	1.2	3.2

Source: USGS,1998

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F. Number and Size of Expected Fields

The 1998 USGS assessment provides statistics regarding the size distribution of technically recoverable oil and gas fields. The assessment concludes that the expected mean of 7.7 BBO recoverable for the 1002 Area, as a whole, will be distributed among approximately 35 accumulations. Note that this refers to all of the federal 1002 Area lands in the 1998 assessment area, but does not include the adjacent state waters or Native lands included in that assessment.

The undeformed portion of the 1002 Area is expected to have as many as 30 oil accumulations, with technically producible volumes ranging from 10 or 20 MMBO in small fields up to giant fields potentially able to produce 1 or 2 BBO. These volumes are akin to 2-4 fields the size of the North Slope's Alpine field. Most accumulations are expected to be in the 50 to 250 MMBO range, and most of the resource is likely to be in fields larger than about 100 MMBO.

The deformed zone is likely to contain only three to five oil fields, with most of the recoverable resource in reservoirs between 250 MMBO and 2 BBO in size. About 85 percent of the technically recoverable oil will occur in fields smaller than about 1 BBO.

The statistical distributions for number and size of gas fields are more difficult to translate into plain language, but indicate that most of the assessed recoverable non-associated gas is likely to occur in as few as one or two significant fields. The USGS Open File Report 98-34 offers a comprehensive overview of the methods used and results achieved in the 1998 study.

G. Economically Recoverable Volumes

The USGS defines *economically recoverable resources* as the portion of the technically recoverable resource for which the costs of finding, development, production, and transportation to market including a return to capital, can be recovered by production revenues at a given price. The fraction of *technically* recoverable oil that would be *economic* to produce depends on numerous technical and economic variables, including the value of oil; the finding costs; the productivity, depth, and thickness of the reservoir; the proximity to and cost of infrastructure; the cost of applicable technology; royalty payments; transportation tariffs; regulatory costs; and tax structure. Recent dramatic changes in oil prices make it clear that prospects must be evaluated across a range of prices and that, in a fluctuating oil market, the expectation for what is economically viable for any given price represents only a snapshot in time.

The proximity of the undeformed zone to existing infrastructure suggests that relatively smaller field sizes will be economically developable there. Today, satellite fields with recoverable reserves of less than 30 MMBO are being developed near the major North Slope fields. With investment in a pipeline from Badami to the Point Thomson Unit, just a few miles away from the 1002 Area,

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infrastructure will be available for development of comparable size fields. Availability of facilities in this area also make it possible to develop offshore discoveries.

Unless development proceeds east across the 1002 Area, the deformed zone's greater distance from now-existing infrastructure suggests that fields there will have to be larger than those in the undeformed zone if they are to prove commercial. Geological structures there are large and complex so the traps and the field sizes could be large. However, success in the undeformed zone to the west may provide the facilities to support development in the deformed zone and, as a result, fields smaller than otherwise required might eventually prove economical in the deformed zone.

1. 1998 – USGS – ANWR 1002 Petroleum Assessment

According to USGS predictions of accumulation sizes, at least 80 percent of the anticipated technically recoverable oil would exist in fields larger than about 100 MMBO. More than 60 percent of the recoverable oil resource may lie in accumulations larger than about 260 MMBO. Many discoveries of this magnitude have now been developed in other areas of the onshore North Slope. The 1998 USGS assessment did consider the sensitivity of ANWR production to crude oil price. Economics become positive for large accumulations at about $13 per barrel. Smaller fields might not be economic at prices less than $24 per barrel. At a market price of $30 per barrel in 1996 dollars (the equivalent of $44.51 in 2013 dollars according to the U.S. Bureau of Labor Statistics CIP Inflation Calculator) the assessment suggests that virtually all technically recoverable oil is also economically recoverable.

2. 2005 – USGS – Economic Update

In a 2005 economic update to the 1998 resource assessment, the USGS developed full-cycle cost functions that predict the volume of oil that is economically recoverable at a given market price in 2003 dollars (Attanasi, 2005a). These functions are based on a host of assumptions, and the uncertainty of the model is not easily quantified. However, many of the assumptions are readily justifiable, e.g., that development would use highly efficient horizontal production wells, that larger fields will shoulder the economic burden in the initial stages of development, and that clusters of smaller nearby accumulations (satellites) will become economic to develop later on. Estimates for both the entire study area (the 1002 Area, Native lands, and State lands within the 3 mile limit) as well as only the federally-controlled 1002 Area were developed.

Among the economic update's key findings were that at $30 per barrel 70 to 82 percent of the technically recoverable oil in the federally controlled 1002 Area could be economically produced. Based on the mean estimate of 7.7 BBO of technically recoverable oil in this area, these percentages translate to approximately 5.4 to 6.3 BBO of economically recoverable oil. Although potentially distributed

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in dozens of accumulations, these volumes are the equivalents of one and one-half to two times the total oil recoverable from the Kuparuk River field, or about one-third to one-half that of the greater Prudhoe Bay field.

Additionally, in the entire assessment area including Native and State interests, 73 to 82 percent of the technically recoverable oil could be economically discovered, developed, produced, and transported to market. This fraction was estimated to increase to more than 92 percent at prices of $55 per barrel. Based on the mean estimate of 10.4 BBO in the study area, the model predicted 9.5 BBO could economically be developed in this scenario.

3. 2012 – State of Alaska – Economic Analysis

In 2012, ADNR-DO&G created models to estimate economically recoverable volumes. Unlike the USGS estimates, which were evaluated with time independent incremental cost curves, ADNR-DO&G's scenario-based approach tied the economic estimates to specific time frames and used revenue and production estimates that are readily available. Also, unlike the previous USGS estimates, ADNR-DO&G's analysis incorporated other factors such as the possibility of high transportation tariffs through TAPS, which fluctuate based on the pipeline's cumulative throughput from all sources.

Using the same field size and distribution estimates from the 1998 USGS assessment and ADNR-DO&G's time specific scenario, ADNR-DO&G's model updated the different costs incurred in exploration and field development and increased the range of prices per barrel to reflect more recent ranges of oil price. This updated analysis by ADNR-DO&G estimates that 90 percent of the known technically recoverable oil would be economically recoverable at $100 per barrel. In this scenario, only fields less than 100 MMBO are uneconomic. One hundred percent of the technically recoverable oil could be produced economically if the price was $165 per barrel. This analysis assumes that the largest of the 1002 Area's fields would be the first to be developed, followed by successively smaller fields being developed every couple of years benefitting from the existing infrastructure in place.

Timing is also an important aspect of forecasting economically recoverable volumes. A 100 MMBO field starting up after 2045 would need a substantially higher oil price to be economically viable, given the increases that are expected in TAPS tariffs at that time, or significant infrastructure investment prior to development.

H. Economically Recoverable Production Volumes

In addition to the previous discussion of OIP, technically recoverable volumes, and economically recoverable volumes, a metric worth considering is the production volumes per day at different field development levels through the expected life of each field. In addition to the importance of production volume in determin-

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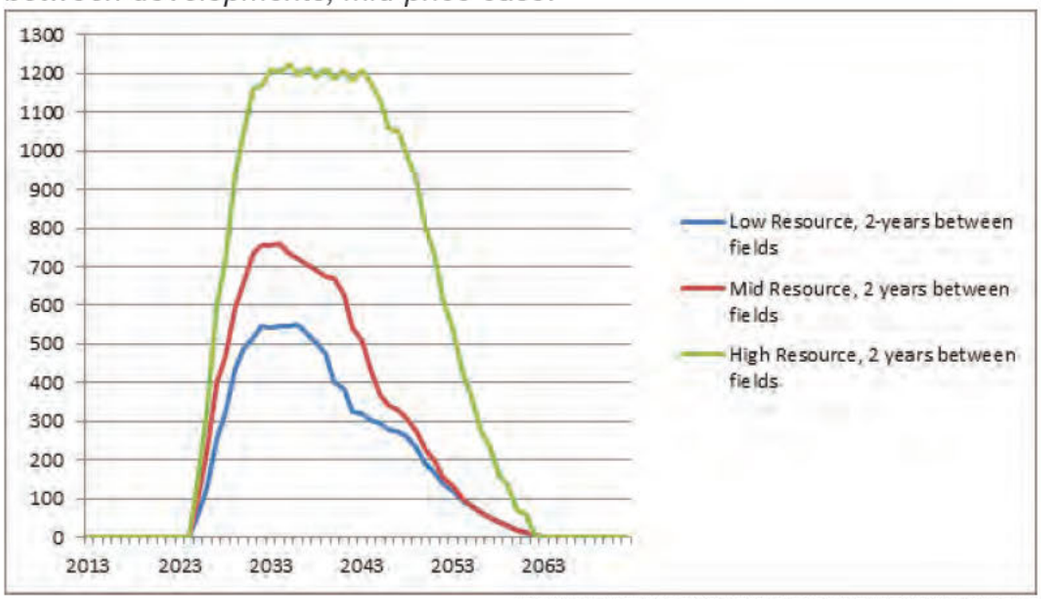
Figure 3-5

Production Forecast from the 1002 Area in thousands of barrels a day. Comparison of the Low, Mid, and High Resource EIA cases with 2 years between developments, mid-price case.



Source: CBO 2012; EIA 2008; ADNR-DO&G 2012

ing revenue streams from royalties and taxes, which are discussed in Chapter 7, volumes contribute significantly to the cost to produce and transport the product. In particular, with the cost of running and maintaining TAPS being relatively constant, the volume of oil throughput significantly affects the price per barrel tariff.

Production curves for individual oil wells follow a similar pattern of rapid growth, peak, and gradual, steady decline. Full field development typically commences with development of the largest known pool and then smaller satellite fields are brought online as the technology and economic conditions permit.

In 2012, the Congressional Budget Office (CBO) issued a report analyzing potential budgetary effects of immediately opening most federal lands to oil and gas leasing (CBO, 2012). Revenues from opening ANWR's 1002 Area were examined based on the technically recoverable reserves estimated in the 1998 USGS assessment and a 2008 Energy Information Administration (EIA) scenario in which production would commence 10 years after leasing was permitted to occur, larger fields would be developed before smaller fields, and with a new field coming on line every two years (EIA, 2008). The CBO assessed varying production rates based on whether the high, mid-case, or low resource assessment by the 1998 USGS comes closest to being true.

Using this CBO/EIA scenario as a model, ADNR-DO&G developed a series of economically recoverable production curves to illustrate low, medium, and high

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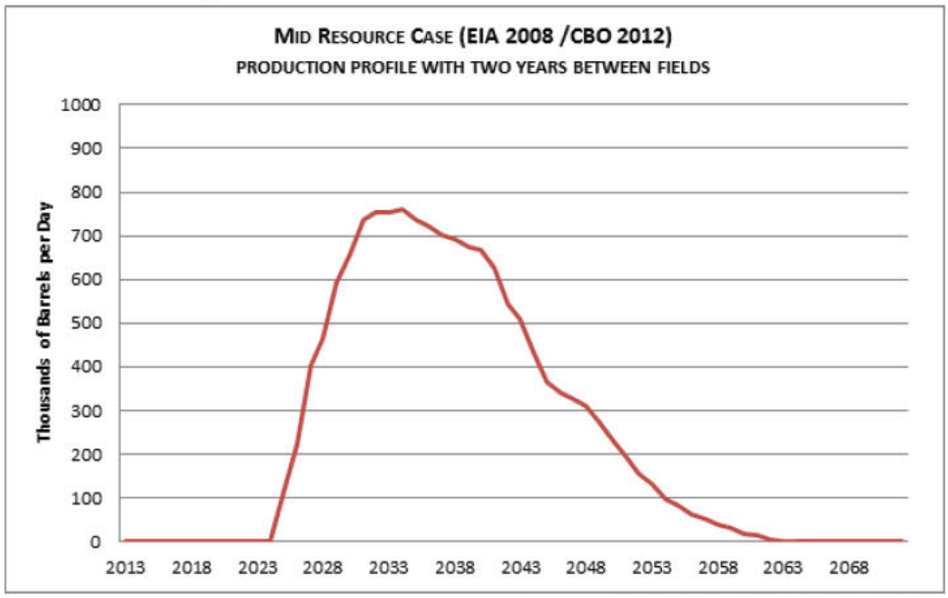
Figure 3-6

Mid Resource Case production forecast from the 1002 Area in thousands of barrels a day.



Source: CBO 2012; EIA 2008; ADNR-DO&G 2012

volume estimates at a $100 per barrel price. The high volume scenario estimates production peaking in 2035 at 1.24 MMBO per day. The medium volume scenario estimates a production peak in 2034 at 760,000 barrels per day. The low volume scenario estimates a peak level of 550,000 barrels per day in 2036. In each of these scenarios, economically viable production ceases in the early 2060s.

The production peak for the 1002 area of ANWR in the Mid Resource Case occurs in the 10th year of production. At 760,000 barrels a day, this peak production exceeds current ANS production levels, and is over twice the production volumes expected from current North Slope fields at the time the peak production level is reached.

Based on the Alaska Department of Revenue's (ADOR) Fall 2012 Revenue Sources Book (RSB), Alaska North Slope production is forecasted to decrease nearly 40 percent in the next 10 years (ADOR, 2012a). Extrapolating a 5 percent annual decline, TAPS throughput would be approximately 300,000 barrels per day by 2025.

Maintaining TAPS throughput at minimum levels is critically important for the pipeline's structural integrity and the economics of transporting oil from Alaska's North Slope. If ANWR production were to come on line in 2025, it would add throughput to TAPS at a time when low flow issues would be a major concern, and could ultimately increase flow to levels not seen since the early 2000s.

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Figure 3-7

Production forecast from the 1002 Area using CBO mid-case scenario, in thousands of barrels per day, compared with existing production forecasts from North Slope fields.

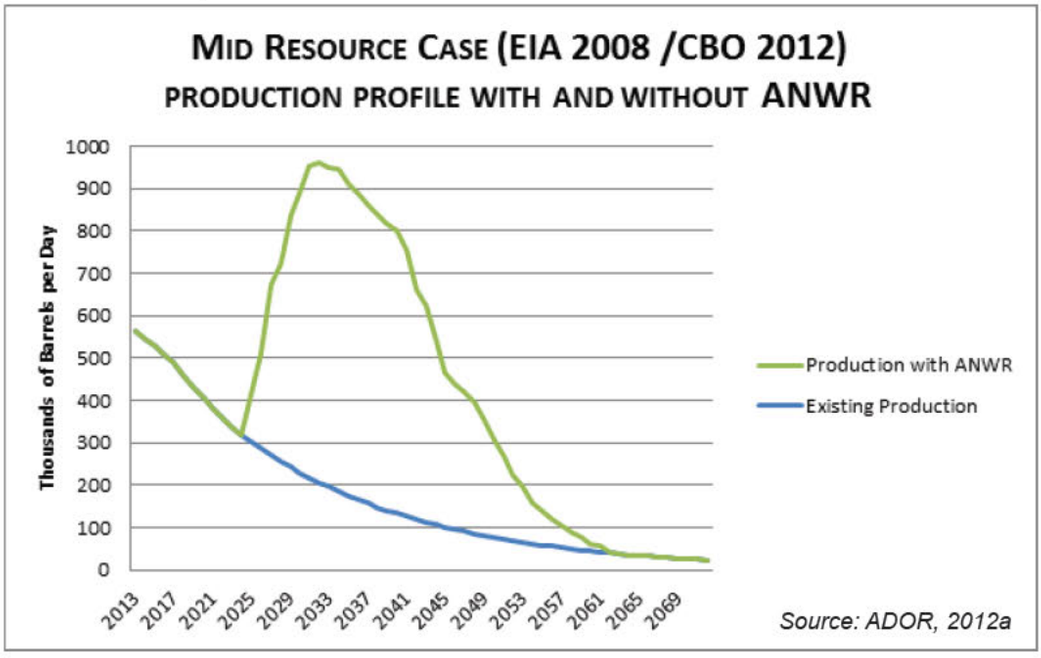
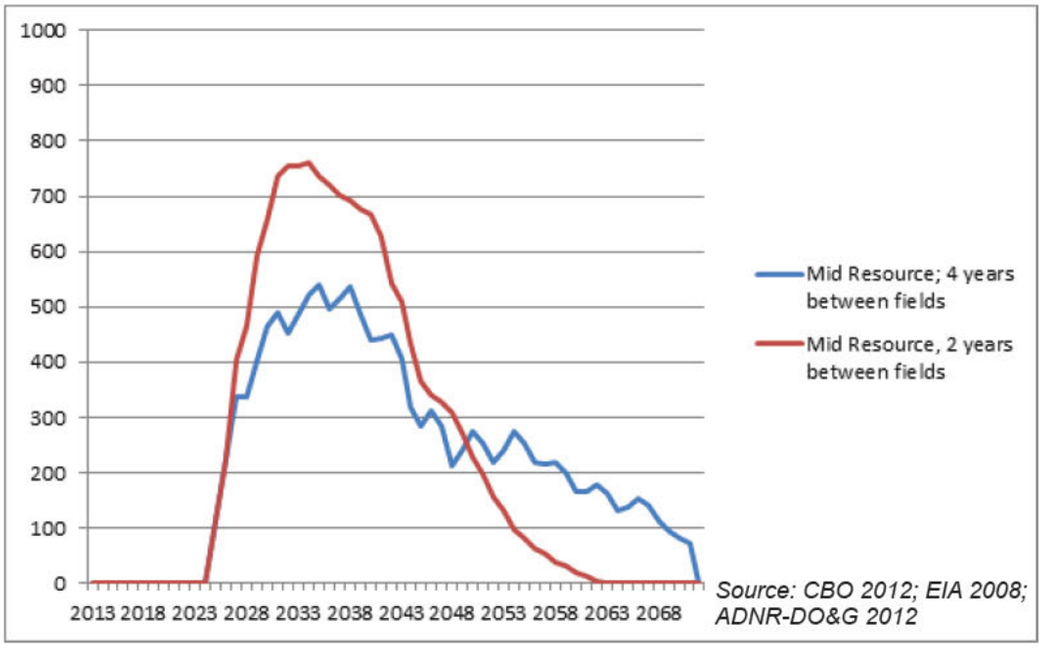


Figure 3-8

ANWR 1002 Area production forecast in thousands of barrels a day. Comparison of the Mid Resource EIA cases with a different assumption about years between fields.



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Of course, the amount of oil produced from the 1002 Area will vary from the CBO medium case volume based on variables such as the actual resource base, the years between field start-ups, and oil prices. However, the resource base cannot even be established until modern practices such as 3-D seismic surveys and exploration wells are permitted to occur in this area.

If field start-ups are spaced differently than the two year time span estimated by the CBO, the yearly production volumes at a medium resource case would be different, as would the span of years of production above threshold levels for TAPS. For example, if a new field was brought online every four years instead of every two years, the peak production would likely not surpass 600,000 barrels per day, but would maintain a production volume of above 200,000 per day for nearly 20 years beyond the field-every-two-years CBO scenario.

I. Natural Gas

In addition to vast oil resources predicted in the 1998 USGS assessment described above, non-associated natural gas deposits within ANWR could also prove to be significant. In the entire assessment area, including Native and State interests, the estimated volume of gas ranged from zero to 14.5 trillion cubic feet (TCF) with a mean of 5.1 TCF. Considering only the 1002 Area, estimates ranged from zero to 13.4 TCF, with a mean of 4.6 TCF. Technically recoverable volumes of natural gas in the 1002 Area were estimated between zero and 10.0 TCF, with a mean of 3.5 TCF. Unlike the majority of the predicted oil resources, most of the natural gas reserves are expected to occur in the deformed zone in the eastern portion of the 1002 Area.

Table 3-4

Estimates of technically recoverable gas in different zones of the assessment area, in trillion cubic feet (TCF)

Study Area	95% probability	Mean probability	5% probability
Entire Assessment Area	0	5.1	14.5
Federal 1002 Only	0	4.6	13.4
Federal 1002 Only, technically recoverable	0	3.5	10.0

Source: USGS,1998

At the time of the 1998 assessment, non-associated gas was not considered to be a likely exploration objective, and the resource was not as rigorously evaluated by the USGS as was the oil resource. The 2005 economic analyses also developed by the USGS did not evaluate non-associated natural gas because those resources were not expected to be targets for exploration in the near future.

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Many things have changed since the 1998 and 2005 assessments. Natural gas has become a more environmentally and economically desirable fuel objective. Additionally, extraction technology for natural gas has advanced considerably in recent years. Consequently, the 1998 estimates for both in-place and technically recoverable gas resources may have resulted in undeservedly conservative values. From the economic perspective, changes in demand, technology, supply and transportation potential all suggest that a refreshed look at natural gas potential is needed.

1. Use of Natural Gas on Site

To maximize oil recovery, natural gas, water, and other miscible fluids are often injected to maintain formation pressure in producing fields. In addition to the benefit of enhanced oil recovery (EOR), produced natural gas is put to beneficial use instead of contributing to the air emissions that would result from flaring excess gas. The use of natural gas in enhanced oil recovery is a widely adopted practice on Alaska's North Slope, particularly in aging fields where production levels are in decline. Enhanced oil recovery using natural gas collected during oil production can decrease the number of wells (and their associated waste) by increasing the efficiency of existing well production.

Natural gas extracted at other existing oil production facilities is also used on site to power operations and provide fuel for living and working quarters.

2. Commercializing Alaska Natural Gas

There are currently two state-backed efforts to commercialize the North Slope's immense natural gas resources.

The first effort began in 2007 when the Alaska Legislature passed the Alaska Gasline Inducement Act (AGIA) to expedite construction of a natural gas pipeline and facilitate gas commercialization. AGIA created a state license for a pipeline and offered the licensee substantial financial incentives to facilitate project development, including up to $500,000,000 in matching funds during the initial planning and permitting stages when a development project is most at risk.

In August 2008, the State of Alaska issued the AGIA license to TransCanada, which formed the Alaska Pipeline Project in 2010 with ExxonMobil. The project was originally focused on supplying North America, but shale gas development has driven gas prices down and dramatically increased supply in these markets. Due to this change, TransCanada and the North Slope producers has shifted their focus to LNG exports. Progress was made on this option throughout 2012 and a project concept that pursues LNG exports was selected in early 2013.

In 2010, the Alaska Legislature provided start-up money for an instate gasline developed by the Alaska Gasline Development Corporation (AGDC) to accelerate bringing Alaska's gas to Alaskans first. In 2013, the Legislature passed legislation that authorized AGDC to act as a stand-alone corporation and provided it with an additional $350 million to advance work on a pipeline.

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Ultimately, there may be opportunities for these two efforts to merge and consolidate Alaska's gas commercialization efforts. They both continue to make important progress, and demonstrate the serious commitment the State has made to this effort. Infrastructure that supports gas commercialization will continue to be a critical priority for Alaska in the future.

J. Conclusion

The quantity of oil and gas that lies beneath the tundra of the ANWR 1002 Area, and how much is technically and economically recoverable has been speculatively estimated for years. These estimates are primarily based on seismic data acquired in the 1980s, almost 30 years ago. Despite repeated sophisticated analyses by government and industry geoscientists, only additional and more advanced seismic surveys and an exploration drilling program will reveal what lies beneath the permafrost. The 3-by-6 mile seismic grid acquired during the assessment phase in the 1980s served its initial reconnaissance purpose, but prospects of substantial size may have been missed by such a large grid.

Analysis of ANWR's resource potential may slightly improve with science over time, while it will greatly improve with exploration. Conclusively knowing the oil and gas resource potentially available is in the public's interest and is consistent with the intent of Congress expressed in ANILCA and NEPA.

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Chapter 4
Oil and Gas Exploration History and Technological Advances

A. Introduction

Oil and gas exploration has occurred in many areas throughout the state of Alaska. The first exploration wells were drilled more than 100 years ago. Exploration wells have been drilled offshore and onshore; on federal, state, and private lands; on man-made islands and bridges; from ice pads and causeways; and in sensitive habitat, subsistence resource areas, and recreational areas. On Alaska's North Slope, the oil and gas industry has become adept at minimizing environmental impacts, conducting winter exploration on ice roads and pads, and ensuring non-interference with subsistence resources and endangered or threatened species and their habitats.

Oil and gas resources are accessed, explored, and developed over many years. The lease-related activities proceed in phases from leasing to exploration, development and production, transportation, and, in some cases, storage. Each phase's activities depend on the initiation or completion of the preceding phase. While geophysical exploration activities can generally be conducted with or without an issued oil and gas lease, exploration activities in the ANWR 1002 Area can only be authorized by Congress. This section is designed to assist in describing existing and advancing methods currently used in Arctic exploration.

The objectives of exploration are to obtain and evaluate information about petroleum potential, the subsurface geology, and the geographic extent of potential and recoverable resources. Historical exploration activities can inform the locations and activities to be considered in future exploration efforts.

1. Historical Exploration of ANWR

Historical exploration was fully detailed in Chapter 3, with supporting maps. This section discusses the specifics of how the historical exploration was conducted. Almost 30 years ago, 2-D seismic was utilized and an exploratory well drilled safely and without significant or lasting environmental impact. Today, under more stringent regulations and with new advanced technology, exploration of the 1002 Area poses minimal risk, but offers the substantial benefit of obtaining a thorough resource assessment of the 1002 Area's marginally known and highly anticipated oil and gas reserves.

Oil and gas exploration in ANWR was authorized under ANILCA Section 1002(a) utilizing practices that would avoid significant adverse effects on fish, wildlife, and other resources (Clough, et al., USDOI 1987). ANILCA, Section 1002(h)(3) requires identification of areas within the coastal plain that have oil

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and gas production potential; an estimate of the volume of oil and gas concerned; a description of the fish and wildlife, their habitats, and other resources in the area; and an evaluation of the adverse effects that the carrying out of further exploration for, and the production of, oil and gas within such areas will have on the resources described above.

Historical ANWR exploration included surface geological and geophysical work, but not exploratory drilling. From 1983-85, exploration efforts using field observation, surface measurements, mapping and collection of rock samples were allowed, with access by helicopters to reduce surface impacts. Additional geochemistry, biostratigraphic and geochronologic age control, porosity and permeability were analyzed from the sections sampled. This reconnaissance effort made important advances, but only exploratory drilling can accurately establish how much producible oil the ANWR coastal plain might provide.

2. Typical Exploration Activities

During the exploration phase, activities are conducted to obtain information about the petroleum potential of an area by examining surface geology, researching data from existing wells, and performing environmental assessments. Operators may conduct geophysical surveys and drill exploratory wells, after obtaining the proper permits. The surface analyses include the study of surface topography and natural surface features, and the near-surface structures revealed by examining and mapping nearby exposed rock layers. Geophysical surveys, primarily seismic, help reveal the characteristics of the subsurface geology. Geophysical exploration and exploration drilling can both be conducted in winter without lasting impact to ANWR's surface resources.

3. Exploration Methods

The scope and scale of oil and gas exploration activities depend on several factors. Understanding the subsurface stratigraphy assists in prioritizing zones of interest. The geologic setting is analyzed for structural and stratigraphic traps. Depth, extent, and accessibility are estimated and maximized for best return on investment. The identification of petroleum traps, porosity, permeability, and geography direct the extent of the exploration program. During the early stages of exploration, resources are evaluated using non-invasive techniques with topographical maps, aerial photography, sound waves, 3-D projections and other tools to estimate the shape, extent and character of the oil and gas resources (BP, 2012). Environmental studies are conducted, data compiled and evaluated, and resource mapping initiated. Planning incorporates minimizing impacts balanced with resource access viability.

The current and emerging exploration practices commonly include seismic surveys, resource delineation and modeling, construction of temporary ice roads, drilling exploration wells and reservoir testing.

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4. Activities Subsequent to Exploration

Follow-up activities and the timing of subsequent development will depend upon where the petroleum resources are located, and their location with respect to delineation, access, processing, storage, and transportation systems. Discovery of the resource may not prompt development until much later. It can take up to ten years to develop an oil field after a commercially viable petroleum resource is discovered. Economic potential, existing or lack of infrastructure, industry priorities, and competitive risks combine to impact the level of interest and the length of the development timeline on lands in Alaska.

B. Geophysical Exploration Programs

1. Seismic Surveys

The most common type of geophysical exploration is the seismic survey, designed to measure the amplitude and timing of reflected energy. At a survey location, a pulse of acoustic energy is emitted into the subsurface and reflected or refracted seismic waves are recorded at the surface by vibration-sensitive geophones and/or hydrophones. Different rock layers beneath the surface reflect different amplitudes and velocities due to differing densities. Cables or nodes transmit signals to a processing center, where the data is analyzed and recorded. The characteristics of the measured waves provide data to interpret the subsurface formation structures. This process results in a unique seismic profile that can be analyzed by geophysicists to interpret subsurface structures and petroleum potential. Both 2-dimensional (2-D) and 3-dimensional (3-D) data can be generated. Geophysical, magnetic, electric, gravitational, thermal, and elasticity data are used to deduce the elastic properties of the subsurface materials in order to delineate formations for potential additional exploration. (OilandgasIQ, 2012; E&P/UNEP, 1997).

Photo: ADNR-DO&G

Seismic train in the field, Prudhoe Bay Unit.

Seismic surveys are typically conducted by geophysical exploration companies under contract to leaseholders, or as multi-client and speculative surveys run directly by the seismic contractors. Seismic source and receiver locations are surveyed using GPS (Global Positioning Systems) and follow predesigned patterns. For land or ice 2-D data, the receivers and sources lie in a straight line (as topographic and ice conditions permit), and can extend for many tens of miles. 3-D data is collected over a much wider swath, and can cover tens to hundreds

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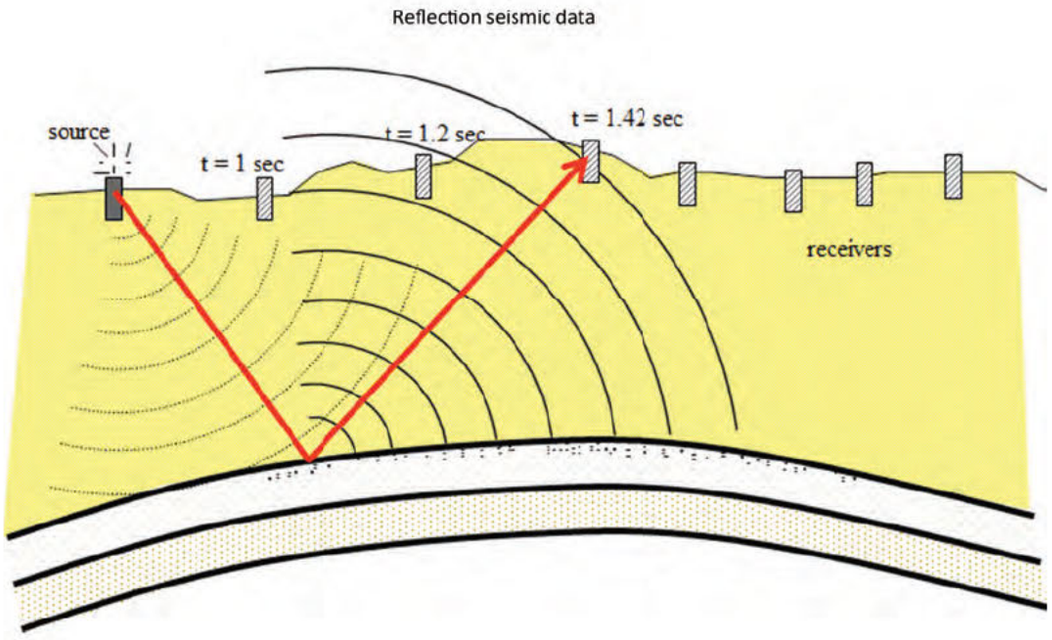
Figure 4-1

Reflection seismic data use sound energy to illuminate the subsurface of the earth.



Source: ADNR-DO&G 2012

of square miles. 3-D seismic "shoots" can have greater surface impacts than 2-D surveys (Gelb, et al., 2006). 2-D seismic programs also usually have fewer crew members and employ much less equipment than 3-D programs.

Seismic data can be collected after the ground is frozen and covered with a protective snow layer. Seismic in shallow water can be collected on the ice in winter, or by using bottom cables in the summer months. Ice-based seismic programs are dependent on ice thickness and stability. Collecting data in the winter months may minimize effects to fish and wildlife habitats, and avoids conflicts with migrating marine mammals.

Multiple seismic sources can be used on land or ice surveys, but vibrator trucks (or, on the tundra, rolligons) are the most common sources using the vibroseis method. A group of three to five heavy vibrator trucks lower and vibrate heavy pads or plates along a series of lines at measured intervals across the study area (E&P/UNEP, 1997). The entire weight of the truck rests on the plate as it puts energy of continuously varying frequency into the ground. The vibration typically lasts 4 to 16 seconds. This energy source is less destructive than an explosive source, where all of the energy is imparted in an instant. Less commonly, air guns can be lowered through holes drilled in the ice to provide the acoustic energy source.

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Another seismic method uses small explosive charges placed in narrow holes drilled to a depth of about three to 90 feet. Similar to the vibroseis and air gun methodologies, the explosive blasts produce acoustic waves that are measured and recorded (E&P/UNEP, 1997).

2. Shallow Seismic Reflection

The use of high-resolution, shallow seismic methodology analyzes subsurface depths of less than 1,500 feet depth. It can be used for characterization of unconsolidated sediments for determination of the fluid and mechanical properties of field sites. The data analyses include interpretation to account for interference from groundroll and frequency filtering, and is currently an underdeveloped technology (Bachrach, 1999, citing to Steeples, et al., 1997). High-resolution shallow seismic surveys are specifically designed to image the bottom of the water body and very shallow geology. These are used to look for drilling hazards such as faulting and shallow gas deposits. This methodology employs a lower energy seismic source and a shorter cable than surveys targeting deeper strata.

3. Geophysical Techniques

Additional geophysical techniques can be used to gather specific information about very near surface geology, which is usually done to identify drilling hazards. They include side-scan sonar, fathometer recordings and shallow coring programs.

Geophysical surveys can be conducted without long-term effects. Before proceeding with geophysical exploration, companies must acquire one or more permits from the federal or state agencies, depending on the timing and extent of the proposed activity. Regulators evaluate each permit and may issue an authorization relating to the specifics of the proposed project. Restrictions on geophysical exploration permits depend on the duration, location, timing, and intensity of the project relative to the potential effects the activity may have on fish and wildlife resources or human use in the area.

Seismic surveys provide key information for evaluating oil and gas plays with few impacts to surrounding resources. The process gives geologists and geoscientists important data with which to begin to define a reservoir and identify exploration well positioning. Surveys can be planned to reduce impacts, and may be conducted during times when most wildlife that would be impacted are absent or present in lesser numbers. It was noted in USDOI's 1987 1002(h) report that "proper routing, timing, and sufficient snow cover can effectively reduce and limit adverse environmental impacts" (Clough, et al., USDOI 1987).

Seismic technology has improved vastly since USDOI's 1987 report to the point where seismic surveys conducted in the winter can be conducted without large negative impacts to habitats, wildlife, and fish. Better designed 2-D and 3-D surveys and improved models allow for exploration in areas with little data and limited access (Gelb, et al., 2006).

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Photo: ADNR-DO&G

Ice road, North Slope, left. Rollagon bag and drive roller, right.

4. Logistics for Geophysical and Ground Surveys

The lands of the coastal plain of ANWR are far from major transportation services and population centers. ANWR's remote location and Arctic climate can create challenges for transportation, staging, and personnel management. Exploration operations may depend upon the success of transport, maintenance and mobilization of most of the needed personnel, equipment and supplies. During ice free months, marine transport, such as sealifts, may be required to move heavy equipment and large facilities to the selected exploration sites.

Air transport is available to all North Slope communities and industry sites, but may be greatly influenced by prevailing weather conditions. Fixed-wing aircraft and helicopters can provide access to locations in ANWR from the appropriate community or industry sites. This would provide access for seismic surveys, surface-based surveys of geology, wildlife, fish, subsistence, cultural resources and other related surface information. Airstrips and localized helicopter pads are not found throughout ANWR, which may reduce air transport opportunities throughout ANWR.

The Dalton Highway extends from north of Fairbanks, Alaska, to Deadhorse, near Prudhoe Bay. This is open year round, and supports heavy truck cargo transport on the road system. Staging of exploration equipment on the North Slope is possible, with connections by seasonal ice roads, and helicopter transport within ANWR.

Overland transportation is available from late December to May, weather permitting. Low-ground pressure vehicle (LPV) (rolligons, tracked Steigers, tracked and runner sleds) can travel on frozen tundra (BLM, 2006a).

Staging can be established for seasonal or year-round use, as appropriate. Personnel can use staged housing, and facilities can store supplies and fuel. A typical staging ice pad would be approximately 300 feet by 300 feet (est. 2 acres) (BLM, 2006a). Coastal docks could augment capabilities in the future during ice free seasons, if and when built. Kaktovik is located on the coast contiguous with ANWR, and has barge and shallow vessel support facilities (ADEC SPAR, 2004). There are currently no docks in ANWR.

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C. Exploration Drilling

Exploration drilling often occurs after seismic surveys are conducted, when the interpretation of the seismic data is incorporated with all available geologic data and indicates possible oil and gas prospects. The drilling process is the only method to confirm the presence of petroleum hydrocarbons, and the thickness and pressures of the reservoir formations (E&P/UNEP, 1997). Exploration drilling, which proceeds only after obtaining the appropriate permits, is the only way to determine whether a prospect contains quantities of oil or gas sufficient to support commercially viable development and production.

Operations to explore require equipment, materials, and may require custom designs. Drilling rigs, drill pipe, personnel camps, and oil drilling supplies, for example, are transported to the exploration sites. The transport of exploration drilling rigs is complex, and custom Arctic drilling programs require added mitigations to prevent surface and habitat impacts. Drilling rigs and support equipment mobilize as modules, and in some cases are deployed months ahead for Arctic field applications (E&P/UNEP, 1997).

During winter operations, supplies, fuel, equipment and personnel may be transported over snow trails or ice roads, or by aircraft. Ice airstrips can be constructed on frozen ground or lake surfaces with a runway that may extend onto approved frozen tundra. Mobilization will occur when surface conditions are suitable to reduce and minimize surface impacts.

Ground and helicopter transport options are critical for accessing remote sites where surface transport options are limited (NPC, 2011). Crew changes necessitate transport options to match shift change intervals, and may be dependent upon air transport methods due to remoteness of sites (BLM, 2012a).

1. Exploration Drilling Methods

Drilling operations collect and evaluate well logs, core samples, cuttings, and a variety of other data. A well log is a record of one or more physical measurements as a function of depth in a borehole, and is achieved by lowering measuring instruments into the well bore. Many types of well logs can now be recorded while drilling. Cores may be cut at various intervals so that geologists and engineers can examine and analyze samples of the sequences of rock that are being drilled.

The drilling process generally proceeds as follows :

- Large diameter steel pipe (conductor casing) is driven or bored tens or hundreds of feet into unconsolidated surficial deposits to provide a stable foundation for deeper drilling.
- A drill bit, connected to the end of the drill pipe, rotates and drills a hole through the rock formations below the surface.
- After a prescribed depth of drilling, the hole is cleaned up and surface

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casing, a smaller diameter steel pipe, is lowered into the hole and cemented in place. This keeps the hole from caving in, seals off rock formations, seals the well bore from groundwater, and provides a conduit from the bottom of the hole to the drilling rig.

- After surface casing is set, drilling continues until the objective formation or intermediate casing depth is reached. An intermediate casing string may be needed to allow drilling to deeper objectives, or in wells that encounter unstable formations or high subsurface fluid pressures.
- Excess drilling mud that cannot be reused is stored onsite, and later transported and disposed in an approved injection well.
- The well is typically evaluated by further logging and/or testing to interpret the depth, thickness, and other characteristics of the stratigraphic layers drilled, the type of reservoir fluids encountered, and flow rates obtainable from the well.
- The exploration well is either temporarily suspended or is plugged and abandoned.
- The drilling locations will be cleaned up to meet federal and state requirements.
- The drilling rig is mobilized off the drilling location.

The drilling location is selected to provide access to the prospect and, if possible, is located to minimize the surface area that may have to be cleared or impacted. Temporary winter roads are often constructed of ice and snow, with longer-term roads constructed of sand and gravel placed on a liner for later removal, if necessary.

A typical exploration drilling pad is made of ice placed over a liner and is about 500 feet by 500 feet (est. 5.7 acres) (BLM, 2006a). The pad supports the drill rig, a fuel storage area if necessary, and a camp for workers. If possible, an operator will use nearby existing facilities for housing and feeding its crew. If facilities are not available, a temporary camp of trailers on skids may be placed on the pad. Enough fuel is stored on-site to satisfy the operation's short-term needs. The fuel storage area is a diked gravel pad lined with an 80 mil synthetic membrane to meet regulatory guidelines. Additional amounts of fuel may be stored at the nearest existing facility for transport to the drilling area as needed (Chevron, 1991). After completion of drilling operations, equipment and materials can be removed over ice roads or snow trails for storage in long term staging areas.

An exploratory drilling operation generates drilling cuttings, or fragments of rock cut by the drill bit. These fragments are carried up from the drill bit by the mud pumped into the well (Van Dyke, 1997). Gas, formation water, fluids, and additives used in the drilling process are also produced from drilling operations. The fluids pumped down the well are called "mud" and are naturally occurring clays with small amounts of biologically inert products. Different formulations

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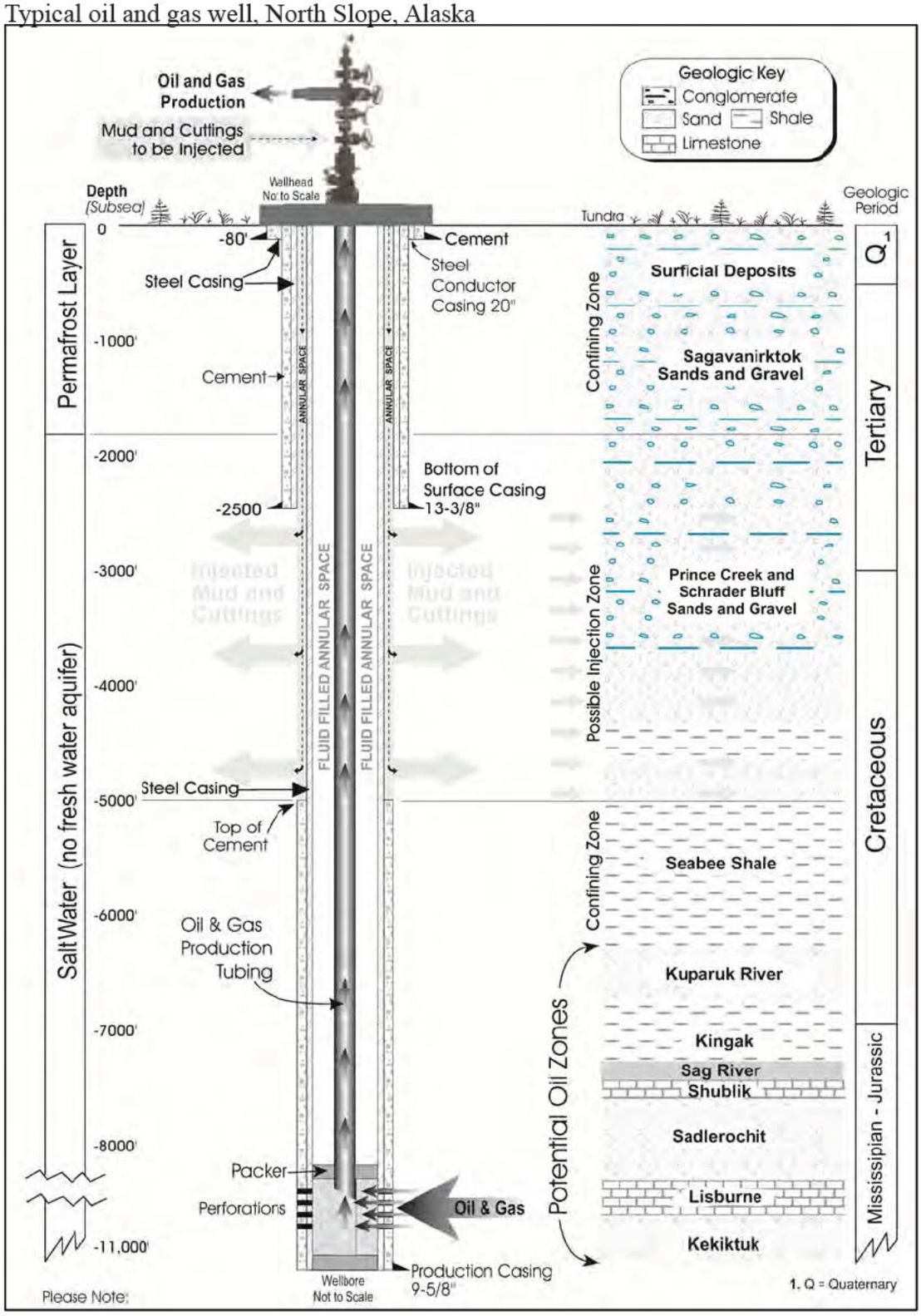
Figure 4-2

Typical oil and gas well, North Slope, Alaska



Source: State of Alaska, ADNR, Division of Oil and Gas, 2011, North Slope Foothills Areawide Oil and Gas Lease Sales, Final Finding of the Director, Page 6-14.

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of mud are used to meet the various conditions encountered in the well. Chemicals may be added to maximize the effectiveness of drilling and casing. Drilling additives may include petroleum or other organic compounds to modify fluid characteristics during drilling (Lapham, et al., 1997). Additives may be aromatic hydrocarbons, emulsifiers, and metals (Woodward, et al., 1988). Oil-based muds and synthetic-based muds may also be used, depending on the well depth, well diameter, and subsurface formations (NRC,1983; Veil, et al., 1996). Muds are used to cool and lubricate the drilling bit, to prevent the drill pipe from sticking to the sides of the hole, to facilitate the drilling action, to carry cuttings within the well bore to the surface, to seal off cracks in down-hole formations to prevent the flow of drilling fluids into these formations, and to maintain reservoir pressure.

During drilling, produced water comes to the surface mixed with oil and gas, and must be separated before further refining. Drilling muds, fluids, and cuttings produced from the well are separated and disposed of according to federal or state requirements.

Federal and state governments regulate oil and gas wastes under the Clean Water Act (CWA), Safe Drinking Water Act (SDWA), Clean Air Act (CAA) and National Environmental Policy Act (NEPA). The BLM and the Environmental Protection Agency (EPA) have regulations, rules and guidance that mandate practices and standards to address waste management during drilling operations. Administration of many of these programs has been delegated to State of Alaska agencies; for example, the Alaska Department of Environmental Conservation has primacy on Clean Water Act compliance.

For example, during exploration well drilling, residual muds and cuttings are stored on-site in holding tanks. They are then hauled to an approved solid waste disposal site or are reinjected into the subsurface at an approved injection well, in accordance with the Alaska Oil and Gas Conservation Commission's (AOGCC) regulations at 20 AAC 25.080 and 20 AAC 25.252. The preferred and most common method for disposal of drilling muds and cuttings is by underground injection into a Class II injection well. Disposal of mud, cuttings, and other effluent from the oil and gas industry is regulated by the National Pollutant Discharge Elimination System (NPDES), administered by the Alaska Department of Environmental Conservation (APDES), and the EPA's Underground Injection Control program (UIC), administered by the Alaska Oil and Gas Conservation Commission under AS 31.05 and 20 AAC 25.

2. Current and Advancing Exploration Technologies

Current technologies are providing drill pad options that can effectively reduce environmental impacts. Drill pads have decreased in size over time. Deviated (directional) drilling is used to reach targets offset from surface drilling pads. Exploration wells can be directionally drilled because of a lack of suitable surface locations directly overlying exploration targets. Directional drilling technology enables the driller to steer the drill stem and bit to a desired bottom hole location.

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Directional wells initially are drilled straight down to a predetermined depth and then gradually curved at different points to penetrate one or more given target reservoirs (Van Dyke, 1997). Directional drilling can also allow multiple production and injection wells to be drilled from a single surface location such as a gravel pad or offshore production platform, thus minimizing cost and the surface impact of oil and gas drilling, production, and transportation facilities. Directional drilling can be used to reach a target located beneath an environmentally sensitive area and may offer an economical way to develop offshore oil fields from onshore facilities.

Multi-season ice-based roads and ice pads are emerging as possible technologies. While still in the testing phase for use in long-term oil and gas operations, they are appropriate for winter single-season or multi-season exploratory drilling. Some multi-year ice pads could be used during a subsequent winter season, and require insulation to prevent melting during the summer months. More information about oil and gas ice-based facilities is provided below.

3. Exploration Facilities

Facilities are needed to support exploration activities. Access and supply management are critical aspects for successful exploration. Northern Alaska is both remote and challenging for many components of exploration activities, including building and maintaining roads, water management, and waste disposal.

Exploration well sites will be located on ice pads, which may need to accommodate multiple drilling rigs, personnel camps, fuel storage, and power generation facilities. Ice airstrips can also be constructed to supply remote sites. Water and ice aggregate for ice infrastructure is withdrawn from approved lakes and ground water sources, as necessary. (BLM, 2006a).

4. Ice-Based Facilities

Seismic work and exploratory drilling can be conducted on ice-based infrastructure. Winter conditions facilitate tundra travel and construction and use of ice and snow roads. Ice spur roads will be built to connect drilling and staging pads and authorized water sources (BLM, 2006a). Ice airstrips and ice pad construction can provide seasonal routes and support for heavy equipment, supplies, personnel housing, and exploration drilling.

a. Ice Roads

Ice roads can measure 20 feet wide or wider, depending upon the ground terrain and equipment transport needs. Ice roads can be constructed at a rate of about one mile of road per day, and use approximately one million gallons of water per mile, and 1.25 million gallons per mile for a drilling rig-ready ice road (USACE, 2012). Ice roads and ice pads are similarly constructed. The location is marked, a snow layer is pre-packed, and layers of water, ice chips, and snow are built to a desired thickness (USACE, 2012, citing to ExxonMobil Response to Request for Informa-

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tion #78). Construction of ice roads is dependent on the available water sources, which are assessed during the planning and permitting of the ice road route.

Findings of an ice road study in the NPR-A found that tundra below a single-season ice road will recover naturally with no apparent long-term negative impacts (Guyer and Keating, 2005). Ice roads that are built on wet tundra or wetland locations have little to no evidence of damage. Upland areas did show reduced plant vegetation. However, there was no evidence that the length of time of road placement, the amount of hauled weight, or frequency of road usage caused additional impacts to vegetation. Total recovery from any ice road impacts is estimated to be a maximum of 24 years.

In addition, studies of lakes in the NPR-A where water has been withdrawn for ice road construction have been recharged the next season with no significant adverse effects (BLM, 2006b). A similar recharge process is likely in the 1002 Area, although volumes of water available and recharge rates need further assessment.

b. Ice Pads

Ice pads can be constructed of layers of ice, and can be made with ice chips to speed up the process, similar to ice road specifications. A typical drill pad is made of ice and measures about 500 feet by 500 feet (est. 5.7 acres) (BLM, 2006a). The pad dimensions are marked and crews prepack snow with rolligons and off-road vehicles to enhance the freezing process. Water is applied to form a base layer. Ice chips harvested from pre-approved sites are spread at the location. Ice chips, snow, and water are mixed and laid over the site in layers until the approved pad thickness is achieved (USACE, 2012, citing to ExxonMobil Response to Request for Information #78).

Insulated ice pads can potentially last for multiple seasons. An insulated ice pad is built from ice chips, snow, water, a vapor barrier layer, insulation panels and rig mats. Ice is built to a desired thickness of about 18 inches, and a vapor barrier is placed over the pad area. A 4-inch thick foam insulation mat layer is placed on the barrier material, and a layer of rig mats is installed at the surface. Ongoing inspection and maintenance are required for long term use. (USACE, 2012, citing to ExxonMobil Response to Request for Information #78).

Currently, ice pads are commonly used in exploration drilling, but are not often used for infrastructure intended to endure for multi-season development and long-term transportation systems. Platform and year-round insulated ice pad, and composite all-season pad concepts are in the testing phase.

c. Ice Airstrips

The construction of temporary ice airstrips may be needed for remote locations. Ice airstrips can be constructed in the same manner as ice roads and ice pads. Dimensions will measure about 5,000 feet by 200 feet for large aircraft, or smaller to support smaller aircraft. (BLM, 2006b).

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d. Ice Bridges

When winter access routes require crossing waterways, an ice bridge is constructed. The construction must comply with Alaska Department of Fish and Game requirements for fish protection.

D. Conclusion

Overall, the demand for winter facilities can be effectively met using ice-based infrastructure, as described above. The following chapter presents a defined plan for incorporating these types of facilities to support a geophysical and drilling exploration plan to uncover and document the oil and gas resources that lie within ANWR's coastal plain.

These advanced and proven technologies are already in common use on the North Slope and allow for the exploration needed to accurately assess the oil and gas resource potential with minimal surface impact.

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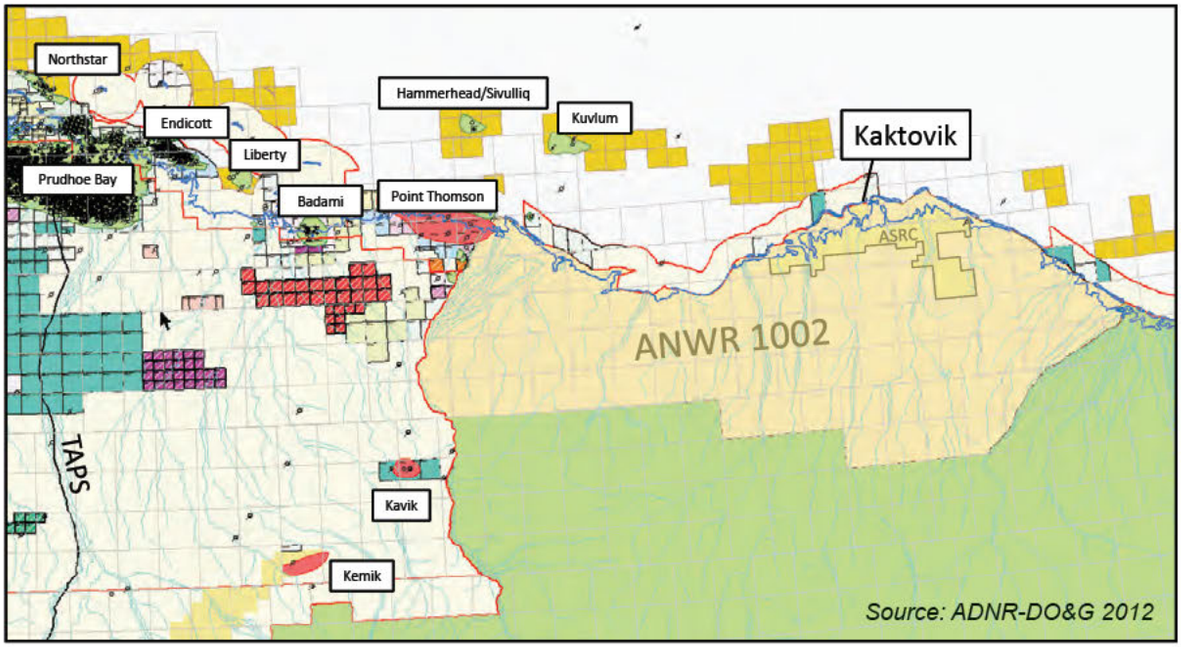
Chapter 5
Proposed Exploration Program

Figure 5-1

ANWR Coastal Plain

Land Status, Fall 2012



A. Introduction

Long-term management decisions for ANWR must be based on a definitive assessment of the oil and gas resources of the coastal plain. Responsible decisions regarding major changes in land status should carefully weigh the full range of costs and benefits that they generate. There could be significant benefits from oil and gas resource development consistent with the Secretary of the Interior's recommendation in the 1988 CCP/EIS. A cost-benefit analysis will be speculative without definitive knowledge of the resource base, which can only be determined by conducting an exploration program. Today's technology allows exploration to move forward with minimal impacts by using state-of-the-art seismic surveys followed by the drilling of key prospects.

The proposed exploration program described here represents one plausible scenario for conducting a decisive subsurface investigation of the resources of the ANWR coastal plain – one that would definitively establish the area's oil and gas resource endowment with minimal environmental impacts. This vital resource information can and should be acquired, analyzed, and used to make optimal land use decisions with minimal impacts on the region's habitats, natural landscape, and wildlife refuge values. While more can be learned, there is already a great deal

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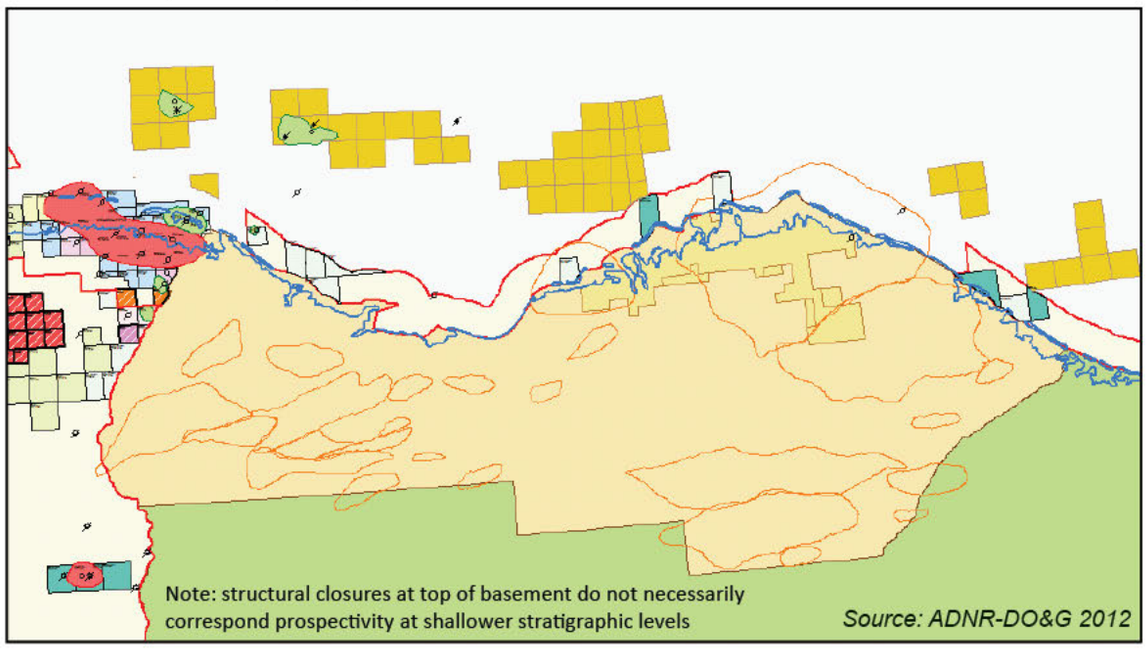
known about the flora, fauna, and subsistence activities that occur on the surface of the coastal plain. The same volume and quality of scientific informaiton needs to be gathered regarding the oil and gas resources underlying the 1002 Area.

Current estimates of the area's hydrocarbon endowment are limited to probabilistic resource assessments by the USGS. These resource assessments carry a wide range of uncertainty, expressed through the difference between the high and low estimates, due to the difficulty inherent in estimating recoverable oil and gas resources without actually drilling wells. The most recent assessments were based on 1,450 line miles of 1984-85 vintage 2-D seismic data inside ANWR, combined with outcrop observations and extrapolation of subsurface data from the surrounding region (Bird, 1999; Bird and Magoon, 1987). The 2-D seismic lines used in those studies were spaced three to eight miles apart. While this data has been repeatedly reinterpreted by geologists using the best available methods, the data itself is three decades old. Although valuable for understanding the area's general geologic characteristics, the data fall far short of current possibilities for detailed mapping of structural and stratigraphic prospects. Today, more reliable oil and gas resource estimates can be obtained through a low-impact campaign of carefully planned exploration drilling informed by the best available 3-D seismic technology.

Figure 5-2

ANWR Coastal Plain

Structural closures at Top Pre-Mississippian basement, after USGS, Bruns, et al., 1987



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B. Exploration Program Scope

The proposed exploration scenario discussed here envisions 3-D seismic surveys and winter only drilling on both federal and Native lands in ANWR, as well as the possibility of extending seismic acquisition into adjoining state waters. The distribution of oil and gas in subsurface formations does not follow surface and subsurface estate ownership boundaries. An efficient exploration program would include cooperation among resource owners, be accompanied by legal and financial agreements that benefit all impacted parties, and allow for exploration, seismic survey access, and information sharing, irrespective of land ownership.

This exploration program is presented in three successive phases, beginning with multi-year seismic acquisition, evolving into planning and permitting, and concluding with multi-year exploration drilling.

Current exploration technologies, in concert with winter-only exploration, can maximize petroleum resource assessments while minimizing impacts to ANWR's surface values. Vital resource information can be acquired, analyzed, and optimized with little to no impacts on the habitats, wildlife, and uses of ANWR.

1. Phase 1 — Seismic Surveys

A multi-year schedule is proposed to acquire large area 3-D surveys of the coastal plain study area, contiguous Alaska Native inholdings, and adjacent state lands and waters. For this effort, the program will occur exclusively in winter to reduce impacts to both terrestrial and freshwater habitats, wildlife populations, polar bear denning areas, and other ANWR uses and values. A reevaluation of the vintage 2-D seismic data interpretations may be helpful in fine-tuning the focus of the 3-D seismic shoot in certain areas. The proposed methods for acquiring 3-D seismic surveys are discussed in Chapter 4.

It is critical to conduct extensive oil and gas seismic surveys across ANWR to better understand its geology in relation to the other prolific areas of northern Alaska. This exploration proposal includes initial 3-D seismic acquisition for up to 3,305 square miles over 2 to 3 years.

- Seismic acquisition in Year 1 would cover the western sub-area as defined in USGS economic updates (the **Undeformed** and **Marsh Creek** survey areas, see Figure 5-3) to the most recent resource assessment (Attanasi, 2005a, b).
- In Year 2, acquisition would move to the northern tier of the eastern sub-area (**Hulahula** and **Jago** survey area, Figure 5-3).
- Additional seismic surveys would be planned for Year 3 in the **Sabbath** area, unless findings from previous surveys indicate that immediate exploration is not warranted in the Sabbath area of the coastal plain (Bruns, et al. 1987). (See Map Phase 1-Years 1-3, Figure 5-3).

The 3-D seismic program is designed to accomplish several key goals. It would be vital for validating structural closures identified from the existing 2-D data, e.g., the basement-involved structures of Callahan and others (1987) outlined in Figure 5-2. In addition, it would reveal structural closures at shallower, more prospective stratigraphic levels. Finally, new 3-D data would be indispensable for recognizing and mapping stratigraphically trapped prospects, and in predicting reservoir quality and oil versus gas charge. Acquisition and processing parameters

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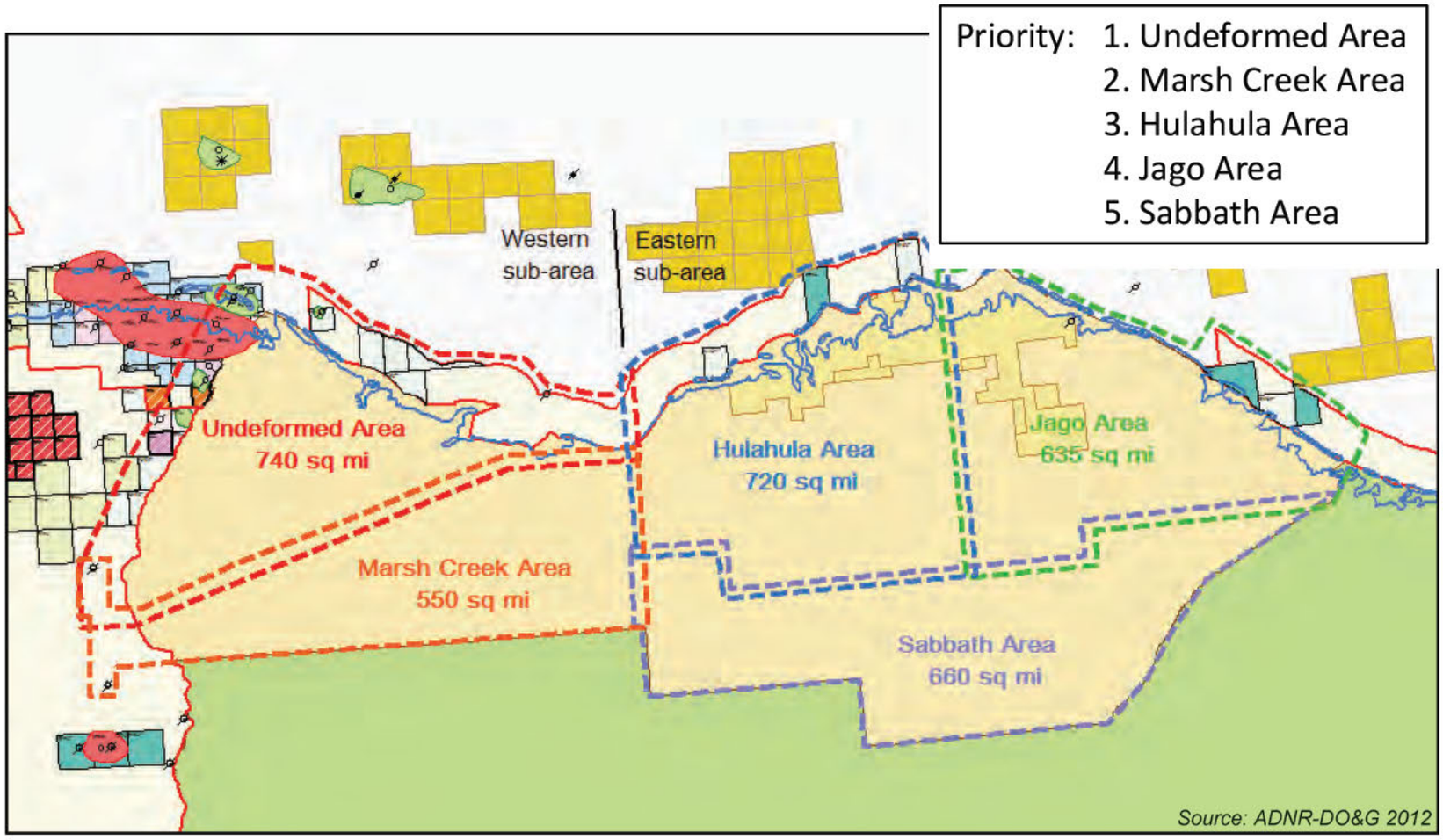
Figure 5-3

ANWR Coastal Plain Exploration Scenario

Phase 1 – Years 1-3: Acquire up to 3,305 square miles 3-D Seismic



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would likely vary among surveys to suit geologic differences in an attempt to best image the structurally complex areas. For Years 1-2, it is proposed to employ two distinct crews capable of acquiring 550 to 750 square miles each, per winter season. Seismic surveys would be conducted in January through April each year, depending upon the dates of approved tundra travel. The approved tundra travel dates are determined annually by ADNR's Division of Mining, Land, and Water based upon observed tundra field conditions. Transport of seismic equipment to the North Slope area would occur by barge or air prior to start of the field surveys. Detailed seismic survey plans are provided below. (See Figure 5-3, Map Phase 1-Years 1-3.)

Year 1: The coastal northwest **Undeformed** area survey goal is 740 square miles in Year 1 (including adjacent state waters), to identify stratigraphic traps and subtle structural traps that may be oil prone. The greatest potential is expected in the Tertiary topset formations and turbidites, and in the Thomson/Kemik sandstones. This area should have the highest priority for investigation because of assumptions of reservoir quality, likely oil charge characteristics, and proximity to existing infrastructure to the west. It is crucial to include enough of the adjacent state lands and waters in the seismic study to tie the new 3-D seismic data to all of the information provided by existing wells on state land.

The **Marsh Creek** area survey goal is limited to 550 square miles, to allow higher-confidence mapping of complex structural traps along the Marsh Creek anticline trend in Year 1. This area is directly south of the above referenced Undeformed area, with the highest potential expected in the Tertiary top-sets and turbidites. Acquisition and processing parameters may differ from those employed in the Undeformed area, so the boundary between the two surveys should follow the transitional geologic boundary between them, and should include sufficient overlap to merge the data sets.

Year 2: The survey for the **Hulahula** area, along the coast to the east of the above referenced Undeformed area, is proposed in Year 2 to cover 720 square miles. This area contains a subsurface structural depression called the Hulahula Low. This area preserves some of the youngest and best potential reservoir sandstones on the coastal plain, and is interpreted to be a key "kitchen", or area where oil and gas has been generated from source rocks. The targets are a mixture of stratigraphic and structural trap prospects, to locate the oil and gas prone formations.

Also planned for Year 2 is a seismic survey for the **Jago** area, east of Hulahula, for an estimated area of 635 square miles. This area is characterized by large, internally complex structural highs in the subsurface, with organic shales and oil-bearing sandstone exposed locally at the surface. The intent is to analyze large structural trap prospects that may be oil and gas prone. The Tertiary turbidites are expected to have the great-

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est resource potential. As in the previous year, acquisition and processing parameters may vary between surveys, and sufficient overlap is needed to effectively merge the two data sets.

Year 3: If warranted, 3-D seismic acquisition in the **Sabbath** area would cover about 660 square miles. This is an area with structurally high subsurface features in in the southeastern portion of the proposed study area, and may host complex structural traps and gas prone prospects. The greatest potential here is expected in the Tertiary turbidites and the Ellesmerian units. This locale has the lowest priority due to structural complexity, reservoir quality risks, likely gas charge attributes and remoteness.

The seismic data acquired would provide the information necessary to proceed to the second phase, planning and permitting. To best evaluate the oil and gas potential, the seismic data would likely be processed to yield pre-stack depth migration, near- and far angle stacks, amplitude versus offset volumes, merged volumes, coherency volumes, and possibly other products. The westernmost areas would be processed in Years 1-2, with the eastern study area processed thereafter. This data would be merged and analyzed during Years 2-3. The results of the interpretation would be selection of the highest potential prospects, with priority given to the western areas, followed by the eastern area prospects.

3-D seismic data allows exploration to target the highest-value potential prospects while optimizing field drilling efforts. Processed data can be used to predict the most prospective locations for recoverable petroleum resources. Properly sited drilling locations partnered with efforts to prevent negative surface impacts can maximize the benefits of the proposed exploration program.

2. Phase 2 — Planning and Permitting

A comprehensive strategic plan that addresses both subsurface and surface features should drive exploration drilling during Years 1-4, and continue through all the follow-on years. The planning foci are project coordination and scheduling; federal, state and local permitting; ice-based and seasonal facility design; equipment, drill rig, and services acquisition; and transportation logistics.

Permitting processes are complex, and require in-field investigations for site clearance, environmental baseline data, ice-based facility design, and other aspects. Additionally, some federal, state, and local permits and authorizations must be in place before field activities begin. For example, permits are required for wetland and habitat protection, fish habitat mitigation, water withdrawal, waste storage and management, and other exploration activities. Appendix C lists permits and authorizations that the proposed exploration program may require.

In Year 3, the initial drilling locations would be selected and verified by field site clearance surveys (Figures 5-4 and 5-5). Future well siting would be done as well data becomes available during the program. Delineation wells would be sited

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Winter Tundra Travel Opening and Ice Road Construction Start Dates								
Season	Tundra Opening Date	Julian Opening Date	Tundra Closing Date	Julian Closing Date	Tundra Travel Season Length	Prepacking Start Date	Julian Prepack Date	Ice Road Season Length
1969 - 1970	13-Nov-69	317	21-May-70	141	189			
1970 - 1971	20-Oct-70	293	27-May-71	147	219			
1971 - 1972*	30-Oct-71	304	20-May-72	140	202			
1972 - 1973	2-Nov-72	306	4-Jun-73	155	214			
1973 - 1974	15-Nov-73	319	20-May-74	140	186			
1974 - 1975	18-Nov-74	322	30-May-75	150	193			
1975 - 1976*	31-Oct-75	305	28-May-76	149	210			
1976 - 1977	unknown	unknown	29-May-77	150	unknown			
1977 - 1978	25-Nov-77	329	3-Jun-78	154	190			
1978 - 1979	4-Nov-78	308	8-May-79	128	185			
1979 - 1980*	unknown	unknown	20-May-80	141	unknown			
1980 - 1981	8-Nov-80	312	9-May-81	129	182			
1981 - 1982	11-Nov-81	315	22-May-82	142	192			
1982 - 1983	4-Nov-82	308	29-Apr-83	119	176			
1983 - 1984*	14-Nov-83	319	18-May-84	139	186			
1984 - 1985	6-Jan-85	6	20-May-85	140	134			
1985 - 1986	4-Dec-85	338	4-Jun-86	155	182			
1986 - 1987	7-Nov-86	311	20-May-87	140	194			
1987 - 1988*	12-Dec-87	347	3-May-88	124	143			
1988 - 1989	17-Nov-88	321	29-May-89	149	193			
1989 - 1990	12-Jan-89	12	14-May-90	134	122			
1990 - 1991	19-Nov-90	323	19-May-91	139	181			
1991 - 1992*	26-Nov-91	331	12-May-92	133	168			
1992 - 1993	22-Nov-92	326	17-May-93	137	176			
1993 - 1994	6-Dec-93	340	20-May-94	140	165			
1994 - 1995	8-Dec-94	342	29-Apr-95	119	142			
1995 - 1996*	3-Dec-95	338	10-May-96	131	159			
1996 - 1997	7-Jan-97	7	9-May-97	129	122			
1997 - 1998	7-Jan-98	7	21-Apr-98	111	104			
1998 - 1999	14-Jan-99	14	12-May-99	132	118			
1999 - 2000*	19-Dec-99	354	11-May-00	132	144			
2000 - 2001	11-Jan-01	11	14-May-01	134	123			
2001 - 2002	25-Jan-02	25	8-May-02	128	103			
2002 - 2003	27-Jan-03	27	19-May-03	139	112			
2003 - 2004*	23-Dec-03	358	13-May-04	134	142	3-Dec-03	338	162
2004 - 2005	10-Dec-04	344	20-May-05	140	161	9-Nov-04	313	192
2005 - 2006	6-Dec-05	340	12-May-06	132	157	25-Oct-05	298	199
2006 - 2007	19-Dec-06	353	10-May-07	130	142	24-Nov-06	328	167
2007 - 2008*	28-Dec-07	363	16-May-08	137	140	17-Nov-07	322	181
2008 - 2009	29-Dec-08	363	28-Apr-09	118	120	6-Nov-08	310	173
2009 - 2010	22-Dec-09	356	7-May-10	127	136	2-Nov-09	306	186
2010 - 2011	4-Jan-11	4	21-May-11	141	137	25-Oct-10	298	208
2011 - 2012*	21-Dec-11	356	20-May-12	141	151	17-Nov-11	322	185
2012 - 2013	2-Nov-12	306						

Explanations: 1) Opening dates are defined by the first date an area is opened to winter off-road travel; 2) prepacking start date refers to the date of the first prepacking approval for ice roads; 3) Season lengths are calculated to take into account leap years (season with an asterix* denotes leap year, note the varying formulas used).
Source ADNR MLW NRO, 2012

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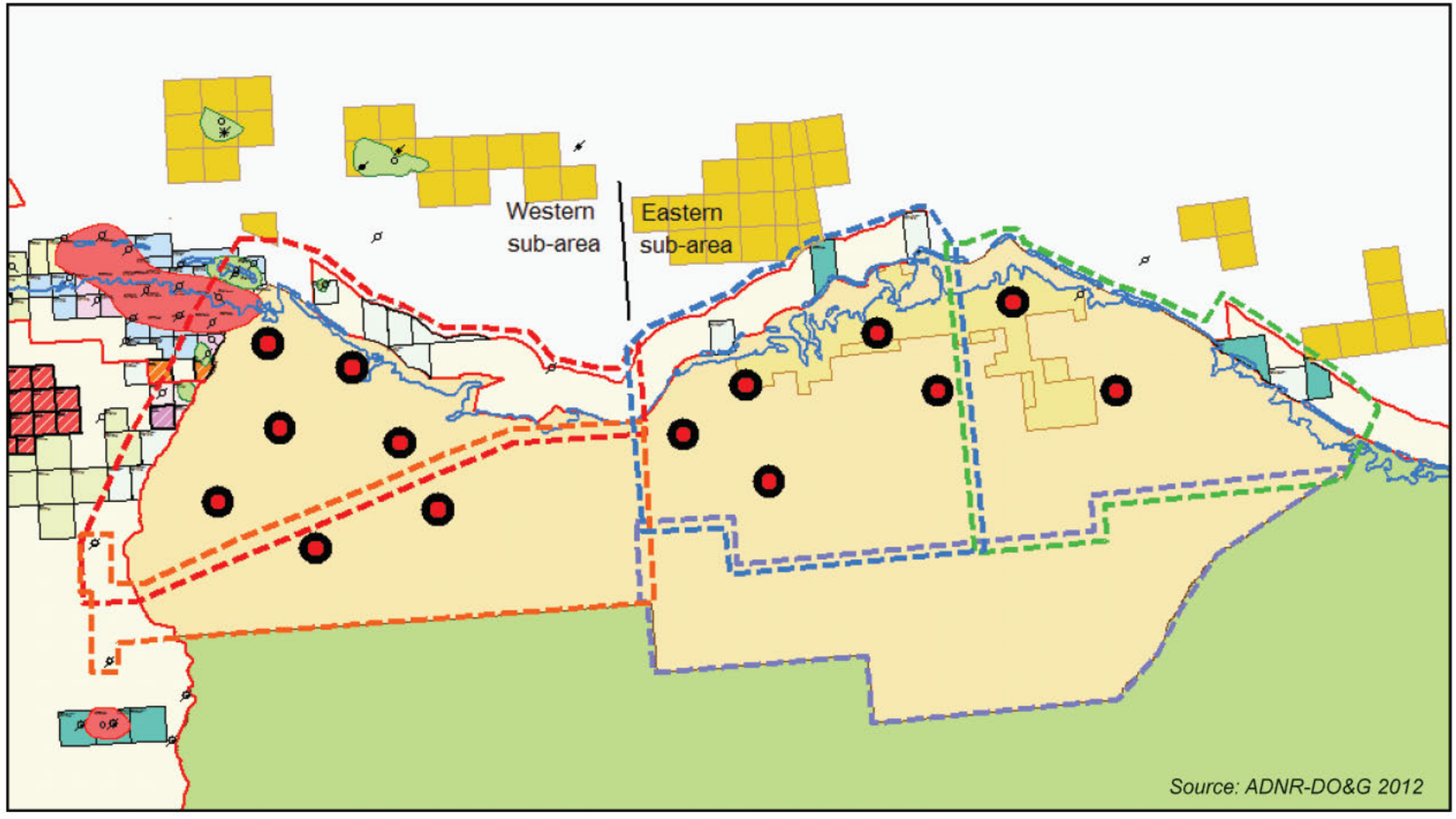
Figure 5-4

ANWR Coastal Plain Exploration Scenario

Phase 3 – Years 4-7: Drill up to 14 key prospects with 4 rigs over 4 seasons

(hypothetical drilling locations, presented for the purposes of illustrating the proposed drilling program)



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to better define the extent of potential discoveries. The field studies needed to site these wells would be done using short-term, non-invasive methods to minimize habitat and population impacts.

3. Phase 3 – Exploration Drilling

1. Construction of Ice-based Facilities

The winter drilling program planned for Years 4-7 would use ice-based facilities (Figures 5-5, 5-6, 5-7, 5-8, and 5-9). Drill rigs would travel to sites by ice roads and would operate from ice pads. Ice roads and pads are constructed early each winter when tundra travel is allowed. Although the actual date varies from year to year, this scenario assumes the opening of tundra travel would be on January 1 each year. The table on the next page lists the dates and duration of open tundra travel seasons on the North Slope from 1969 through 2012.

Ice roads are constructed each winter season on the Alaska North Slope using water withdrawal sources approved prior to operations. They afford access to the tundra and can extend access timeframes. Records from the ADNR MLW Northern Regional Office (NRO) show that in 2011, 124 miles of ice roads were authorized, including 94 onshore miles and 30 offshore miles (ADNR MLW NRO, 2012). Included in that distance is a 28-mile ice road that is built from near Deadhorse, at the Sagavanirktok River crossing, to Badami on state land each winter. Records show that use of ice roads, as compared to snow trails, lengthens the timeframe for allowed tundra area access on the North Slope.

Drill rig transport to initial drilling locations will occur by February each year. Drilling may occur from January through April, with the date for drilling shutdown and rig demobilization determined as a function of actual annual weather conditions. Ice-based facilities will be used through April and leave no damage to surface features, terrain, or freshwater environments upon melting each spring.

Years 4-5: An ice road will be built to access the **Undeformed** and **Marsh Creek** areas. This road is estimated to be 35 to 43 miles long, and could access four drilling locations depending on analysis of terrain, habitat, water sources, etc. It will likely take about one month to construct all legs of the road, which would operate from January through April. It will begin at the Point Thomson field barge facility and terminate at the proposed drilling locations. (Figures 5-6 and 5-7)

Years 6-7: Different routes would likely be built to access the **Hulahula** and **Jago** areas. A primary ice road, 34 to 53 miles in length, would be constructed, originating at Kaktovik, where drilling equipment and supplies would be staged during the summer barging season. This road would connect to each of four exploration drilling locations. Additionally, a west to east ice road or rolligon trail approximately 52 miles in length, would closely follow the shoreline, beginning at the Point Thomson field and join the other ice road at the westernmost drilling location.

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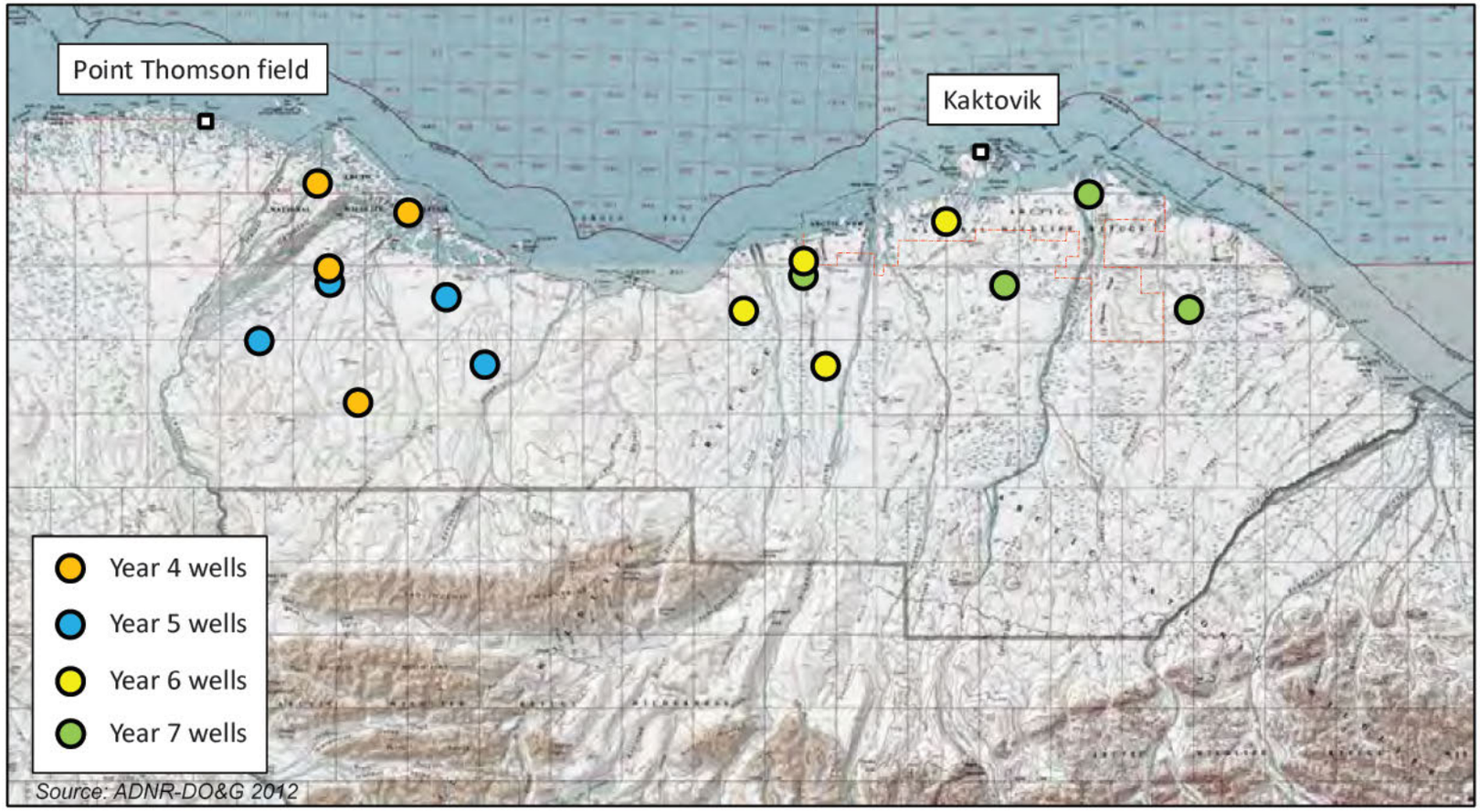
Figure 5-5

ANWR Coastal Plain Exploration Scenario

Phase 3 – Years 4-7: Drill up to 14 key prospects with 4 rigs over 4 seasons



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This coastal route would serve as a resupply and contingency access corridor. The total ice road/rolligon trail length for Years 6-7 would be about 86 to 105 miles, and it would operate from January through April annually. (Figures 5-8 and 5-9). Any drilling in the **Sabbath** area to the south would be conducted in Year 7 or later, and would depend on results of earlier seismic and drilling activity.

4. Proposed Drilling Scenario

Four drill rigs would be mobilized for each of the Years 4-7, allocating one rig per prospect each year, resulting in up to 16 wells drilled on 14 prospects (Figure 5-5). Prospects and bottom hole locations would be selected based on interpretation of the fully processed 3-D seismic, and specific surface well sites would be based on field data and site clearance surveys. Crews and equipment would mobilize using ice roads and ice airstrips. Exploration drilling would occur only from seasonal ice pads in January through April. Temporary camps and support facilities would be used during the winter drilling season. Well drilling rates are estimated at an average of 200 to 250 feet per day (including "flat time" during casing, logging, and evaluation), with average well total depth estimated at 9,000 feet.

Since the seismic and drilling phases of the exploration program would occur in winter, most terrestrial wildlife populations would be sparse or altogether absent from the coastal plain. Freshwater populations present in winter would also be protected using conditioned permits and required mitigations. The land use priorities would be to prevent and reduce negative impacts to surface features, and terrestrial and freshwater habitats. Transport of additional drilling equipment and supplies to the North Slope would likely be necessary, and could use a combination of surface trucking on the Dalton Highway, barge, and air transport prior to start of the field drilling season. The hypothetical exploration drilling scenario is as follows:

Year 3: Conduct well siting for Year 4, complete site clearance surveys and environmental monitoring, and authorize field assessments. Short term, non-invasive field techniques would be used.

Year 4: Drill and evaluate four new prospects in the western sub-region of the coastal plain, potentially including three prospects in the western **Undeformed a**rea, and one prospect in the **Marsh Creek** area to the south (Figure 5-6). Four wells would be drilled in total and permitting activities would continue.

Year 5: Drill and evaluate four prospects in the western sub-region of the coastal plain: drill two new prospects in the western **Undeformed** area, drill one new prospect in the **Marsh Creek** area, and drill a delineation well at one of the prospects drilled in Year 4, assuming some exploration success (Figure 5-7). Four wells would be drilled in total and permitting activities would continue.

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Year 6: Drill and evaluate four new prospects in the **Hulahula** area, in the eastern sub-region of the coastal plain (Figure 5-8). The technically optimal location for drilling one or more of these wells could be on lands owned by Kaktovik Inupiat Corporation (KIC surface estate) and Arctic Slope Regional Corporation (ASRC subsurface mineral estate). Four wells would be drilled in total and additional permits acquired, as needed.

Year 7: Drill and evaluate four prospects in the eastern sub-region, potentially including one new prospect and one delineation well in the **Hulahula** area. Two wells would target new prospects farther east in the **Jago** area (Figure 5-9). The technically optimal location for drilling one or more of these wells could be on lands owned by Kaktovik Inupiat Corporation (KIC surface estate) and Arctic Slope Regional Corporation (ASRC subsurface mineral estate). Four wells drilled in total. Permitting and site closures would occur. Potential drilling opportunities may arise in the **Sabbath** area toward the latter years of the program. Drilling of up to two test wells may be considered, depending upon the results of the 3-D seismic and nearby drilling data.

Follow-on Years: Ongoing evaluation of drilling results and integration of well data with seismic and other technical data would continue to more definitively assess the oil and gas resources of the ANWR coastal plain. Site closures would be completed.

5. Required Permits, Authorizations and Approvals

The proposed exploration program will provide more definitive information for the oil and gas resources in the proposed study area, but cannot proceed without planning, analysis of previous field work, and prior approvals. A variety of federal, state, and local permits and authorizations must be acquired before field investigations, seismic surveys, and drilling can begin. A summary of the possible permits and authorizations that may be needed is provided in Appendix C, along with the primary agencies with regulatory jurisdiction for permitting. However, this list is not exhaustive. The actual projects, locations, and technologies used will determine what approvals that will be required and any conditions or mitigation measures that may be needed.

C. Conclusion

This proposed exploration program is intended to provide guidelines and a feasible timeframe for seismic exploration leading to a multi-year drilling program in the 1002 Area. This exploration scenario can define and accurately assess the oil and gas resources without compromising the land, water, and wildlife in the 1002 Area. It will provide data that must be considered to comply with the intent of ANILCA and make the fully informed management decisions required by NEPA. Reasonably foreseeable impacts from the exploration activities are discussed in Chapter 6. The potential economic benefits that could result from development in the 1002 Area are discussed in Chapter 7.

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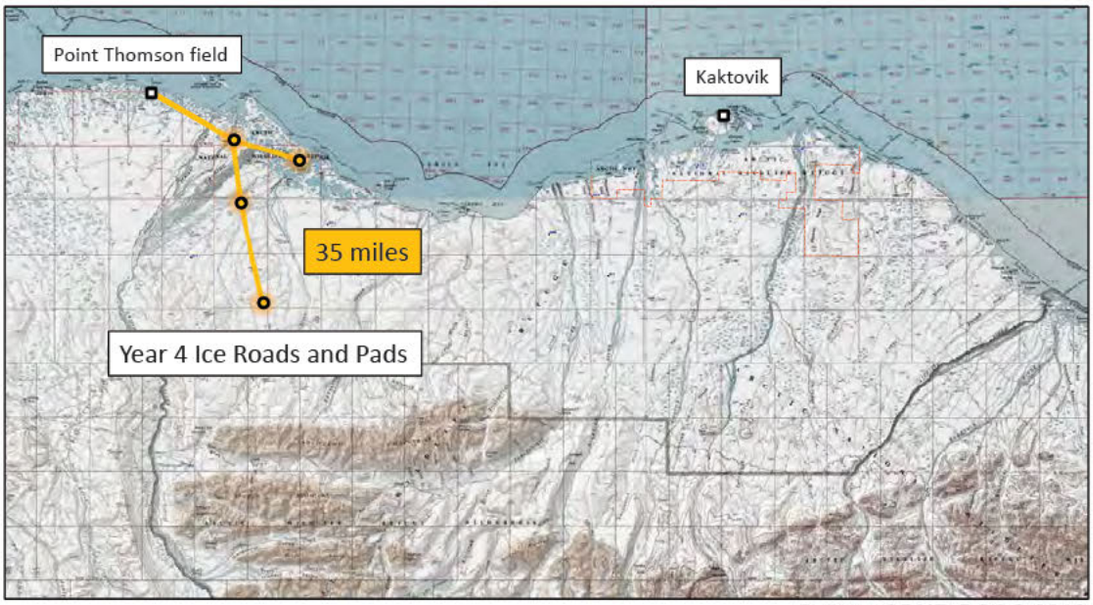
Figure 5-6

ANWR Coastal Plain Exploration Scenario

Year 4: Begin drilling 4 new prospects in Western 1002 Area

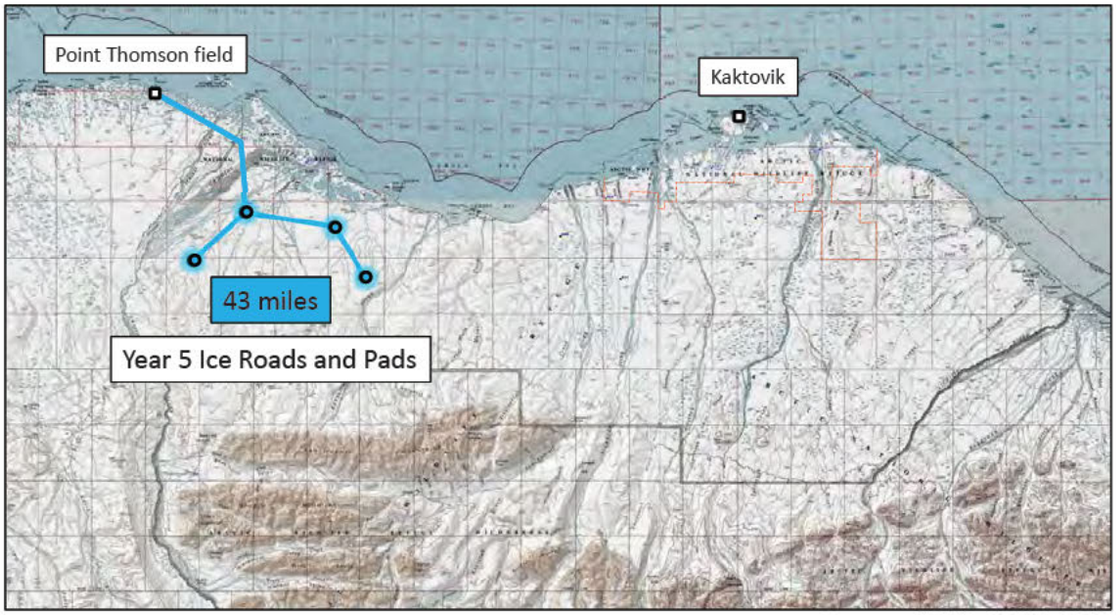


Source: ADNR-DO&G 2012

Figure 5-7

ANWR Coastal Plain Exploration Scenario

Year 5: Drill 3 new prospects + 1 delineation well, Western sub-area



Source: ADNR-DO&G 2012

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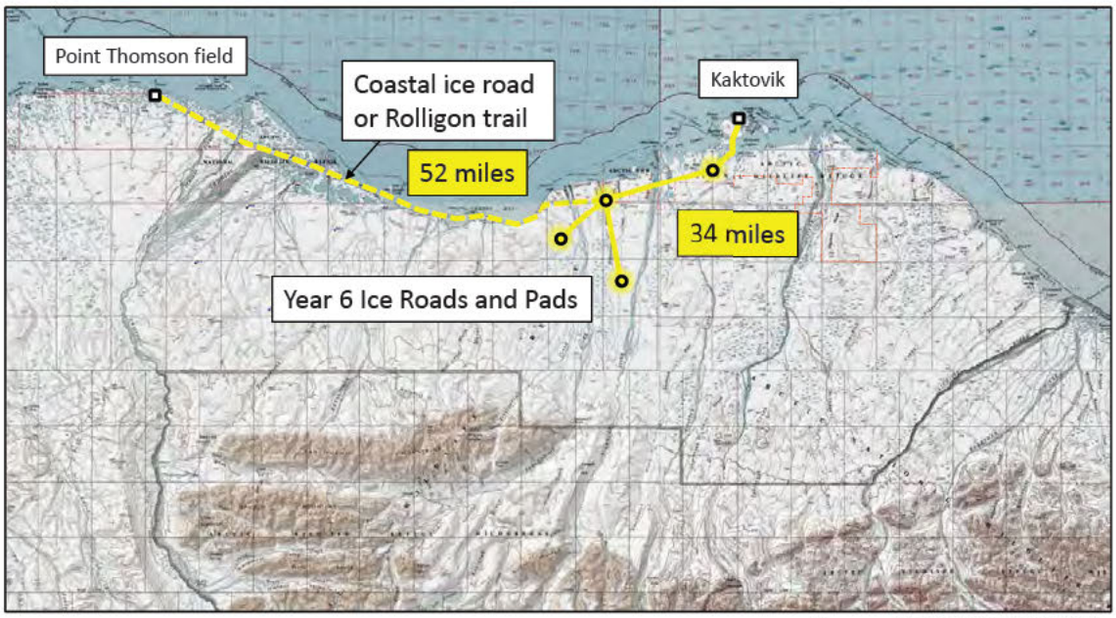
Figure 5-8

ANWR Coastal Plain Exploration Scenario

Year 6: Drill 4 new prospects, Eastern sub-area

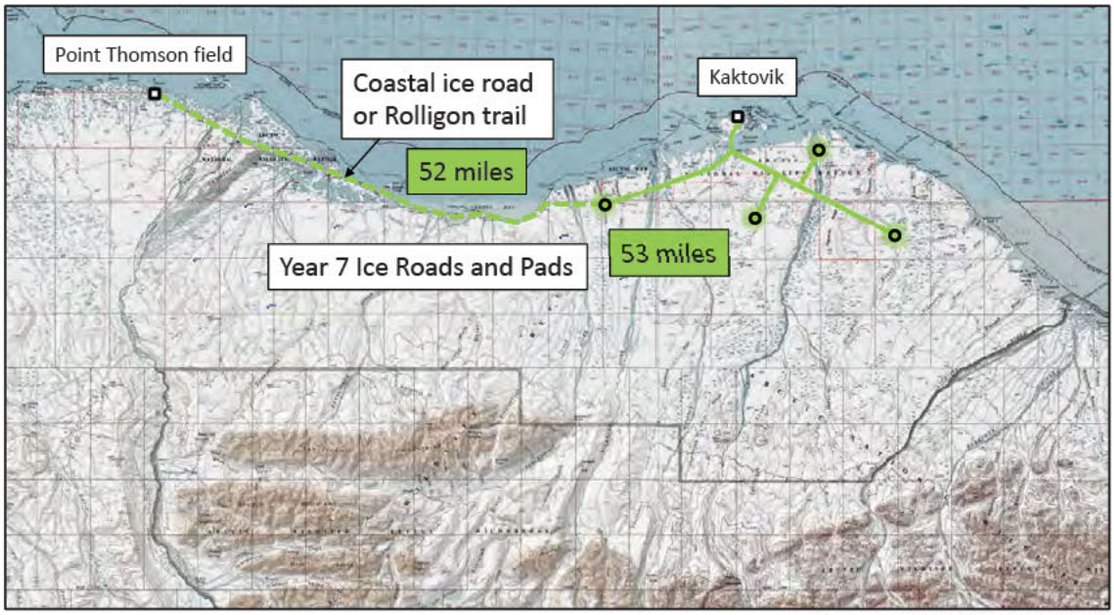


Source: ADNR-DO&G 2012

Figure 5-9

ANWR Coastal Plain Exploration Scenario

Year 7: Drill 3 new prospects + 1 delineation well, Eastern sub-area



Source: ADNR-DO&G 2012

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Chapter 6

Oil and Gas Exploration Program Impacts and Suggested Mitigations

Introduction

This chapter discusses the potential impacts and corresponding mitigations for the proposed ANWR oil and gas exploration program. The goal of this evaluation is to identify and explain how to minimize the potentially negative impacts of exploration, and to maintain intact ecosystems and habitats.

The emphasis of the program in this proposal is placed on exploration activities that have minimal impact on habitats, populations, continued subsistence harvesting, hunting, and fishing. Mitigations for activities on the North Slope have proven effective, and have evolved and improved over the 40 years of exploration and development in Alaska. The State and industry have worked together to successfully prioritize safe and environmentally responsible oil and gas activities. Were ANWR to be explored using modern technology, the federal government will find the lessons learned and mitigations developed to the west on State land to be effective and valuable. These mitigation measures can be utilized and adapted for the environment of the 1002 Area. The discussion that follows describes both the potential impacts of exploration and recommended mitigations to promote the successful management of multiple land uses on the ANWR coastal plain.

A. Summary of proposed exploration program

The proposed exploration program will incorporate seismic surveys and analyses and field investigations (Years 1-3), and construction of ice-based facilities to support a multi-year exploration drilling program (Years 4-7). The program is designed to maximize resource assessment without compromising habitats and other uses.

The proposed exploration scenario combines three phases over an estimated seven-year duration. The program begins with a two to three year seismic acquisition phase that will be done exclusively in the field during the winter. Seismic activities in Year 1 will cover the western sub-area (the Undeformed and Marsh Creek survey areas). In Year 2, the eastern sub-area will be assessed (the Jago survey area). The Sabbath area may be assessed in Year 3, if data from Years 1 and 2 indicate that further seismic surveys are warranted (Refer to Figure 5-3).

The second exploration phase will focus on planning and permitting (Year 3). These important efforts will begin in the early years, and will be the primary focus during the second phase. Field activities in support of permitting will be conducted throughout the year, including summer months on an as-needed basis.

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The proposed exploration program requires permit for the protection of terrestrial, wetland, and freshwater habitats; for water withdrawal; for waste storage and management; and for a variety of other exploration activities. Non-invasive, short duration methods can be utilized for summer site clearances, access route determinations, and permitting requirements. Field studies that are necessary would be done using short-term, non-invasive methods to minimize impacts. Appendix C provides a list of the permits and authorizations that may be required for the proposed exploration program.

The third phase, in Years 4 through 7, will occur exclusively in the winter, and will incorporate construction of ice-based facilities, such as roads, pads and airstrips. Drill rigs will be transported, and exploration drilling will assess the petroleum resources. Four drill rigs will be mobilized for each of the Years 4-7, allocating one rig per prospect each year, resulting in up to 16 wells drilled on 14 prospects (Figure 5-4, 5-5). Drilling will occur in January through April from seasonal ice pads, with the dates for drilling shutdown and rig demobilization determined as a function of actual annual weather conditions. Ice-based facilities will be used through April each year. No summer activities are planned for phase three. More details describing the proposed exploration program and the preferred locations under consideration are provided in Chapter 5.

B. Consideration of Impacts

The goal of this chapter is to identify and explain how to minimize potentially negative impacts and maintain the ecosystem functions of habitats. The exploration activities that may cause potential impacts include seismic surveys, field investigations, construction of ice-based or seasonal facilities, and exploration drilling.

This section provides in-depth discussions of potential impacts to surface resources for each phase of the project, and then mitigations to limit these impacts.

Exploration seismic surveys and drilling activities will be limited to winter months when potential impacts are minimal and short-term. Wildlife and migrating bird populations are generally not present in winter. Freshwater habitats can be selectively approved for water use during the winter season to minimize negative effects on overwintering fish populations. Short term, non-invasive field investigations may occur in summer, and may cause low impacts from pre-approved short duration projects associated with site clearances and permitting requirements. The actual impacts for the multiple phases will be dependent upon the specific project plans and the actual approved permitted field activities.

This evaluation focuses on impacts to terrestrial and freshwater habitats for wildlife, birds and fish, and other ANWR uses, with the intent to minimize direct impacts to habitats and species, and avoid the subsequent impacts to ANWR's surface uses.

Exploration's effects on fish and wildlife species, habitats, and their uses, can be avoided, minimized, or mitigated. Impacts to the human environment, such

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as disturbances to lifestyles, subsistence uses, or economic activities can also be minimized. Evaluation of the subsistence hunting impacts focuses on perpetuating target populations, and maintaining availability of subsistence resources. Taken together, these mitigations will allow for exploration of oil and gas resources in the 1002 Area.

During exploration, activities are subject to federal, state, and local statutes, regulations, permits, and ordinances. Approved methods and mitigations will vary depending on which of these laws apply and on site-specific conditions and customized permit stipulations. Permitting can avoid negative effects on habitats, while allowing efficient access during winter months when populations are present in low numbers. Attention to specific habitat protections can prevent the need to establish expansive blanket protections and land use limitations that are inefficient for exploration activities. Blanket protections often do not have net positive conservation effects on the target populations or uses because they are not appropriately adjusted for an area.

1. Phase 1 - Seismic Survey Impacts and Mitigations:

a. Terrestrial Habitat Impacts

Seismic field surveys will be completed in Years 1 and 2. Field activities will include targeted 3-D seismic surveys with temporary seasonal housing and staging areas. Surveys will be concentrated in areas of highest oil and gas potential as described and displayed in the maps in Chapter 5. Logistics will include transportation of seismic equipment and labor, which will result in non-invasive surface uses and associated air traffic. Intermittent access to the sites may be necessary using air and helicopter transport.

Current seismic technologies have substantially less impact than the surveys that have already been conducted in ANWR in the 1980s. Additionally, today's 3-D seismic survey technologies provide a vastly improved ability to collect and analyze data on the complex attributes of subsurface resources. The processed 3-D surveys can portray the subsurface stratigraphy with higher confidence, and reduce the number of exploration wells required to reach and delineate a target prospect (API, 2012). These efficiencies reduce the need for surface access to remote locations and minimizes impacts to habitats, wildlife, and land uses while providing valuable information.

Critically, exploration seismic surveys will be conducted in the winter when most terrestrial wildlife populations are absent, or are not present in large numbers. The survey equipment configuration would include vibrating and recording vehicles, trucks, fuel tankers, and a personnel camp as discussed in Chapter 4.

i. Surface Disturbances

Seismic equipment can potentially affect tundra vegetation without proper mitigation, even though it is temporary and seasonal. Snow depth, vehicle type, traffic patterns, and vegetation type must be considered during winter operations. Dry

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vegetation, snowless ridges, and vegetated sand dunes are at higher risk of damage. These areas must be considered during the design and planning of the survey to obtain a permit.

Moving equipment over land during seismic surveys could alter the thermal balance of the land, and increase the risk of thermokarsting (Jorgenson et al., 2002). However, studies of tundra disturbance from seismic surveys showed full or partial recovery over several years duration (Jorgenson and Cater, 1996). In these studies, tundra plots were evaluated for vegetation, trail compression, visibility from the air, and exposed soil. Use of narrow trails and disturbance caused by camp moves showed partial recovery after ten years, while other trails experienced almost full to complete recovery.

3-D seismic methods can have a larger surface footprint than 2-D surveys, as a denser grid of trails is used (Jorgenson and Cater, 1996). The impacts that persisted from surveys included trail subsidence, condition changes, ruts, invasion of grasses, and decreases in shrubs. The surface changes were noted to persist, but no research suggested that the surface changes affected the wildlife (Gibbs, 2001). A study of seismic impacts and recovery in ANWR showed that trails with low levels of disturbance usually improved over time, and medium to high level disturbances recovered slowly (Jorgenson, et al., 2010). Trails on gravel, ice-poor riparian areas recovered better than trails on upland, ice-rich loamy soils. Winter seismic impacts showed short-term, mostly aesthetic impacts, but areas of severe vegetation impacts persisted for two decades under some conditions (Jorgenson, et al., 2010). Based on these studies, 3-D seismic technologies have evolved to minimize impacts and provide for monitoring of overland tracks. Seismic surveys that use ice roads can monitor track damage in compliance with environmental permits.

ii. Wildlife

Seismic surveys can be authorized for the winter season, when the caribou are very rarely present (ADF&G, 2005, 2007a, 2009). A Canadian research study that tracked caribou movements found that seismic lines did not act as barriers to caribou, and that roads were semi-barriers to animal movements. Previous studies showed that caribou avoidance distances from seismic lines and roads were about 250 meters (Dyer, 1999).

Muskoxen also may react to equipment operating within two miles of the herd, and the disturbance may cause animals to move away from the equipment and the sounds emitted. Research has shown that the animals return to the area within one to four weeks after the disturbance (Russell, 1977). It is possible that muskoxen react to visual stimuli rather than the noise of the disturbance source. Aircraft and snow machines, both currently allowed in ANWR, disturbed animals at greater distances than Nodwell vehicles (Beak Consultants Ltd., 1976). On level land, the disturbance was much less than in more rolling terrain, where more sudden appearance of a vehicle caused a disturbance.

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Seismic activity that occurs in winter may disturb denning bears. Studies have found that radio-collared bears in their dens were affected by seismic activities within 1.2 miles of their dens, evidenced by an increased heart rate and greater movement within the den. However, no negative effect, such as den abandonment, was documented (Reynolds et al., 1986).

Human activity may disturb denning polar bears if ice roads, seismic tracks, and exploration activities are not properly located to avoid den disturbances. Polar bears are present on the coastal plain, and are found on the landfast ice and throughout the southern limit of the Arctic pack ice off the coast north of ANWR (USFWS, 2010a, citing to Garner et al., 1990, Amstrup et al., 2000; DeMaster and Stirling, 1981). Others have found denning locations for the Southern Beaufort Sea bear populations on coastal barrier islands, and up to 25 miles inland in ANWR, west to Peard Bay (USFWS, 2010a, citing to Amstrup and Garner, 1994, Amstrup, 2000, Durner et al., 2006).

Amstrup (1993) found that in 1981 through 1992, denning polar bears tolerated exposures to anthropogenic disturbances, and that bears may tolerate changes without negative impacts to denning or litters. A study of the effects of roads on brown bears in British Columbia and Montana found that bears used areas within 100 meters of roads significantly less than areas farther from the roads, but this behavior change did not translate into a demonstrable effect on the population (McLellan and Shackleton, 1988). Recommended mitigations to reduce human-bear interactions and negative impacts to denning bears are discussed in the mitigation section below.

b. Freshwater Habitat Impacts

i. Disturbances

The principle impacts to freshwater habitats from seismic surveys are the acoustic energy pulses emitted by vibroseis systems. Seismic surveys typically cover a relatively small area and only stay in a particular area for hours, thereby posing transient disturbances. Winter seismic programs must be reviewed prior to permitting to prevent short- and long-term negative impacts to overwintering fish.

In a study conducted in the Sagavanirktok River west of ANWR, when a vibroseis system was fired in close proximity to the water, the broad whitefish slowed their swimming speed and were observed to school as a group back at the original water location after 2 minutes (Morris and Winters, 2005). Repeated firing of the vibrator source revealed that this pattern was consistent, and fish returned to a sedentary posture at the original water location each time. The study concluded that there was little evidence that energy from the acoustic vibroseis harmed the fish observed (Morris and Winters, 2005). In a related study, the internal conditions of the fish were assessed after vibroseis firing to observe any organ damage that may have occurred from the disturbance. The vibrators were fired in close proximity of Arctic char within a flooded gravel pit at Duck Island mine site on the North

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Slope. Results showed that no fish deaths occurred as a direct result of the vibroseis, no bleeding of the gills was noted, but that internal injuries were found in some fish. No swim bladder damage was observed (Morris and Winters, 2005).

Eye injuries were noted at rates ranging from 0.9 to 7.3 percent, and muscle tissue injuries were noted at rates ranging from 2.7 to 12 percent in the fish. Fish eye hemorrhaging was the injury with the highest frequency of occurrence, but no damage to the skeletal structures was observed. (Morris and Winters, 2005). The results indicated that there were no discernible direct physical effects on fish from vibroseis in any trial. The eye injuries observed were likely a result of behavioral response and collisions caused by the cages used in the research (Morris and Winters, 2005).

Popper et al. (2005) measured the effects of seismic airgun firing on broad whitefish and found that the firing of the tested airgun system was not likely to substantially impact broad whitefish. The results also showed that the lake chub species experienced only temporary hearing loss, and the northern pike hearing returned after 18 hours.

In a study of a rocky reef off Scotland, fish response from seismic airguns showed minor behavioral responses to airgun emissions. The researchers found there were no permanent changes in behavior, and no fish appeared to leave the reef habitat. There were no indications of observed damage to the reef animals (Popper and Hastings, 2009, citing to Wardle, et al., 2001).

c. Suggested Mitigations – Phase 1 - Seismic Surveys

i. Terrestrial Habitat Mitigations

Acoustic seismic surveys should be planned in winter months and during times when most wildlife are absent or present in lesser numbers to reduce surface impacts. Surveys on the coastal plain can be authorized for the winter season, when the caribou are not present (ADF&G, 2005, 2007a, 2009). Permit authorizations also need to consider routing, timing, and sufficient snow cover to reduce and limit adverse environmental impacts.

Ice roads and exploration activities need to be properly located to avoid polar bear den disturbances. Federal and state regulations require protections for ESA-listed species such as the polar bear, and compliance is required for all operations. As part of these requirements, operators implement human-bear interaction plans to avoid affecting bears in the field.

Exploration activities using off-road travel across tundra and wetlands should be approved in areas where snow and frost depths are sufficient to protect the ground surface. This limits ground contact. Additionally, low pressure vehicles can be used to further limit impact during travel to areas with ground frost and snow cover. Approvals for cross-country travel must use these measures to minimize negative effects, and associated field monitoring can verify that proper

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practices are in compliance and effective. Public access to, or use of, the seismic survey area may be restricted for safety requirements.

Air traffic associated with seismic surveys may cause brief disturbance to animals by low flying aircraft. While wildlife may change behavior temporarily as a reaction to aircraft, it is not expected that this will occur frequently in the seismic survey phase. Mitigations to reduce negative effects by limiting air traffic should be implemented during all years of the exploration program. Air traffic impacts are discussed in more detail in sections relating to field investigation impacts from investigations for planning and permitting (Phase 2 – Year 3).

ii. Freshwater habitat mitigations

Preferred locations for conducting acoustic seismic surveys are those where overwintering fish populations are not present. Federal and state regulators will work to minimize fish impacts through avoidance of critical fish overwintering habitats.

Mitigation measures for acoustic seismic surveys will recommend that seismic activities be set back from freshwater fish spawning areas reducing shock waves to safe levels before reaching incubating eggs during sensitive stages of development. All seismic survey activities will require prior permitting and approvals in compliance with federal, state, and local statutes, regulations, and ordinances. Acoustic surveys will be the recommended method for seismic surveys. All work will be in compliance with the approved permitted plans for seismic data collection.

2. Phase 2 – Permitting and Field Activity Impacts

a. Terrestrial Habitat Impacts

i. Disturbances

Program components for the second phase of exploration (proposed for Year 3) that may impact surface terrestrial habitats are related to permitting, environmental surveys, site clearances, and other studies. Site specific, non-invasive site clearance and permitting related field investigations may occur in all seasons, including summer. Follow-on field studies to occur in pre-approved months, will be planned and conducted as necessary for Years 4-7.

ii. Air traffic Disturbances to Wildlife

Access to sites during this phase will be primarily by air and helicopter transport, with no permanent roads needed. There is concern that when caribou and wildlife are present in the area of exploration activities, the animals can be briefly disturbed by low flying aircraft. This can result in disruption of habitat use, with highly variable animal reactions, ranging from none to violent escape. Reactions depend upon: distance from human activity; speed of approaching disturbance

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source; altitude of aircraft; frequency of disturbance; sex, age, and physical condition of the animals; size of caribou group; and season, terrain, and weather.

Caribou in some herds appear to be habituated to aircraft; other herds respond with panicked running. Flights greater than 2,000 feet above sea level during calving, and flights greater than 1,000 feet above sea level at other times appears to cause little or no caribou reaction (Shideler, 1986). In contrast, Calef, et al. (1976), stated that during the spring and fall migrations, caribou react to aircraft flying less than 200 feet in altitude, and that above this height, disturbances were noted in less than 20 percent of the groups observed. They also found that during calving there were strong panic and escape animal behaviors during overflights of less than 500 feet height (Calef, et al., 1976). Panic reactions can cause animals to collide and injure themselves, with young calves being particularly susceptible to injury (Calef, et al., 1976).

Muskoxen remain relatively sedentary in the winter and during calving periods, enabling them to conserve energy to compensate for reduced forage (Reynolds, et al., 2002). Therefore, disturbances that cause muskoxen to move may be of concern. Mixed groups of muskoxen showed a greater sensitivity to fixed-wing aircraft in winter and during calving than in summer, fall, or during rut. Helicopters and low-flying aircraft have sometimes caused muskoxen to stampede and abandon their calves (NRC, 2003). Muskoxen also may react to equipment that generates visual and audio disturbances, such as seismic survey equipment. As mentioned above, it was found that when seismic equipment operated within two miles from the herd, it moved away from the equipment and sounds. Research has shown that the animals return from one to four weeks after the disturbance (Russell, 1977). Muskoxen may react to visual stimulus rather than the noise of the disturbance source. On level land, the disturbance was much less than in more rolling terrain where more sudden appearance of a vehicle caused a disturbance. Aircraft and snow machines caused a disturbance at greater distances than Nodwell vehicles (Beak Consultants Ltd., 1976).

Bears may be affected by summer activities. Human activity may initially cause bears to avoid an area and can displace bears in the area. The potential winter activity impacts of the seismic surveys may also be pertinent to Phase 2.

b. Freshwater Habitat Impacts

No negative freshwater habitat impacts are expected during Phase 2, as field activities will be short-term, non-invasive investigations related to permitting and well site clearances. It is recommended that only activities that do not impact freshwater habitats are authorized.

c. Suggested Mitigations – Phase 2 – Field Investigations

Field site clearances and environmental studies can use low impact, short duration, and non-invasive methodologies. Approval of specific field methods will reduce the risk of short- or long-term changes during field investigations. Site

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visits and surface uses will be approved when populations are not present or found in lesser numbers. Exceptions may be recommended and pre-approved in order to meet permitting requirements for siting or environmental studies, when conditions dictate short-term field investigations are necessary. Summer projects will be considered on an as needed only basis. All equipment will be transported in and out of the coastal plain during winter months. No equipment is planned to be staged at field sites within the Section 1002 Area at the end of the field season.

Access to the sites will be by air and helicopter transport, with no permanent roads needed. Air traffic should be conducted to avoid any populations that may be present in winter. Summer air traffic must be permitted and monitored to avoid undue disturbances and habitat displacement caused from increased traffic.

All Phase 2 field activities will require site-specific permitting and approvals to effectively prevent impacts and require use of the proper mitigation measures.

3. Phase 3 – Ice-based Facility Construction and Exploration Drilling Impacts

The Phase 3 exploration program is planned for winter months only, using seasonal ice-based facilities. Ice-based facility construction will be limited to winter months each year of the exploration drilling program, beginning when ice road construction is allowed and ending when ice road closures are expected (Table "Winter Tundra Travel" in Chapter 5). The length of the ice roads built are dependent upon the locations of the approved drill sites, with total road distances ranging from 35 to 100 miles per year. Water demand for ice road construction may be about 1 million gallons of water per mile. A total of four drill pads are planned each of Years 4-7, for a total of 14 wells drilled in total.

Similar Arctic region exploration programs have been approved by U.S. Department of Interior – Bureau of Land Management (BLM), and completed in the National Petroleum Reserve – Alaska (NPR-A). These approved exploration plans in NPR-A planned for five to eleven drill sites, using about 62 to 110 miles of ice roads (BLM 2006a, b). Impacts were mitigated for both these exploration programs that were conducted on NPR-A federal lands. This proposal suggests similar mitigations to those approved in NPR-A for the ANWR exploration program.

a. Terrestrial Habitat Impacts – Phase 3

i. Ice-based Roads and Pads Impacts

Access to drilling sites will primarily be conducted using ice roads. Ice roads and other ice-based facilities, such as pads and airstrips, can cause impacts from construction techniques, off-road transportation, impacts to permafrost, and terrain disturbance (Hanley, et al., 1981).

Proper ice road siting is likely to significantly reduce negative impacts. Correctly placed ice-based roads and pads result in little or no lasting damage to the tundra (API, 2012). Wetlands and other terrain types with specific habitat values require proper management for prevention of negative impacts. Field research has

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found that siting of ice facilities is less destructive to vegetation in wetland areas, compared to drier upland areas. Studies have been conducted about the impacts of ice roads and ice pads on tundra ecosystems in the NPR-A. These studies found that a single-season ice road will have no apparent long-term negative impacts, and will recover naturally with little to no evidence of damage (Guyer and Keating, 2005). Upland areas did show impacts from ice roads with reduction of plant vegetation. More significant impacts were observed on higher, drier sites, with little to no evidence of damage observed in wetlands (Guyer and Keating, 2005). Damage was also observed to shrubs, forbs, and tussocks in research conducted in 2001 and 2002. There was no evidence that the length of time of road placement, the amount of hauled weight, or frequency of road usage caused additional impacts to vegetation.

Permafrost may respond to surface uses such as ice road, ice pad, and off-road travel, especially in non-winter conditions. Winter road and pad construction for exploration can effectively prevent these impacts. It has been found that during non-winter months, rolligons and other low pressure vehicles may upset the thermal balance of the permafrost beneath the tundra. Based upon research by Jorgenson et al. (2002), differing vegetation types respond differently to the surface use of rolligon vehicles. The amount of time that is predicted for full surface revegetation after rolligon use ranged from three to ten years with differences attributed to type of vegetation, soil moisture characteristics, and level of disturbance. Dwarf shrub tundra generally showed a higher level of disturbance from rolligons than the moist wet sedge tundra vegetation (Jorgenson, et al., 2002), as supported above by Guyer and Keating (2005) in the NPR-A.

Ice road construction and vehicular passage can cause some impacts that alter surface albedo (the reflectivity of sunlight off the earth's surface) or water drainage patterns, resulting in thaw and subsidence or inundation. Such changes can affect regeneration and revegetation of certain plant species, and composition may change after disturbance (Linkins, et al., 1984).

The soil-water content, and the freezing and thawing cycles impact soil strength. Water that freezes in the soils impedes the movement of soil particles. Low soil-water content does not increase soil strength upon freezing (Lilly, et al., 2008). The Lilly study also showed that while freezing, the soil temperatures colder than -2°C did not cause an appreciable increase in frozen soil water, and the difference in frozen soil-water content between -2° C and -5°C in early spring was less than autumn freezing conditions (Lilly, et al., 2008). Dry, snowless ridges and vegetated sand dunes are at a higher risk of damage.

The water from melting ice from roads and pads can also alter drainage patterns, with potential changes in water budgets. Chemical input from ice roads into water bodies can occur upon melting, and may also result in emissions to the airshed, and bioaccumulation in soils. When roads alter habitats, plant species can be changed or removed (NRC, 2003).

In summary, many lessons have been learned about the best use of ice roads

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and ice pads. Ice roads have proven to be one of the most effective ways to access resources with minimal impact to the tundra. As a result of research and close collaboration between industry and the ADNR, correctly placed ice roads currently demonstrate no lasting significant impacts from construction and use.

ii. Tundra Travel Impacts

During the exploration Phase 3, the most significant disturbances may be caused by cross-country tundra travel and construction (Hanley, et al., 1983). Disruption of the tundra surface may result in thermokarst in Arctic environments (Truett, 2000, citing to MacKay, 1970). Thermokarsting is a result of heat absorption by the tundra soils (McKendrick, 2000, citing to McKendrick, 1987; and Walker, et al., 1987). This causes irregular land formation due to the uneven melting of permafrost. The effects can alter the terrestrial habitat and may cause runoff and siltation of nearby freshwater habitats.

iii. Exploration Drilling Impacts

Exploration drilling activities may cause impacts similar to ice-based facility impacts. Activities may remove the natural insulation, inducing thermal and hydraulic erosion, and thermokarst, particularly in poorly-drained, fine grain sediments. Disturbance from drilling locations may cause melting, erosion, heaving, slumping, and subsidence (Hanley, et al., 1981). The active layer of soil can undergo changes that cause settling, and can cause draining of areas previously frozen. Growth of depressions can cause more thawing and further subsidence, and potential deepening of Arctic lakes.(Hinzman, et al., 1997, citing to Lawson, 1986 and Waelbroeck, 1993).

iv. Wildlife Impacts

Both ice-based facility construction and exploration drilling can impact wildlife present in winter. Ice roads connecting well sites and supply areas provide a source of disturbance to wildlife from vehicles. Ice roads also allow access to animals, such as fox, that may be perceived as a nuisance (Clough, et al., 1987). Use of ice airstrips on the tundra may also cause disturbances from increased air traffic. Reduced numbers of wildlife in winter will reduce negative impacts from exploration related air traffic in the winter season.

Exploration drilling and associated activities may disturb denning polar bears if not properly located to avoid den disturbances. As discussed in the seismic survey impacts section above, polar bears are present on the coastal plain and found on the land fast ice and barrier islands off the coast north of ANWR (USFWS, 2010, citing to Garner, et al., 1990, Amstrup et al., 2000; DeMaster and Stirling, 1981; Amstrup and Garner, 1994; and Durner, et al., 2006). Federal and state regulations require protections, such as human-bear interaction plans, and siting of activity locations away from active den sites. Compliance is required to protect listed species and their habitats.

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Muskoxen have a high fidelity to particular habitat areas because of factors favorable to herd productivity and survival, such as food availability, snow conditions, and absence of predators (Reynolds, et al., 2002). Therefore, displacement from preferred habitats could have a negative effect on muskoxen populations. In winter and during calving, muskoxen remain relatively sedentary to conserve energy and compensate for reduced forage (Reynolds et al., 2002). Mixed groups of muskoxen showed a greater sensitivity to fixed-wing aircraft in winter and during calving than in summer, fall, or during rut. Helicopters and low-flying aircraft have sometimes caused muskoxen to stampede and abandon their calves (NRC, 2003).

Foxes may be found in the coastal plain in winter. They readily habituate to human activity, which can lead to human-animal encounters. Foxes can use human structures and are attracted to anthropogenic food sources. Foxes are especially attracted to human activity because of scavenging opportunities (Burgess, 2000, citing to Wrigley and Hatch, 1976; Eberhardt, 1977). Human use of land with denning sites can force animals to move (Eberhardt, 1977). Ice roads connecting well sites and supply areas provide a source of disturbance from vehicles, and access to animals that may be perceived as a nuisance (USFWS, 1987). Foxes have been attracted to camps where workers provided food handouts (Eberhardt, 1977).

Oil and gas exploration activity may attract foraging foxes and wolves, especially to refuse disposal areas. Wolves may also visit the coastal plain in winter. During construction of the Dalton Highway and TAPS, wolves readily accepted handouts from construction workers (McNay, 2002). When wolves approached humans, they were sometimes shot (McNay, 2002). Foxes and wolves are also noted for rabies outbreaks, which increase when population densities are high and add risks to human health.

v. Releases impacts

The potential for a major oil or produced fluid spill containing drilling muds and water is very rare during the exploration drilling of a project. Despite the low probability of a spill, there is still potential for one to occur. The most likely spills consist of drilling mud and produced water. This proposal discusses the impacts and mitigation for such events below.

During exploration well drilling, muds and cuttings are stored on-site, in holding tanks, or in a temporary waste storage area. Mud and cuttings are then hauled to an approved solid waste disposal site or reinjected into the subsurface at an approved injection well. Common drilling fluids contain water, clay, and chemical foam polymers. Drilling additives may include petroleum or other organic compounds to modify fluid characteristics during drilling (National Driller, 2010). The down-hole injection of drilling muds and cuttings have no impact since they are never placed into or in close vicinity to a drinking water aquifer (NRC, 2003). This injection technique for mud and cutting disposal has greatly reduced the potential adverse impacts caused by releases of drilling muds and reserve pit materials (NRC, 2003).

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Discharges of drilling muds during operations can introduce contamination if not recovered and removed. Vegetation can be lost or altered, and disturbance can change community composition. The level of impacts is a function of intensity and duration. Long duration impacts can alter permafrost stability and the heat budget that maintains the permafrost (IUCN, 1993). Prudent operations can prevent accidental releases and are fundamental to the permitting requirements for an exploratory well operator.

Oil spills

Oil spilled on the tundra could migrate both horizontally and vertically. The spread of oil is lessened when it is thicker, cooler, or is exposed to chemical weathering. If the ground temperature is less than the pour point of the oil, it would pool and be easier to contain. If the oil is spilled on snow, it may be absorbed by the snow. Spilled oil that is warmer than snow may melt the snow and flow along the ground under the snow (Linkins, et al., 1984, citing to MacKay, 1975).

Dry soils have greater porosity and the potential for vertical movement is greater (Linkins, et al., 1984, citing to Everett, 1978). If oil penetrates the soil layers and remains in the plant root zone, longer-term effects, such as mortality or reduced regeneration, would occur in following seasons (Linkins, et al., 1984). Hydrogen degrading bacteria and fungi can act as decomposers of organic material, and under the right conditions can assist in the breakdown of hydrocarbons in soils. Natural or induced bioremediation using microorganisms can also occur (Linkins, et al., 1984; Jorgenson and Cater, 1996). Tundra recovery from a crude oil spill in Prudhoe Bay showed complete vegetation recovery within 20 years without any cleanup (McKendrick, 2000, citing to McKendrick, et al., 1981). Natural recovery in wet habitats may occur in time durations of 10 years or less, if aided by cleanup activities and additions of fertilizer (McKendrick, 2000).

Any wildlife present could also be directly impacted in the vicinity of the spill through physical contact, ingestion, inhalation and absorption. As food sources are impacted by oil, larger animals, fish, mammals and humans can in turn be affected (USFWS, 2004).

The long-term effects of oil may persist in the sediments for many years. Shifting of population structure, species abundance, diversity and distribution can be long term effects, especially in areas that are sheltered from weathering processes (USFWS, 2004).

Impacts to the terrestrial habitat could also result from disturbances associated with spill cleanup activities, but these disturbances also have positive effects by minimizing animals' and birds' direct contact with oil. The amount of damage to tundra by oil spills and the length of time that the oil persists declines with the site moistness, and increases with oil concentration at the site (McKendrick, 2000, citing to Walker, et al., 1978). Observations of a wet-sedge meadow affected by a crude oil spill showed that complete vegetation recovery occurred in 20 years

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without cleanup. In contrast, a dry habitat affected by a crude oil spill recovered to only 5 percent of the vegetation cover after 24 years (McKendrick, 2000, citing to McKendrick, 1999). Burning as part of oil spill cleanup immediately after the spill is a very effective cleanup method. Heat from a fire will not penetrate deeply into the soil, and tundra recovery will occur naturally (McKendrick, 2000).

Releases during exploration drilling are not common, and are localized to the drilling locations. An example is a release of drill mud fluids and down hole material were released during exploration drilling on the North Slope in 2012. Drilling penetrated an unexpected shallow gas pocket, and gas and mud fluids were released using a gas diverter onto the drilling pad and onto an area in the immediate vicinity of the ice pad. No injuries were reported as result of this gas blowout. All fluids and materials were cleaned up from the drill pad, and the released water-based mud was cleaned up to the satisfaction of the ADEC and the local oversight panel from the Village of Nuiqsut (ADEC SPAR, 2012). This type of exploration drilling release is not common, but the impacted area is limited to the immediate area of drilling and can be of short duration. Cleanup of fluids from the snow and ice cover in winter can prevent any long term negative impacts to the vegetation and habitats in the area.

Gas blowouts

A gas blowout is caused by encountering deposits of natural gas under pressure that can cause loss of well control. A blowout is defined by International Association of Oil and Gas Producers (IAOGP) as:

> *"An incident where formation fluid flows out of the well or between formation layers after all the predefined technical well barriers or the activation of the same have failed." (IAOGP, 2010).*

A blowout can release natural gas and toxic concentrations of hydrogen sulfide (H_2S), a denser gas that will migrate and accumulate close to the ground. The gas release effects can cause potential harmful explosions, and acute, toxic respiratory problems. Hydrogen sulfide is a colorless, corrosive, flammable gas that can paralyze nerve centers that control breathing for humans and wildlife. Symptoms and reactions range from coughing, eye irritation, loss of smell to unconsciousness, cessation of breathing and death in a few minutes after exposure (Van Dyke, 1997).

The gas that is released in a blowout is flammable and explosive, and creates conditions for a potential explosion and resultant fire that would impact the immediate area. Associated gas vapors may migrate downwind, and ignition of the gas can cause an uncontrolled explosion, drill rig damage, and injury and death to drill rig personnel. Natural gas and condensates that did not burn in the blowout would be hazardous to any organisms exposed to high concentrations. A blowout fire could also deposit a light, short-term coating of particulates over a localized area, impacting nearby habitats. Blowout prevention is critical during exploration drilling (Van Dyke, 1997).

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Because of these factors, the oil and gas industry is extremely safety conscious and works to remain in compliance with the most up-to-date and technologically advanced safety requirements to prevent blowouts in every operation.

vi. Air Quality Impacts

Oil and gas exploration activities may also produce emissions that potentially affect air quality. Gases are emitted into the air from power generation, flaring, venting, well testing, leakage of volatile petroleum components, supply activities, and transportation (Arctic Council, 2009). Greenhouse gas emissions (CO_2 and CH_4) are potential sources of air pollution. These emissions come primarily from the burning fossil fuels in generators, vehicles, heavy construction equipment, aircraft, and camp operations, as well as the flaring and venting of natural gas. Fugitive sources account for a significant percentage of CH_4 emissions from oil and gas operations.

ANWR is designated as a Class II area for air quality standards. The reported air quality concentrations of regulated pollutants on the Alaska North Slope are below the maximum allowed under the National Ambient Air Quality Standards (NAAQS).

Vehicles, heavy construction, and drilling equipment could produce emissions from engine exhaust and dust during exploration. Sources of air emissions during drilling operations include rig engines, camp generator engines, steam generators, waste oil burners, hot-air heaters, incinerators, mobilization and demobilization equipment, and well test flaring equipment. Emissions could also be produced by engines, turbines, and heaters. In addition, aircraft, supply boats, personnel carriers, mobile support modules, as well as intermittent operations such as mud degassing and well testing, could produce emissions (MMS, 2008b). Other sources of air pollution include evaporative losses of volatile organic compounds from oil/water separators, tanks, pump, compressor seals, and valves. Venting and flaring could be an intermittent source of volatile organic compounds and sulfur dioxide (MMS, 2008b).

Gas blowouts, evaporation of spilled oil, and burning of spilled oil may also affect air quality. Gas or oil blowouts may ignite and a fire could deposit a light, short-term coating of particulates over a localized area. In-situ burning of spilled oil must be pre-approved by ADEC and EPA and/or the U.S. Coast Guard (ADEC, et al., 2008). Controlled in-situ burning of spilled oil is only allowed if it is located a safe distance from populated areas. Approved burn plans may require mitigation activities to reduce particulates. Other effects of reduced air quality include possible damage to vegetation, acidification of nearby areas, and atmospheric visibility impacts (BLM, 2005).

In summary, the Arctic is very sensitive to air quality concerns and particularly black carbon. Compliance with EPA Class II air quality standards is a recognized standard of performance.

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b. Freshwater Habitat Disturbances and Water Withdrawals Impacts

i. Releases Impacts

If an oil spill occurred, the effects on fish habitats would depend on many factors, including the time of year, size of the spill, and water body affected. Fish can be impacted by oil in a variety of ways (USFWS, 2004). The impacts of the toxins in oil to freshwater invertebrates are also of concern (Jorgenson and Cater, 1996). Potential adverse effects include direct uptake of oil by the gills, ingestion of oil, ingestion of oiled plankton or prey, effects on survival of eggs and larvae, and ecosystem changes in freshwater habitats. Adult fish may be affected by reduced growth, enlarged livers, heart and respiration rate changes and effects to reproduction.

Oil weathers over time, and organisms may be able to tolerate the presence of oil while it is naturally degrading (Jorgenson and Cater, 1996). The long term effects of oil may persist in the sediments for many years. Shifting of population structure, species abundance, diversity and distribution can be long term effects, especially in areas that are sheltered from weathering processes (USFWS, 2004). Clean-up measures can cause unintended adverse impacts, such as inducing thermal degradation, use of tundra damaging equipment and manpower activities, and further oil movement during thawing conditions. Active field clean-up can be less beneficial than passive measures that facilitate natural recovery, in the case of small or contained spills (Linkins, et al., 1984).

Impacts to freshwater from releases of drilling muds include direct discharges to wetlands and waterways. Contamination of the ground surface can migrate with surface and ground water interactions (IUCN, 1993).

Releases of drilling muds and produced water may impact fish and benthic organisms (Olsgard and Gray, 1995). Lethal or sub-lethal effects may subtly reduce or impair physiological and reproductive fitness (Davis, et al., 1984). Type and extent of effects depends on a myriad of factors including habitat involved, species, life history stage, migration patterns, nursery areas, season, type of chemical, amount and rate of release, time of release, duration of exposure, measures used for retaining of the chemical, and use of counteracting or dispersing agents (Davis, et al., 1984). Improper siting of drilling operations can increase the likelihood of these potential negative effects to freshwater habitats.

The extent and duration of water quality degradation resulting from accidental spills would depend on the type of product, the location, volume, season, and duration of the spill or leak, and the effectiveness of the cleanup response. Heavy equipment, such as trucks, tracked vehicles, aircraft, and tank trucks, commonly use diesel fuel, gasoline, jet fuel, motor oil, hydraulic fluid, antifreeze, and other lubricants. Spills or leaks from these vehicles may result from accidents, refueling, or corrosion of fluid lines (ADEC, 2007).

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Releases to water environments that have concentrations above the level considered acceptable for aquatic life could cause toxic conditions (Woodward, et al. 1988). Significant accumulation of drilling mud in wetlands can potentially impact benthic habitats and can blanket fish spawning grounds (Schmidt, et al., 1999, citing to Falk and Lawrence, 1973; and citing to Sprague and Logan, 1979). Some research shows that bentonite mud may increase and improve the water holding capacity of soil (Schmidt, et al., 1999, citing to Luginbuhl, 1995). Suspended solids in aquatic habitats can have adverse effects on egg and larval development of amphibians (Schmidt, et al., 1999, citing to Richter, 1995). Produced waters may contain hydrocarbon and chemical constituents in volumes that may be toxic to microorganisms and mysid shrimp (Brown, et al., 1992).

In summary, the potential impacts of oil spills on the North Slope are well known and mitigation measures have been developed for oil and gas infrastructure that minimize these risks.

ii. Water Withdrawals Impacts

There may be potential impacts to surface water resources due to the large quantities of water needed for construction of ice-based facilities and drilling. The exploration program's needs for available water will be used for ice roads, ice pads, ice airstrips, potable water, tank cleaning, well drilling and testing. Substantial water volumes are needed for ice-based facilities construction and drilling in Years 4-7. It is estimated that constructing one mile of ice road requires about one million gallons of water. An updated assessment of the water resources of the 1002 Area will be integral to planning and permitting the withdrawal of water and understanding the seasonal cycle of recharging lakes and ponds.

The majority of lakes in the 1002 Area are located at the mouth of the Canning and Jago rivers (Lyons and Trawicki, 1994). In winter, the combination of extreme cold and short days cause these lakes and streams to freeze (Lyons and Trawicki, 1994). The depth of water body ice may reach seven feet. Winter waters are also found in isolated pools and lakes generally deeper than seven feet. Annual snowmelt does not easily penetrate permafrost soils, and water migrates toward stream channels, with most flow occurring in breakup months in spring each year (Lyons and Trawicki, 1994, citing to Clough, et al., 1987, and Sloan, 1987).

According to ADF&G, lakes with depths of five feet may host overwintering species that are tolerant to low dissolved oxygen, but lakes six feet or deeper are more likely to provide overwintering habitat. ConocoPhillips finds that water depths of seven feet or more are considered the minimum for supporting overwintering freshwater fish (ConocoPhillips, 2010). Oxygen depletion, caused by overcrowding or over-demand by biological and chemical processes, can result in fish mortality at limited sizes and depths (Schmidt, et al., 1989; Reynolds, 1997). The Ivishak River, to the west of ANWR, is known to provide consistently available overwintering habitats for anadromous fish in the North Slope area (Viavant, 2007; Viavant, 2009). Fish overwintering areas were also located on the coastal

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plain of ANWR (USFWS, 1983). The removal of snow from lakes may increase the freeze depth of the ice, impact overwintering and resident fish, and adversely affect the ability of fish to utilize the lake in future years.

Habitat disturbances and water withdrawals may have short- and long-term impacts if improperly done in habitats that are critical for overwintering fish populations. Fish species considered potentially sensitive to water withdrawal activities are Arctic grayling, broad whitefish, least cisco and northern pike (BLM, 2006b). Overwintering habitats were identified in the coastal plain area during evaluations conducted by USFWS as part of the proposed federal oil and gas exploration program planning in 1983, but these areas need to be further researched (USFWS, 1983).

In addition, water withdrawal may have effects on bird habitats, including changes in drainage patterns, thermokarst, and surface disturbance. There may also be some non-invasive, short term impacts to bird habitats during summer month investigations. Migratory birds will not be present during winter months, and therefore, will likely not be directly impacted by winter exploration activities. Resident birds, such as ptarmigan, may experience minor impacts.

Construction of ice-based facilities, breaching of ice bridges, and related water withdrawals can also cause erosion of river banks, siltation, bottom substrate disturbance, reduced water volumes, altered water quality, barriers to fish passage, and elimination of habitats (Hanley, et al., 1983). Water quality characteristics that could potentially be affected by oil and gas activities include: pH, total suspended solids, organic matter, calcium, magnesium, sodium, iron, nitrates, chlorine, and fluoride content. Potential activities that might also affect surface water quality parameters include accidental spills of fuel, lubricants, or chemicals, increases in erosion and sedimentation causing elevated turbidity, and suspended solids concentrations. Crude oil spills could affect water quality depending on the size, scope, and nature of the spill.

Because of the many issues associated with water withdrawal and use, the lessons learned from the North Slope's long history of responsible development and the ADNR's institutional expertise must be carefully utilized to inform permitting decisions in the 1002 Area related to ice roads, pads, and airstrips.

c. Suggested Mitigations - Phase 3 Ice-based Facilities and Drilling

i. Terrestrial Habitat Mitigations

Exploration program activities will primarily be planned for winter months. The primary mitigation objectives are to avoid seasons with high potential for negative effects, to protect habitats, and therefore reduce negative short- and long- term impacts to populations in the ANWR 1002 Area.

There are numerous methods required by state and federal mitigation measures to

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minimize impacts to terrestrial habitats. The Alaska North Slope lease sale mitigation measures currently in place have been developed in cooperation with native communities, state and federal agencies, local governments, the general public, non-governmental organizations, and other agencies and associations. Identifying impacts of oil and gas activities and providing site-specific mitigation measures to maintain habitats, water and air quality, subsistence activities, and wildlife is an important part of the oil and gas development process. This proposal builds upon these efforts and addresses mitigation measures for the proposed winter exploration program in ANWR's 1002 Area's coastal plain.

Ice-based facilities and exploration drilling mitigations

Construction of ice-based facilities will be conducted only in the winter season. Winter activities will minimize potential noise disturbances and negative impacts to the reduced numbers of wildlife populations present in winter habitats. It is recommended that activities be planned for when most terrestrial populations are not found, or not present in large numbers. These activities cannot begin without approved permits and authorizations that make these restrictions.

Exploration activities must be conducted with practices to reduce disturbances that may damage or destroy vegetation or are known to alter soil characteristics. Travel across tundra is recommended to be restricted to locations and timeframes that comply with federal and state tundra travel approvals. The North Slope area tundra travel season is generally early January through mid-May. The ADNR determines the open and close dates of tundra travel each year, based upon actual observed field conditions (Table "Winter Tundra Travel" in Chapter 5).

Planning and winter maintenance of ice roads should minimize seasonal habitat fragmentation and loss, and cause little to no lasting significant damages to the tundra. Road management efforts are recommended to monitor road integrity and compliance with construction stipulations. Operators should also control excessive water run-off, especially during melting periods in the spring season (Spellerberg and Morrison, 1998). New ice-based roads and pads that incorporate modern technologies are also recommended, such as prefabricated insulating panels to extend the winter drilling season (API, 2012). Proper siting can result in little to no lasting significant tundra damage.

Drilling Mitigations

Exploration drilling is proposed to occur during acceptable field winter conditions with minimal surface disturbances and tundra habitat impacts and when there are a limited number of animals present. Field inventories and site investigations should be conducted prior to activities to select optimal drill sites that prevent habitat degradation and reduction. Air traffic associated with drilling activities may cause some disturbances, but altitude and volume restrictions can decrease these impacts. Construction of gravel structures will be discouraged, and should only be approved on a case-by-case basis. The use of temporary structures

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with low impacts will be preferred. If used, gravel removal sites may require site rehabilitation to comply with federal and/or state requirements. All drilling must comply with the federal and state drilling permit requirements detailed in Appendix C.

Wildlife and Habitat Mitigations

Proper management and planning can reduce impacts to bear populations and reduce bear-human interactions. Federal and state regulations require protections for ESA-listed species and wildlife habitats, and compliance is required for all operations. These protections are regulated by USFWS and NOAA and limit even incdiental impacts to polar bear populations.

A human-bear interaction plan is needed to comply with federal and state regulations. Proper disposal of garbage and putrescible waste is essential to minimize attraction of wildlife. Waste management practices must comply with proper disposal requirements, consistent with existing USFWS and ADF&G policies. Waste from operations must be reduced, reused, or recycled. Wildlife interaction plans could be required to ensure that wildlife near operations do not encounter human food sources.

Caribou will generally not be present in the area during the proposed winter drilling program. Previous experience with well disturbances and caribou showed that the maximum animal avoidance distances from well sites were reported to be 1,000 meters, (Dyer, 1999). A research perspective by Joly et al. (2006) finds that oil and gas activities and development on Alaska's North Slope have not adversely affected caribou. As discussed in Chapter 2, caribou populations have increased in recent years.

Releases Mitigations

Oil spill prevention is required to minimize impacts, and to comply with federal and state requirements. On state-regulated lands, Contingency Plans authorized by Alaska Department of Environmental Conservation (ADEC) must be obtained. Completed shallow hazard surveys are required by the Alaska Oil and Gas Conservation Commission (AOGCC) prior to exploration drilling to provide information for proper siting of wells to prevent well blowouts. Oil spill prevention is a priority during all activities including maintenance and monitoring procedures.

If released, oil must be removed from ice-based facilities (ice roads, ice pads, ice airstrips) during operations prior to ice melt to prevent any threat of release to the tundra habitat below. If a release occurs, an incident command team can be immediately formed to make site-specific recommendations for the best means to facilitate recovery, remediation, or natural dissipation that minimize adverse effects to habitats (Linkins, et al., 1984).

Drilling wastes must be managed and disposed following federal and state requirements. Operators must adhere to practices and standards in compliance

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with applicable U.S. Environmental Protection Agency, ADEC, and AOGCC regulations. Reinjection is the preferred method for disposal of drilling fluids, as authorized by AOGCC under the Underground Injection Control (UIC) program for oil and gas Class II wells in Alaska for cuttings and waste fluids that are non-hazardous.

Operators and regulators can work together to consider new technological advances to reduce waste using drill mud systems that are less toxic to the environment. Synthetic muds can be reconditioned for continued use, instead of discharged as waste (Wojtanowicz, 2008). Newer synthetic-based muds produce even less waste, along with improved drilling efficiency. They are reusable, and have advantages in environmental protection over oil or water-based muds.

Fuels, hazardous substances and waste are required to be stored and managed in compliance with federal, state and local requirements. Secondary containment is required for fuel and hazardous substances and for connection points for containers, fuel tanks, and hoses. Drill sites will require use of protections from leaking or dripping, and equipment will be stored using an impermeable liner or other suitable containment mechanism to protect the terrestrial habitat. Spill response equipment must be staged on site, and trained personnel must attend transfer operations at all times.

Upon abandonment of drilling sites, it will be required that all facilities be removed and the sites rehabilitated to meet required federal and state closure compliance.

ii. Freshwater Habitat Mitigations

Operations will be recommended and permitted to minimize impacts to wetlands. Because most exploration activities will take place in winter, impacts to freshwater habitats will be minimal. To further reduce impacts, the following mitigation measures are being planned for winter exploration, and the short-term, non-invasive summer investigation activities. Exploration activities will consider and protect water and wetland habitats and overwintering locations from water withdrawal and other habitat disturbances. Exploration operations will have site-specific mitigation requirements that prevent any adverse impacts to water bodies and wetlands during the program.

Habitat Disturbance Mitigations

Recommended mitigation measures will be focused on avoiding or minimizing potential impacts of winter exploration activities on freshwater habitats. The primary concerns are impacts from disturbances and oil releases related to ice pads and ice roads that are in close proximity to water bodies and wetlands. Recommended mitigations include requirements to contain waters and sediment load from flowing into surface waters, and the use of overpass and fish crossing structures that prevent habitat impacts (Spellerberg and Morrison, 1998). Stipulations with approved permits tailor these requirements to specific projects and sites.

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Activities must avoid erosion that causes siltation and sedimentation. These impacts may reduce or alter stream flow, and may adversely affect overwintering habitat availability and the ability for fish to migrate upstream.

While not anticipated for the program in this proposal, gravel removal from rivers and streams must have prior approval to prevent increased sediment loads, changes in streambed courses, destruction of spawning habitats, and obstacles to fish migration. Gravel structures, while not preferred at the exploration stage, can be approved on a case-by-case basis. Gravel removal sites may require significant site rehabilitation to comply with federal and/or state requirements.

Drilling locations can also be restricted by appropriate set-back distances from water bodies for overwintering or spawning areas of the rivers used by Dolly Varden and Arctic char fish.

River and stream crossings must be approved and evaluated by federal or state regulators, based upon current data. A crossing of a fish bearing water body will be preferred where it is not within an overwintering and/or spawning area, or will have no significant adverse impact overwintering fish and habitats.

Oil spills released on ice-based roads, pads, and airstrips will be removed during operations prior to ice melt to remove any threat of release to the tundra or wetlands below (API, 2012).

Water Withdrawal Mitigations

Similar to habitat disturbance mitigations, there are several impacts to consider when water withdrawals are employed. Selection and prior approval by regulators is required for locations, timing, and volumes. Sources of water for industrial and construction use will need to be surveyed for fish and bathymetric characteristics prior to authorization. Water use from deep streams or lakes may be limited by the use of ice chips to construct ice aggregate for ice-based facility construction. These ice chips can be sourced from shallow lakes and along shallow lake margins. Operators must obtain prior written approval for any water and ice withdrawals, and must comply with the specifications and inventory requirements authorized for each water source.

On state land, state regulatory agencies authorize water withdrawal from fish bearing lakes during winter based upon fish species criteria and related habitat limitations. Lakes that are authorized for water withdrawal will be approved based upon habitat sensitivity and lake characteristics, such as depth, dissolved oxygen levels, and winter ice thickness. Ice aggregate removal may be authorized from naturally grounded lakes on a case-by-case basis. Lake volumes can be estimated using bathymetric surveys prior to approval for water withdrawal, if necessary. Management of snow levels over lakes will comply with permits and regulations. Compaction of snow cover overlying fish bearing water bodies is prohibited except for approved crossings. Some streams and rivers may not be able to be used as a water source during winter. New water sources may need to be located and developed from ground water sources, if they are available. If new water wells are

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needed, water drilling permits must be approved prior to any drilling of water supply wells for exploration operations.

In summary, freshwater mitigation measures emphasize: siting facilities away from fish bearing streams and lakes; managing water use to protect habitats and fish; developing oil spill contingency plans; and providing adequate spill response equipment staging and training.

C. Human Uses and Environment Impacts:

1. Subsistence, Hunting/Fishing, Historic and Cultural Resources Impacts

Subsistence uses within ANWR are dependent upon the area's terrestrial and freshwater habitats. Traditional access and subsistence uses are maintained by many statutes, regulations, and policies. ANILCA (P.L. 96-487, Title VIII, Section 810) ensures that rural residents engaged in subsistence uses have reasonable access to subsistence resources. The USFWS monitors fish, wildlife, and plan populations and their harvests in ANWR.

Traditional subsistence activities include hunting and fishing for caribou, muskoxen, brown bear, moose, and other furbearers; hunting for migratory waterfowl and collecting their eggs; fishing for Dolly Varden, Arctic char, whitefish, salmon, Arctic grayling, rainbow trout, and burbot; collecting berries, edible plants, and wood; and producing crafts, clothing, and tools made from these wild resources. Equally important, subsistence activities include consuming, sharing, trading and giving, cooperating, teaching, and celebration among members of the community. Potential effects to subsistence uses are discussed below.

a. Subsistence Impacts

The primary users of the ANWR coastal plain for subsistence hunting and harvests are residents from Kaktovik and Nuiqsut (Pederson, Kruse, and Braund, 2009). Subsistence hunting is conducted during winter, but less frequently than during other seasons of the year (ADF&G, 1986b). Hunters from Kaktovik occasionally seek freshwater fish, seals, moose, caribou, bears, muskoxen, furbearers, birds and dall sheep in the winter (ADF&G, 1986b). Hunters from Nuiqsut occasionally fish and trap for fish, seals, birds, caribou, bears, and other furbearers, when these populations are present during this season as well (ADF&G, 1986b).

Potential oil and gas exploration activities that could have effects on subsistence uses of the ANWR area include seismic surveys; discharges from drilling; construction of ice-based roads and facilities; and disturbances from vehicle, boat, and aircraft traffic. Accidents such as gas blowouts and oil spills that could potentially occur may also impact subsistence activities. Increased or decreased access to hunting and fishing areas, wildlife interactions with access roads, the safety of subsistence foods, and increased seasonal competition for nearby subsistence resources are also potential effects of exploration.

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The timeframe for exploration activities is projected primarily for the winter season. Because of ice roads there the potential for increased subsistence access. Use of these roads may improve access to subsistence areas, but could also increase competition among user groups for subsistence resources.

Regulatory oversight and coordination with local residents can avoid conflicts, and operators can adapt to subsistence uses. This fact was recognized in the 1998 Northeast Integrated Activity Plan for the NPR-A (USDOI, BLM, and MMS, 1998). This balance must be made to support continued harvest at stable quantities in affected communities (Braund and Kruse, 2009; citing to USDOI, BLM, and MMS, 1998). Optimal timing of exploration activities may greatly reduce the potential negative impacts to subsistence hunting on the coastal plain.

Oil spill impacts to subsistence uses

The North Slope area has not experienced any significant oil spills that have created long-term impacts to subsistence over the lifetime of oil and gas exploration and development. However, it is important to recognize that the risk of oil releases at a time of subsistence activity or into a subsistence area are of critical concern to the local population. Subsistence provides food security and a foundation for a traditional way of life and must be understood in this context. Lessons have been learned from major and minor spills in Alaska, including various incidents along TAPS onshore pipeline system, and the offshore groundings of the Exxon Valdez in Prince William Sound and the Selendang Ayu in western Alaska. Close coordination with the local population has proven essential for responding to these events and ensuring the future of a traditional way of life for local communities. A significant benefit of onshore exploration in the the 1002 Area is that impacts of the proposed exploration program are not expected in the marine habitats where subsistence harvests occur, as there are no long-term coastal or marine area activities planned. Transport across marine waters by barges and vessels or travel over coastal ice for delivery of equipment and supplies will be done in compliance with federal and state requirements.

Additional complex factors may compound effects to subsistence from an oil spill, including demographic changes in communities, and increased competition for fish and wildlife resources by other user groups and predators (Fall, 1999). There is limited information available on whether spatial redistribution of a species, such as caribou, affects subsistence harvest and the timing required for a successful hunt (NRC, 2003).

b. General hunting, trapping, and fishing impacts

In addition to subsistence hunting and fishing, fish and wildlife populations in ANWR are used for general hunting, fishing, and trapping. Federal regulations state that these activities "are authorized in a manner compatible with the purposes for which the areas were established" (50 CFR 36.31(a)), while hunting seasons are determined by ADF&G.

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Exploration activities that could have effects on these authorized hunting and fishing uses include seismic surveys; discharges from well drilling; construction of ice-based roads and facilities; and vehicle, boat, and aircraft traffic. In addition, gas blowouts and oil spills could potentially cause impacts during exploration. The potential effects of exploration to the area's habitats are discussed in detail in earlier sections.

Oil and gas exploration could result in some increased localized access to winter hunting and fishing areas, potentially during the exploration related to construction of new ice roads, which in turn could increase competition among user groups for wildlife and fish resources. Road access during winter exploration may be limited to ice roads, and may not impact sport fishing that occurs in the summer months. Potential direct effects of exploration are also discussed in the preceding habitat impact sections.

Properly mitigated exploration activities in the winter may cause few impacts to general hunting and fishing on the coastal plain. Regulatory oversight and coordination can avoid conflicts, and operators can adapt to hunting and fishing season uses, as was determined in NPR-A for the 1998 Northeast Integrated Activity Plan, (USDOI, BLM, and MMS, 1998). Timing and proper siting is critical to minimize negative impacts for these uses.

c. Historic and cultural resources impacts

The Alaska Office of History and Archaeology and ANWR managers have reported occurrences of historical and cultural resources throughout the coastal plain area. The potential impacts from oil and gas exploration activities to these resources may arise from a variety of sources, including accidental oil spills, erosion, and vandalism (Dekin, et al., 1993).

The Alaska Office of History and Archaeology is the designated State Historic Preservation Office (SHPO). They provide consultation to the federal agencies under the National Historic Preservation Act (NHPA). NHPA requires that federal agencies consider the effects of projects they carry out, approve, or fund on historic properties. Federal agencies work with SHPO to prevent and resolve adverse effects to historic, cultural and archeological resources (U.S. Advisory Council on Historic Preservation, 2012).

In the event that increased activity is planned for historically and culturally rich areas, enforcement of authorities for state and federal statutes and regulations are in place to mitigate effects to archaeological resources.

Oil spills can have an indirect effect on archaeological and cultural sites by contaminating organic material, which can eliminate the possibility of using carbon C-14 dating methods (USFWS, 1986). Subsequent to the Exxon Valdez oil spill, the detrimental effects of cleanup activity on these resources were mitigated by a work plan for cleanup which was constantly reviewed. Cleanup techniques were changed as needed to protect archaeological and cultural resources (Bittner, 1996).

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2. Suggested Mitigations – Phases 1-3 – Human Uses and Environment Impacts

Winter seismic survey programs are recommended to be planned in cooperation with local residents to reduce short- and long-term impacts to subsistence hunting and land uses. However, impacts are expected to be minimal because little hunting and fishing take place in winter in large portions of the 1002 Area.

Exploration operations are recommended to be conducted to prevent unreasonable conflicts with subsistence activities. Operators are encouraged to communicate with subsistence communities to discuss impacts on subsistence and harvest activities. It is recommended that a communication plan be established to address specific needs of impacted communities and users. All prudent efforts should be made to maintain traditional and customary access to subsistence areas, using the means generally available to subsistence users. Conflict resolution will be a priority for exploration activities within known subsistence hunting areas, but few conflicts are expected because of primary use of winter exploration activities.

Exploration activities should also be conducted in a manner that avoids conflicts with general hunting and fishing, as approved within Alaska game management areas (GMU) of the coastal plain.

A survey of prehistoric, historic, and archaeological sites within the area affected should be conducted prior to exploration activities that involve surface impacts. The inventory must be submitted to federal agencies and to SHPO, as necessary. If a site, structure, or object of prehistoric, historic, or archaeological significance is discovered, the operator must report this find as appropriate. Compliance with NHPA is required for all exploration operations.

Well site safety and drilling requirements prevent dangers to personnel. While an exhaustive discussion of safety procedures associated with oil and gas operations is not included in this resource evaluation proposal, these measures are integral to operations. Alaska requires rigorous specifications for blowout preventers and that the equipment be tested every seven days for exploration wells (AOGCC 2012; under 20 AAC 25.035, 25.036, 25.527).

a. Well abandonment and closure mitigations

Closure of activity sites must comply with approved federal and state requirements. Drilling permits require well plugging and abandonment procedures. Wells are inspected to ensure compliance. Abandonment activities may impact wetlands and ground surfaces associated with dismantling drilling equipment. However, when ice-based roads and pads melt, vegetation can reestablish over time. Native re-vegetation is encouraged and site abandonment is monitored to achieve approved site closure conditions. All sites must be rehabilitated to the satisfaction of federal and state agencies and be secured by guarantees from the operator.

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D. Conclusion

As introduced, proven methods have evolved that ensure exploration can be completed with minimal impact to the environment while maximizing the information available. This section details how multiple land uses, including exploration for oil and gas, can occur concurrently on the Arctic coastal plain with minimal impacts to habitats and the fish and wildlife that inhabit them. Exploration activities can also be located and timed to reduce any impacts to human uses on the coastal plain. There is substantiated information and research that supports the benefits of encouraging multiple land uses on the coastal plain of ANWR. Effective mitigations can further reduce these impacts, and produce positive outcomes that meet local community, resource development, and environmental protection goals and standards.

Obtaining definitive information about the presence and extent of ANWR's oil and gas resources is a critical step in Alaska's contribution to the national energy supply. This chapter has detailed the steps that will be taken to insure all risks are recognized and compliance is assured as a multi-year proposed exploration plan is conducted. It is the goal of ADNR to respect the land, the wildlife, and the people's traditional way of life when managing state lands. These same principles can be upheld while definitively assessing the magnitude of the oil and gas resources underlying the 1002 Area on federal land. For these reasons, the findings of this proposal must be considered during the administrative process consistent with the intent of ANILCA and the informed decision process of NEPA.

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Chapter 7
Benefits to the Nation and to the State of Alaska

The low-impact exploration activities detailed in this proposal provide a path forward for policy makers to obtain a thorough understanding of the oil and gas resources that may be present in ANWR. As discussed in Chapter 3, earlier estimates of the 1002 Area's potential have placed it as one of the most prolific under-explored conventional hydrocarbon basins in the country. If Congress decides that the information obtained from exploratory activities merits following a path towards responsible development of the 1002 Area, a wide range of benefits could accrue to Alaska and the Nation as a whole. ANWR development could bolster every area of the United State's energy policy - from providing secure domestic supplies that support energy and national security to supporting the major economic boons of increased revenues to the national treasury and increased employment for American workers.

When the Alaska Statehood Act was being debated by Congress, there was significant concern about how the new state – one of the poorest in the country – could support itself without an established industrial base. As a result, the Alaska Statehood Act allowed the State of Alaska to select 104 million acres of land from the federal public domain to build an economic foundation for the new state. The Act also granted Alaska the right to all minerals underlying its landholdings and required the state to retain this mineral interest when conveying interests in the surface estate, so that revenues from mineral development would robustly support the State's economy.

Consistent with the Congressional action to secure economic independence for Alaska with the mineral revenue from these lands, the Alaska Constitution proclaims that "It is the policy of the State to encourage the settlement of its land and the development of its resources by making them available for maximum use consistent with the public interest." (Article VIII, Section 1).

Below we provide a brief analysis of the primary benefits that could accrue to Alaska and the U.S. due to exploration and development in the 1002 Area. The predictions and revenue forecasts in this proposal are approximations based on current reserve estimates, existing laws and policies, and tax structures in place today.

A. Domestic Energy Supply, Domestic Needs, and Energy Independence

The potential supply of oil and gas from the 1002 Area is significant on both local and national levels. Alaska's North Slope currently produces under 600,000 barrels of oil per day, a significant decline since the peak production of 2.2 mil-

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lion barrels of oil per day that was transported through the Trans-Alaska Pipeline System (TAPS) in 1988. At that time, Alaska provided about 25 percent of the nation's domestic crude oil production. In 2011, Alaska's share has decreased to about 10 percent of total U.S. production (EIA, 2012a).

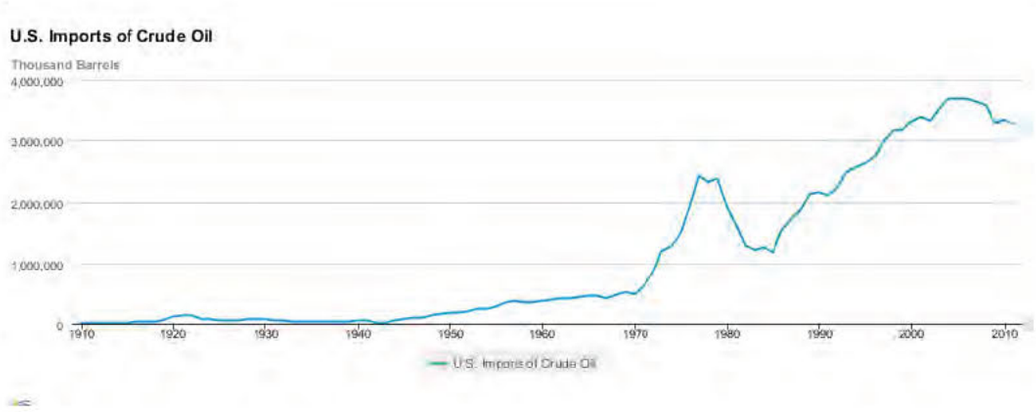
The United States consumed a total of 6.87 billion barrels, or 18.83 million barrels per day, of refined petroleum products and biofuels in 2011. This was a slight decline from the 7.0 billion barrels, or 19.18 million barrels per day, in 2010. For both years, this was about 22 percent of total world petroleum consumption (EIA, 2012a).

U.S. oil consumption has long depended on imported oil, as shown in figure 7-1. Oil produced in Alaska can offset these imports and improve the United States' energy security and trade deficit. Increased domestic supply due to unconventional resources have supported this strategic priority in recent years, and demonstrated the tremendous benefits that accrue to the U.S. when oil and gas are produced domestically rather than imported.

Future production from the 1002 Area would strengthen the domestic energy portfolio by tempering declines from existing North Slope fields and supplementing contributions from non-conventional oil plays in the contiguous states. The geologic features that underlay the 1002 Area indicate that production on a scale needed to bring about this benefit is a serious possibility. In fact, the 1002 Area is one of the largest unexplored prospect for significant conventional onshore oil reserves. However, the only data on ANWR's geology was collected in the early 1980s. The geology of the 1002 Area needs to be better understood so that possible development in ANWR can be taken into account in the U.S.energy security equation.

Figure 7-1

U.S. imports of crude oil from all countries



Source: EIA 2012a

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The estimates of potential economically recoverable volumes, as well as the feasible production profiles, suggested by the 1980s data could have major impacts to Alaska's energy supply within ten years, assuming leasing in the 1002 Area is allowed to occur in the near term. Compared side-by-side to current production and production forecasts, these volumes would represent a significant turnaround for Alaska's role in domestic oil production.

It is difficult to exactly predict the future oil supply needs of the nation, as numerous variables affect consumption. Population changes, technological advances, alternative energy growth, unconventional oil and gas developments, price fluctuations, and global political relations will all contribute to future needs. However, oil and gas will continue to be a critical portion of the U.S. energy supply for the foreseeable future. In light of these variables, a diverse energy portfolio is a valuable national asset. Most critically, price stability is fostered by defining and producing large conventional reservoirs such as those that may underlie the 1002 Area.

Domestic oil and gas production provides economic security to our nation, and new production is the best path forward to displacing U.S. energy imports and obtaining energy independence. Gaining knowledge of the reserves available in the 1002 Area can play a significant role in furthering this goal. If it is decided that oil and gas development should be undertaken in the 1002 Area, Alaska's role in providing secure long term security and supplying the Nation's energy needs will be supported.

B. Revenues

Most of the subsurface lands within ANWR are owned by the federal government and would be administered in accordance with federal laws and policies. The Mineral Leasing Act of 1920 assigns the Bureau of Land Management (BLM) ultimate responsibility for oil and gas leasing on most federal onshore lands and lands where mineral rights have been retained by the federal government but the surface estate transferred to states or to private owners. ANILCA reserved decision making regarding the timing and terms of development in the 1002 Area to Congress. Potential revenues from oil development in the 1002 Area will be administered in the context of these legal regimes.

Earlier reports have investigated aspects of the potential revenues associated with potential oil and gas development in ANWR. In August 2012, the Congressional Budget Office (CBO) attempted to analyze potential revenues that would result from immediately opening most federal lands to oil and gas leasing, including the coastal plain of ANWR. While the CBO report was the basis for the estimates of production values in Chapter 3, the scope of its revenue analysis was limited to federal budgetary effects. The CBO did not consider the economic effects of increased employment, reduced oil transportation tariffs, and augmented state and local tax revenues. This proposal attempts to broadly address the additional revenues that exploration and development in ANWR would provide.

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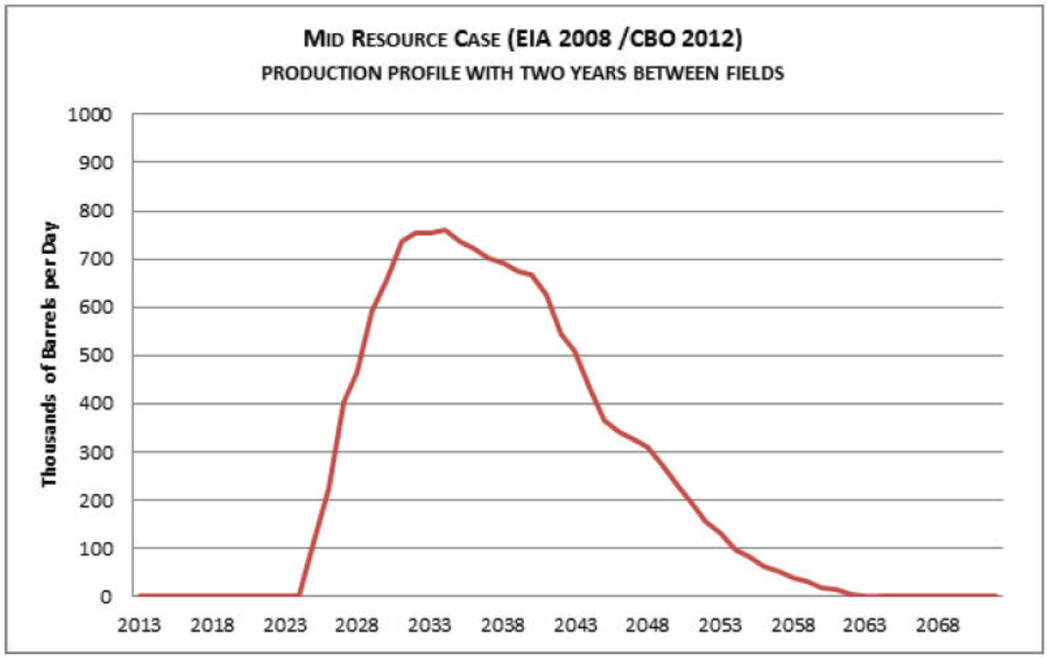
Figure 7-2

Mid Resource Case production forecast from the 1002 Area in thousands of barrels a day.



Source: USGS 1988; EIA 2008; and ADNR 2012

Revenue sharing between the federal government and the State of Alaska may be an issue to consider in future debate regarding ANWR. Currently, the Alaska Statehood Act and the Mineral Leasing Act split revenues from resource development on federal lands within Alaska, with the State receiving 90 percent of the royalty, rental, and bonus bids and the federal government receiving 10 percent. Arguably, Congress could decide to apply an alternative revenue split arrangement for ANWR oil and gas development, such as the 50 percent-50 percent split used in production from the National Petroleum Reserve-Alaska (NPR-A).

1. Assumptions in Calculating Revenues

- This chapter is premised on current economic conditions, conventional development scenarios, and current leasing and taxing regimes. It is assumed here that any natural gas produced from the 1002 Area would be utilized for on-site power or enhancing oil recovery similar to the Prudhoe Bay's field operations in the absence of current infrastructure to transport Alaska's North Slope gas to market. While Alaska's gas commercialization efforts have seen recent significant progress, the issue is not addressed in detail in this document.

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Revenue predictions were created with the use of models developed by the ADNR-DO&G unless otherwise noted. These models were based on the CBO mid-case scenario described in detail in Chapter 3. The mid-case scenario is based on:

- Mean economically recoverable volumes and field distribution estimated by the most recent USGS resource assessment (USGS, 1998);
- Production profile and development timeline developed by the Energy Information Administration (EIA, 2008); and
- $100 per barrel ANS spot West Coast price, roughly reflecting current market conditions.

2. Bonus Bids and Lease Rental Payments.

A primary source of revenue from ANWR development would come from bonus bids and lease rental payments. Bonus bids are the payments made to the resource owner to originally secure a lease of subsurface rights for a particular tract. In the case of federal or state government competitive lease sales, the minimum bonus bid per acre is set prior to a lease tract auction and interested companies submit sealed bids at or above the minimum bid price. These bids are paid by the interested company regardless of the eventual success or failure to explore or develop their leased acreage.

By securing the lease, the company receives an exclusive right to explore, develop, and produce from the leased tracts. Rental payments are collected throughout the term of the lease to maintain ownership of the lease, though once production commences, royalty payments stand in lieu of rentals. Lease terms are typically ten years for federal leases managed by the Bureau of Land Management (BLM). Lease rental rates are set in advance, and are usually progressive, with the rates increasing as the lease term nears its end, in order to incentivize development of the resource. Rent is due whether the lease is actively being explored, developed, or assessed. Standard BLM leases have an annual rental rate of $1.50 per acre for the first five years and $2.00 per acre each subsequent year until the lease terminates. However, Congress could mandate higher or lower rental rates within the 1002 Area.

The size of bonus bids that particular tracts may generate are difficult to predict. Corporate strategy and gamesmanship influence companies bidding decisions in addition to technical economic and resource assessment figures. For onshore federal lands such as the 1002 Area, BLM holds competitive lease sales where all qualified bidders are given the opportunity to bid on acreage offered in a lease sale. A qualified bidder may decide, based on its financial strength and informational analysis, what bid price it thinks would result in a profitable investment. Comapnies may also price their bids based on what they anticipate their competition might to do. Alternatively, a company may choose to bid based on the low-case, conservative resource estimates and hope that no other bidders show interest in the

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tracts. Even when bidding parties are evaluating the same areas, with knowledge of the same variables, differences between their bids can be quite common.

There have been several large lease sales in Alaska in the past that can be used as very rough comparisons to a potential 1002 Area lease sale. In 1969, after exploration wells confirmed the Prudhoe Bay oil field, the state lease sale brought in $900 million in nominal dollars to Alaska, which is over $5.4 billion in today's dollars. More recently, the Alaska Outer Continental Shelf (OCS) Lease Sale 193 held in 2008 and offered 29.4 million acres. $3.4 billion was received by the federal government in bonus bids from this sale (MMS, 2008a).

The CBO recently estimated that leasing the entire 1.5 million acre 1002 Area would result in $5 billion in bonus bids (CBO, 2012). In its analysis, the CBO considered historical information about oil and gas leasing in the United States and information from individuals working in the oil and gas industry about the factors that affect the amounts that companies are willing to pay to acquire oil and gas leases. A key variable in determining potential bonus bids is the value of the resource that would result from estimated production volumes. This underscores the importance of additional exploration and analysis of ANWR's resources.

Ultimately, bonus bids are based on the expected profit a bidder will make from developing the leases they are seeking. Even when they possess the same resource and oil price expectations, bidders' expected profits will differ if their capital and operating cost assumptions are not the same. In addition, the fiscal take (both federal and state) directly affects profitability. It is unclear what cost assumptions the CBO report used, or how the CBO modeled Alaska's production tax.

ADNR-DO&G has developed a model that includes Alaska's production tax, which is a significant revenue source for the State but a substantive cost for potential bidders. Consideration of the state tax regime is an important part of financial forecasting and determining bid amounts (ADNR-DO&G, 2012).

Figure 7-3

High bonus bids

HIGH BONUS BIDS	90/10	50/50
State of Alaska	$7.47 Billion	$4.15 Billion
Federal	$0.83 Billion	$4.15 Billion

Figure 7-4

Low bonus bids

LOW BONUS BIDS	90/10	50/50
State of Alaska	$1.17 Billion	$0.65 Billion
Federal	$0.13 Billion	$0.65 Billion

Source: ADNR-DO&G 2012

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Based on the CBO's 1002 Area production scenarios, bonus bids could be as high as $8.3 billion in the high resource case scenario or as low as $1.3 billion in the low case scenario. These lease bonus bids, and subsequent rentals, are subject to revenue sharing and would support both the federal and Alaska treasuries. As mentioned above, the two most probable percent splits are the 90/10 and the 50/50 between the State of Alaska and the federal government, respectively.

3. Royalties

Another major source of oil and gas revenue from ANWR would come from royalty payments. Royalties represent the share of production volumes due to the mineral interest owner and are calculated as a portion of the gross value received at the wellhead. In the areas relevant to this document, the mineral resource owner would be the Federal government for the 1002 Area, the Arctic Slope Regional Corporation (ASRC) for the Kaktovik Inupiat Corporation lands, or the State of Alaska for the state-owned submerged lands up to the 3 mile limit beyond ANWR.

Royalty rates may be set by statute or negotiated in a lease. For state and federal lands, royalty rates at or above 12.5 percent are typical, although royalty rates on currently producing state leases can be significantly higher. Federal leases may also have exceptions. Royalties can be paid either in value, in kind, or with a combination of both. In-value royalties are payments that represent the value of the owner's share, while in-kind payments mean that the owner is entitled to a percentage of the actual production.

While a 12.5 percent royalty rate is typical for state and federal leases, the federal government assigned prospective leases closer to infrastructure or in the eastern portion of the NPR-A a 16.667 percent royalty rate (a 1/6th rather than a 1/8th royalty) during the last NPR-A lease sale. In its 2005 economic analysis, the USGS assumed that leases for ANWR would also carry a 1/6th royalty, which is the basis for the revenue predictions below.

Considering the mid-case scenario (with mean economically recoverable volumes at $100 per barrel), and a royalty rate of 16.667 percent, total undiscounted royalty revenues from full development of the 1002 Area are estimated to be over $78 billion ($38 billion discounted at three percent). Depending on how future legislation addresses revenue sharing with the state, possible distributions of ANWR's royalty revenues are shown in Figures 7-5 to 7-7.

Figure 7-5
Royalty Revenue

ROYALTY REVENUE	90/10	50/50
State of Alaska	$70.8 Billion	$39.3 Billion
Federal	$7.9 Billion	$39.3 Billion

Source: ADNR-DO&G 2012

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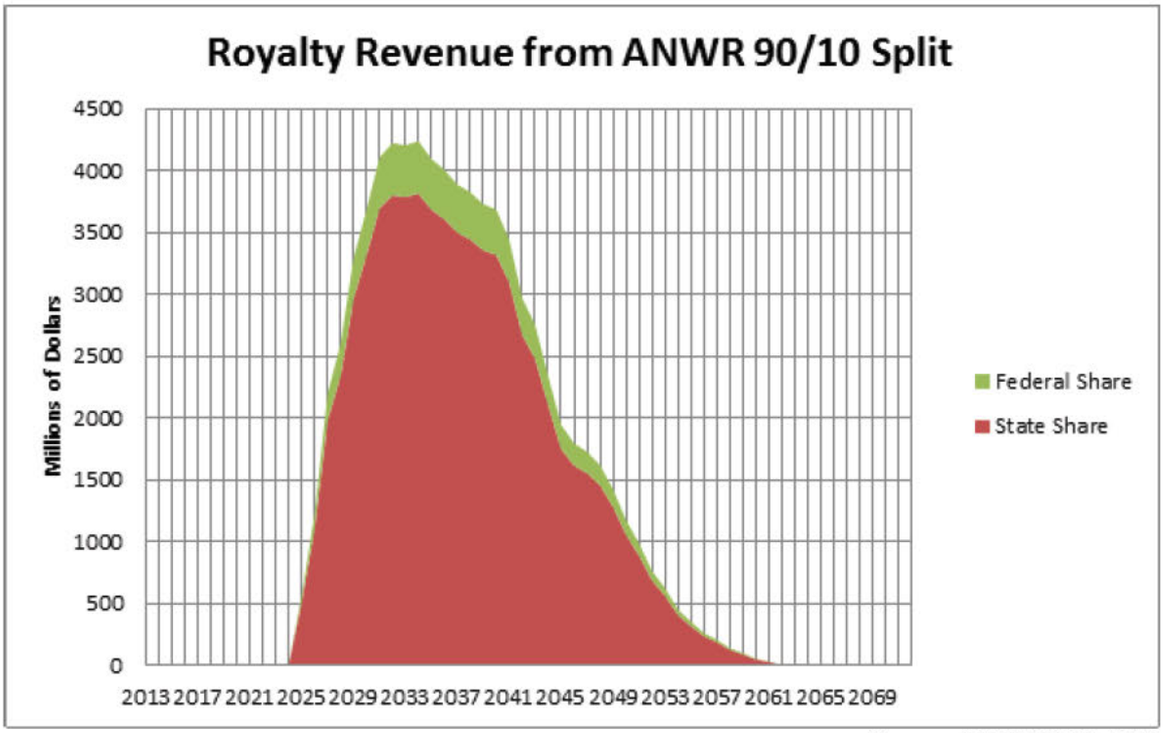
Figure 7-6

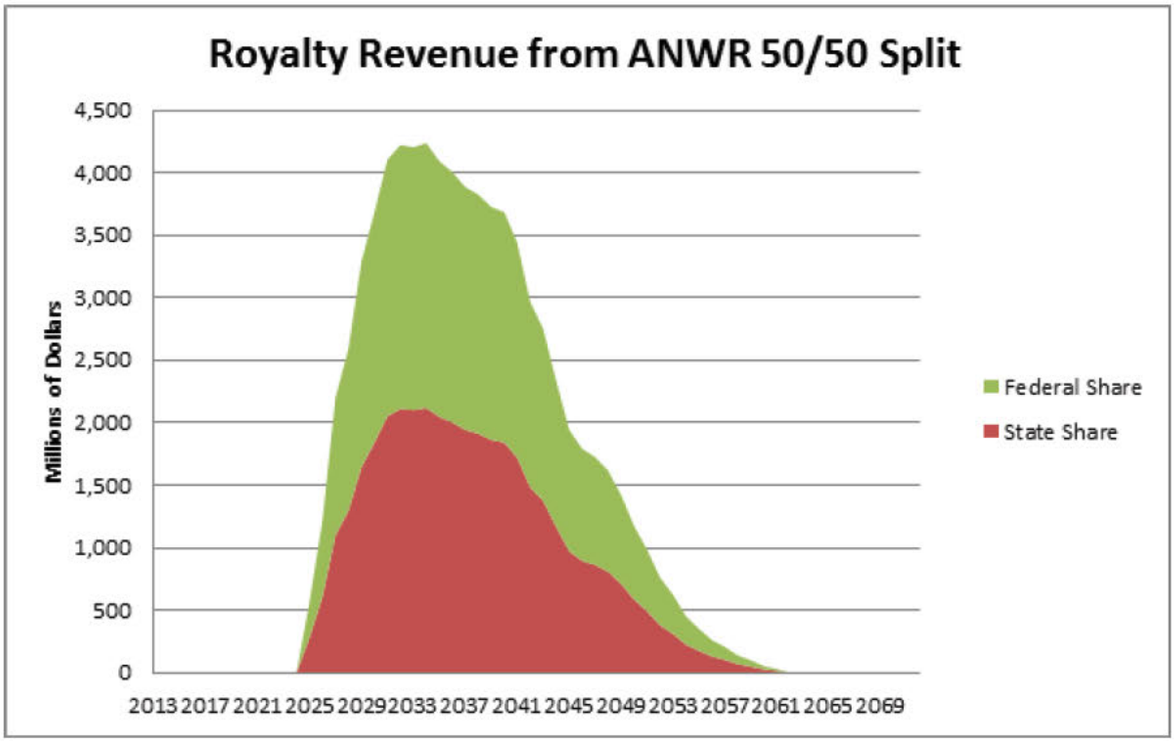
Stacked royalty revenue, 90 percent state - 10 percent federal split



Source: ADNR-DO&G 2012

Figure 7-7

Stacked royalty revenue, 50 percent state - 50 percent federal split



Source: ADNR-DO&G 2012

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4. Taxes

The third primary revenue source associated with oil and gas development in ANWR comes from a variety of taxes related to production activities. Unlike royalty and lease rental payments, which are agreements between the resource owner and the developer, taxes involve an exercise of the government's sovereign power to tax and are set by legislative action. Both the State of Alaska and the federal government hold and exercise these powers by imposing various taxes on oil and gas producers, regardless of the owner of the resource in the ground.

a) State of Alaska Production Taxes

The State of Alaska levies a tax on the value of oil and gas derived from all production in the State, regardless of surface ownership or ownership of the resource. However, production taxes are not levied on royalty production benefiting the government, or when oil and gas are used to power operation or enhance oil recovery on site. This tax is distinct from bonus bids, lease rentals, and royalties paid to Alaska's treasury as a result of the State being the resource owner. (Most production in Alaska occurs on state-owned land).

The State of Alaska has modified its production tax in recent years. In 2006, the State repealed a tax based on gross value (akin to royalty value) and adopted a tax based on a measure of net profits, or the value of crude oil after deducting production costs (both operating and capital costs). This production tax, the Petroleum Profits Tax (PPT), was in effect for a year and a half. In late 2007 the State modified PPT by adopting legislation titled Alaska's Clear and Equitable Share (ACES). ACES increased the tax rate adopted with PPT while keeping PPT's general structure. Under PPT and ACES, the tax rate increased with net profit per barrel. These tax regimes included upfront credits (a 20 percent credit for capital expenses, a net operating loss credit of 25 percent). As stated above, a producer could deduct the full amount of the capital and operating expenditures in the year those expenditures were incurred to arrive at net profits.

To spur investment and respond to criticism that the progressive element of the tax was too onerous, the State modified its production taxes in 2013. The State Legislature passed Senate Bill 21 (SB 21) in April 2013, which fixed the tax rate at 35 percent rather than allowing the rate to vary with different levels of profit per barrel. SB 21 also substituted a per barrel credit ($5 per barrel for new fields) for a 20 percent capital credit. The tax base was further reduced with 20 percent gross revenue exclusion for revenue from production from new fields (including ANWR fields).

Certain features of ACES/PPT were kept. There remains a minimum tax of four percent of the gross value of production, and upstream capital costs and operating costs are still deductible in the year incurred. For expenditures that have no taxable revenue to offset, there remains a net operating loss credit at the tax rate of 35 percent (increased from 25 percent under ACES).

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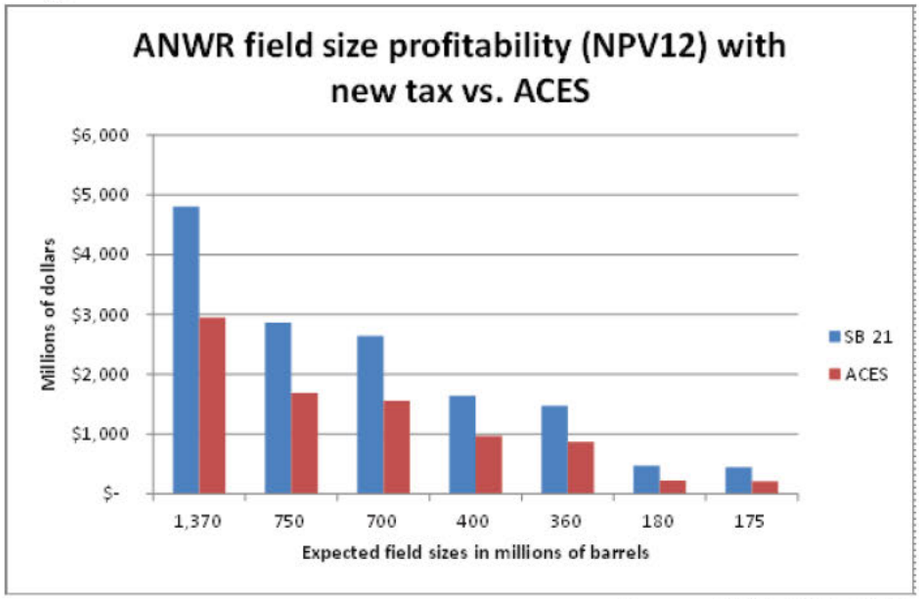
At $100 per barrel oil price, the new production tax improves field profitability across different expected ANWR field sizes, as shown in Figure 7-8. Field profitability is measured using a discount rate of 12 percent for the net present value (NPV) calculation.

New Field Tax Liability = [((1 – Gross Revenue Exclusion)* Value – Costs)* Tax Rate] – Credits
The terms used in the equation are defined as follows:
Value = Volume of Taxable Oil and Gas Produced * Value of oil and gas at Point of Production
Gross Revenue Exclusion = 20%
Credits = $5 per barrel of oil produced; 35% * Costs not able to be deducted from value.

Figure 7-8



Source: ADNR-DO&G 2013

It is also useful to view the potential revenue stream that could be generated from state production taxes on ANWR development over the decades. As seen in the Figure 7-9, the State may initially lose revenue, as credits for the substantial exploration and development expenditures in ANWR are "cashed in". The net operating loss credit provides a generous incentive for companies to drill, and also makes the State a significant investor, along with the producers, in Alaska's oil future. However, as production increases in the 1002 Area, the cost of the credits quickly reverses and the State begins to receive a large amount of revenue from the production tax.

Using a discount rate for State cash flows of three percent, the production tax attributable to ANWR could yield almost as much to the state (around $25 billion) as all of the other elements of State annual revenue combined. This estimation assumes a fifty percent state share of royalties and does not include potential ANWR bonus bids. On an undiscounted basis, the State would receive around $54 billion.

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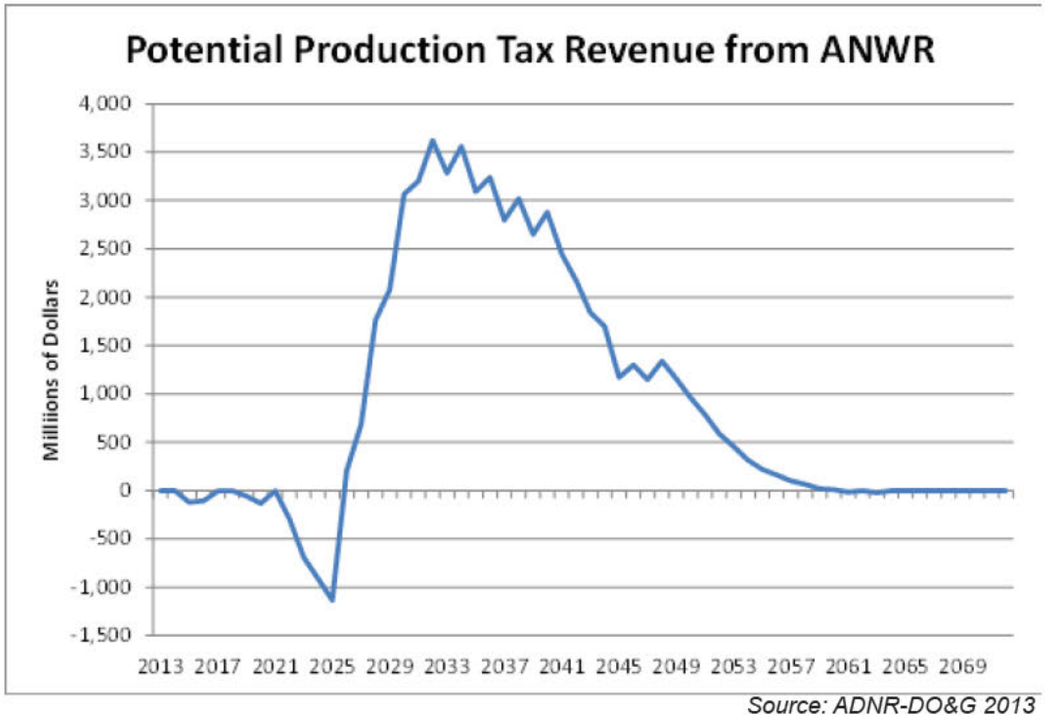
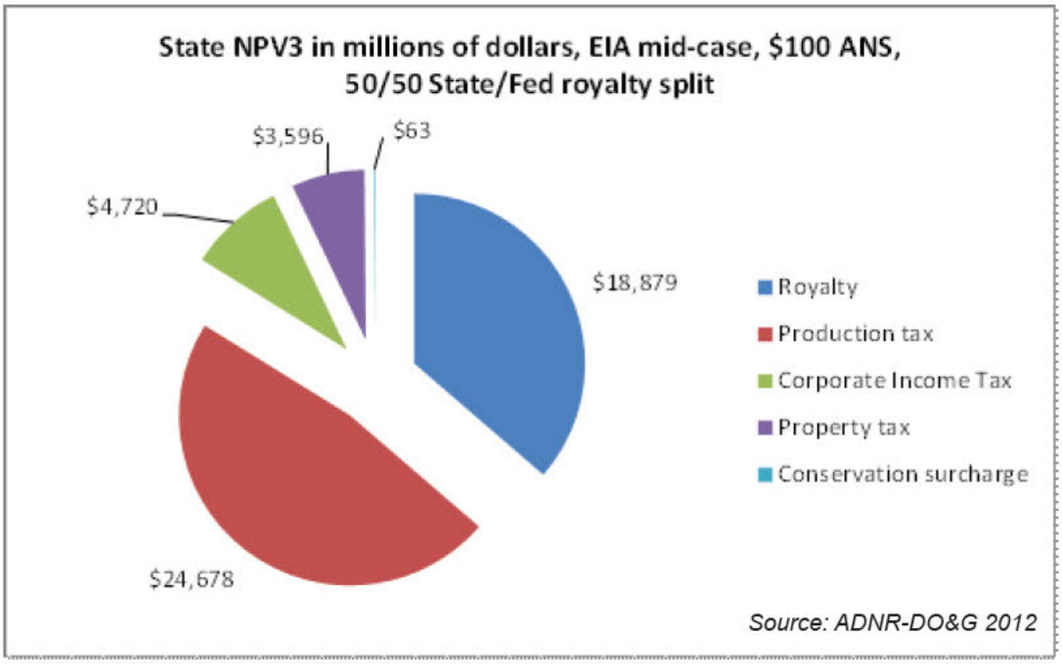
Figure 7-9



Source: ADNR-DO&G 2013

Figure 7-10



Source: ADNR-DO&G 2012

b) Federal Income Taxes

Corporate income taxes due to the federal government on production profits would likely be the largest source of revenue to the federal treasury from ANWR. In 2008, the Congressional Research Service (CRS) calculated potential federal revenues from development in ANWR, using the 1998 USGS mean-case production volumes. This estimate was based on profits earned domestically over the life of the development, with a tax rate similar to the rates currently applied to the major companies that would likely be developing ANWR. At $100 per barrel, the CRS report estimated $152.9 billion in undiscounted revenues from federal corporate income tax (Lazzari, 2008). The ADNR-DO&G, based on EIA production scenarios, estimates undiscounted federal corporate income tax receipts of $81 billion ($39 billion at three percent discount rate).

c) State of Alaska Corporate Income Taxes

While there is no individual income tax in the State of Alaska, all corporations must pay a corporate income tax on taxable income generated in Alaska, based on federal taxable income with certain Alaska-specific adjustments.

An oil and gas corporation's Alaska income tax liability depends on the relative size of its Alaska and worldwide activities and the corporation's total worldwide net earnings. The corporation's Alaska taxable income is derived by apportioning its worldwide taxable income to Alaska based on the average of three factors as they pertain to the corporation's Alaska operations: (1) tariffs and sales, (2) oil and gas production, and (3) oil and gas property. Tax rates are graduated from 1 percent to 9.4 percent in increments of $10,000 of taxable income. The 9.4 percent maximum rate applies to taxable income of $90,000 and over.

Due to the apportionment equation needed to determine the Alaska taxable income, it is very difficult to estimate taxable income without facts such as a company's world-wide income, their world-wide property, sales and tariffs, and production. This makes a direct estimation of the state corporate income tax related to potential ANWR development infeasible. Instead, the income from a typical Alaska oil field can be estimated, and a percentage of this separate, Alaska-specific income can be used to estimate corporate income tax liability. The USGS has previously estimated this state corporate income tax proxy at 4 percent (Attanasi and Freeman, 2009). For the estimates below, the Division of Oil and Gas did the same.

Each of the three factors in an apportionment formula is a quotient:

- Alaska sales and tariff / world-wide sales and tariffs;
- Alaska property / world-wide property; and
- Alaska production / world-wide production.

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Considering the mid-case production scenario described earlier in this document, at $100 per barrel, total net Alaska corporate income tax revenues are estimated to be $9.654 billion ($4.7 billion using a discount rate of three percent) over the life of production in the 1002 Area (ADNR-DO&G, 2012).

d) Property Taxes

The State of Alaska assesses a value on all oil and gas exploration, production, and transportation property located in Alaska. A local tax can also be levied on the state's assessed value for oil and gas property within a city or borough, and is credited against the state property tax. The city or borough tax rate does have a cap in order to protect the state's share of this revenue stream.

The state's mill rate is effectively 20 mills, or 2 percent of the assessed value, minus the local rate. In 2011, nearly $477 million was collected and distributed to the State of Alaska and local governments with taxing authorities. Property tax on production facilities, tangible above-ground well equipment, and pipelines associated with potential ANWR development may amount to around $7.5 billion undiscounted ($3.6 billion discounted at three precent) under the mid-case development scenario.

The ANWR 1002 Area is entirely within the North Slope Borough (NSB), a form of local government which has taxing authority. The North Slope Borough is the largest borough in Alaska, containing over 15 percent of Alaska's total land area. It consists primarily of the north and northeastern coast of Alaska, including the Brooks Range and most U.S. land north of the Arctic Circle.

A significant portion of NSB tax collections come from oil producers, and the Borough relies on these tax revenues to provide public services to all of its regional hub and rural communities. Recently, depletion of existing reservoirs has lowered the assessed value of the properties in the NSB tax base and resulted in a decline in tax revenue. This reduction has negatively affected the local government's ability to supply essential services to residents paying some of the highest costs of living in the country.

e) Other State of Alaska Taxes

The Oil and Hazardous Substance Release Prevention and Response Fund was created by the Alaska legislature in 1986 to provide a "readily available funding source to investigate, contain, and clean up oil and hazardous releases" (AS 46.08; ADEC, 2011). An amendment in 1994 divided the fund into two separate accounts:

(1) the Response Account was created with the purpose of financing the state's response to an oil or hazardous substance release declared a disaster by the Governor;

(2) the Prevention Account was created with the purpose of financing clean-up

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of oil and hazardous substance releases not declared a disaster by the Governor. This account can also be used to fund oil and hazardous substance release prevention programs in Alaska.

Both accounts are funded by a surcharge on all oil production except federal and state royalty barrels.

The Response surcharge (AS 43.55.201) is $.01 per taxable barrel of oil and the Prevention surcharge (AS 43.55.300) is $.04 per taxable barrel of oil produced.

By law, the Response Account balance is to be maintained at $50 million, and the surcharge tax is only suspended when the balance equals the target maximum of $50 million (ADEC, 2011). As response and cleanup projects are done, they receive eligible payments that reduce the total fund's amount (AS 46.08.040). As needed, the surcharge is levied to bring the fund balance to the required maximum amount. It was reported that about $9.5 million dollars was collected in fiscal year 2013 from the necessary surcharge taxes as directed by statute (ADEC, 2013).

This category of tax revenue is a relatively small component of the total government take, and only serves to contribute to the funds to respond to substance releases or release prevention programs.

C. Employment

In addition to the role ANWR's oil and gas resources could play in meeting the Nation's energy supply needs and providing significant government revenue, the activity associated with development would provide enormous employment opportunities throughout Alaska. According to a 2011 report commissioned by the Alaska Oil and Gas Association (AOGA), employment and payroll in Alaska's oil and gas industry in 2010 was directly responsible for 4,848 jobs and $764 million in payroll (McDowell, 2011). Taking into account indirect employment, the report estimated 44,800 jobs in Alaska are due to the oil and gas industry, contributing $2.65 billion in payroll dollars to Alaska residents in 2010. For each job directly attributable to an oil company, nine jobs are generated in the Alaska economy, and for each dollar earned by employees of oil companies, three and a half payroll dollars are generated in Alaska (McDowell, 2011). If ANWR's production volumes were as large as the CBO has estimated relative to current production, a correspondingly impressive employment profile would likely result from development as well.

Oil industry jobs fall within the Construction and Extraction classification, the 5th largest sector of Alaska's workforce (ADOL, 2012). However, jobs relating to the development of ANWR would not be limited to direct exploration and extraction. The trade, transportation, and service industries are inextricably connected with the oil industry and would see large booms due to an infrastructure build out associated with development in ANWR. Recent large scale projects, such as

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Shell's off shore exploration activity and ExxonMobil's Point Thomson development, have demonstrated the additional positive economic effects that development in new areas can bring.

Based on government-published data, the percentage of non-Alaskan Americans employed in the Alaska oil and gas industry has remained fairly steady over the past several years, averaging around one third of the workforce. Generally, as the number of oil and gas workers has increased, the number of non-Alaska resident employment in the industry has increased at the same rate (ADOL, 2012). In addition to the boom expected for local employment, ANWR development could provide good jobs for the national workforce.

According to the Alaska Department of Labor and Workforce Development, while the oil and gas industry is expected to grow, it is not due to expected increases in production, but rather to the enhanced recovery methods required for aging oil fields being more labor-intensive. These labor needs, as well as increasing oil prices that may make marginal fields commercially viable, may limit the decline of Alaska oil jobs, but will likely not keep pace with the growth of the economy in general.

Photo: Christina Holmgren-Larson ADNR-DO&G

Workers insulating pipeline, North Slope.

Many analyses have been conducted to estimate the number of jobs that development in ANWR could produce. Employment directly related to ANWR development is difficult to predict. Analyses based on data from the Bureau of Labor Statistics (BLS) estimate that hypothetical employment levels could range from about 20,000 to over 170,000 jobs, based upon the market conditions and demand for oil field services (Gelb, 2006, citing to BLS, 2002).

The oil and gas industry's many positive effects on Alaskan employment are substantial and drive the State's economy. The measurement of this phenomenon becomes an academic question based on the different measurements that can be used. However, in the Native village of Kaktovik the majority of workers are either employed in the public sector, (i.e., the North Slope Borough or School District) or the ANCSA villages and regional corporations. These jobs depend on revenue streams associated with oil and gas development, whether directly or indirectly. Kaktovik could gain a great deal from development of their lands adjacent to the 1002 Area.

If exploration and development of the 1002 Area occurs, jobs would be added to the national, state, and local economies. These jobs would not be limited to the petroleum industry, but would be spread throughout the trade, transportation,

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service, and construction industries. The number of jobs produced would depend on whether commercial quantities of oil and gas are discovered, and how projects to responsibly develop those resources are initiated. Additionally, ANWR does not have existing infrastructure. Development would require significant industry investment in environmental and wildlife studies, planning and design activities, materials acquisition, facility construction, seismic surveys, transportation, and logistics. All of this preliminary work would dramatically contribute to the well-being of the state and national economies.

D. Trans-Alaska Pipeline System Capacity and Integrity

Photo: ADNR-DO&G

Caribou bull under pipeline, North Slope.

The Trans-Alaska Pipeline Systems (TAPS) is one of our nation's foremost domestic energy infrastructure assets. After oil was discovered in Prudhoe Bay in 1968, transporting it to market became a priority. This endeavor proved to be environmentally, legally, and politically challenging. However, the 1973 oil embargo and resulting price spikes in the United States prompted Congress to pass the Trans-Alaska Pipeline Authorization Act, which authorized streamlined construction of the pipeline. Four years later, oil began flowing through the pipeline in 1977. As of 2013, over 16 billion barrels of oil have travelled through TAPS's 800 mile length to the Valdez Marine Terminal, where it is loaded onto tankers and delivered to west coast refineries.

The Alyeska Pipeline Service Company (APSC) operates the pipeline on behalf of a consortium of industry owners. Over 99 percent of TAPS is owned by the major three North Slope producers: BP, ConocoPhillips, and ExxonMobil.

The value of TAPS as the lifeline of Alaska's economy cannot be understated. Maintaining the efficient use of this infrastructure is critically important due to the physical realities of shipping crude oil great distances in extreme conditions. As further discussed below, the pipeline was designed to operate under certain conditions and with certain levels of throughput. Changes to these conditions can have significant adverse impacts to the pipeline itself, as well as the economic health of the Alaskans that benefit from its operation. TAPS is the backbone of the Alaskan economy, and the investments and developments that will sustain it are an Alaskan priority.

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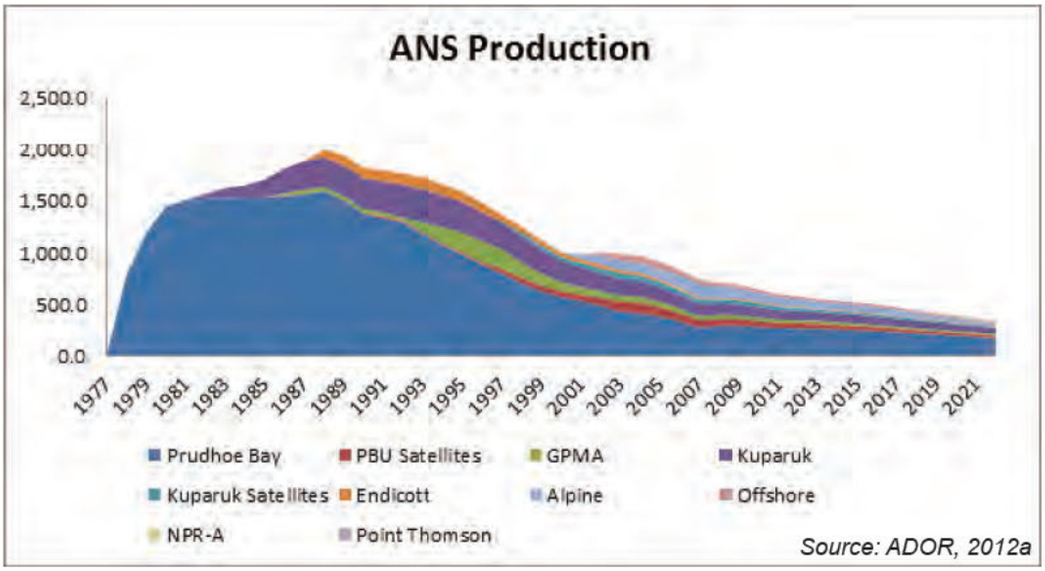
Figure 7-11 *Production decline chart*



1. Production Declines

Production declines since the late 1980s have caused great concern among the pipeline operators and the State of Alaska. Over two million barrels per day flowed through TAPS in 1988, but throughput has steadily decreased since this peak. TAPS throughput has not exceeded one million barrels per day since 2002, and has been decreasing at an average of five percent per year for the past decade. In 2012, the most recent complete year of data, TAPS throughput was under 550,000 barrels per day, the lowest annual amount since the pipeline began operation in the summer of 1977 (APSC, 2013).

Of the eleven pump stations originally built to support the flow of oil through the pipeline, only four are needed for operations today. While this is due in part to technological efficiency improvements, it dramatically illustrates how much spare capacity the pipeline currently has. These auxiliary pump stations are still being utilized for relief stations and response bases, providing equipment, housing and staging areas for oil spill response crews along the pipeline corridor.

2. Low Flow Physical Impacts

Low flows of crude oil through TAPS results in a chain of physical impacts that negatively affect the pipeline system. First, the speed at which crude oil is transported through the pipeline is reduced as the volume is reduced, increasing the amount of time it takes the product to reach the Valdez Marine Terminal. The increased transit time exposes the oil to Alaskan ambient temperatures for a longer period. This causes the oil to cool, along with the suspended water and solids contained in the crude product. Oil temperature also decreases from the loss of frictional heating are also a result of low flow and decreased velocities.

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Lower temperature oil in the pipeline presents geotechnical concerns related to the engineering assumptions at the time of pipeline construction. In areas where the pipeline is buried (about half of its total length), low temperatures may allow the surrounding soils to freeze. This freezing can cause ice lenses and upheaval in areas, and ultimately may threaten the structural integrity of the pipeline.

The decrease in velocity from low flows also correlates to a decrease in turbulence in the pipeline. Reduced turbulence can allow suspended water and solids to settle out of the crude oil mixture. Separation of the transported crude product creates a multitude of operational problems, including corrosion, ice formation, and wax residue deposition.

APSC prepared a Low Flow Impact Study in 2011 outlining the engineering findings, mitigations, and recommendations necessitated by the low levels of oil throughput in TAPS. The study evaluated flow scenarios ranging from 300,000 to 600,000 barrels per day.

The results of the study paint an ominous picture. Some of the more immediate risks include:

- Water drop-out rates at flows below 500,000 barrels per day change the exposure of the interior of the pipeline to corrosion;
- At current flow rates, loss of heat even after hot residuum from the North Pole Refinery is re-injected will result in the pipeline operating below freezing, possibly creating an ice slurry in the line that pump stations are not currently designed to handle;
- Pump stations and pigs are not currently designed for ice and wax build-up conditions that may result from a prolonged shutdown at low temperatures (APSC, 2011).

At a certain point, TAPS service interruption would critically impact oil production from the North Slope, especially in the winter when temperatures can reach minus 70 degrees Fahrenheit. The immediate issue for North Slope oil fields from an operational standpoint would be shutting in wells and choking back production levels from producing wells. There is limited tank storage capacity for the numerous North Slope production sites, which is not able to handle extended duration pipeline shutdowns. While the economic impacts to the State from a TAPS shutdown would be substantial, a shutdown could also lead to irreversible well damage, reduction in future well flow rates, and lower ultimate oil recovery throughout the North Slope.

Operators on the North Slope will also struggle to produce enough natural gas to keep facilities and pipelines from freezing during shutdown. Emergency measures by Alaska Oil and Gas Conservation Commission during a brief winter 2011 shutdown allowed for oil to be pumped into specified development wells to help produce fuel gas.

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3. Low flow economic impacts

The economic impacts of reduced flows are a critical near-term problem for the State. First and foremost, decreased production on the North Slope means decreased state revenue and economic opportunities for Alaskans. Additionally, the regulatory framework that administers the tariff (or shipping costs) system for TAPS is constructed in a way that limits competition and reduces incentives to increase flows by the producers.

Pipeline owners, or "carriers", charge a tariff to "shippers" for the use of their pipeline to transport product. Tariffs are intended to compensate the carrier for the cost of operating the pipeline when the shipper paying a price per unit shipped. The tariff rate is regulated by the Federal Energy Regulatory Commission for the portions of tariff that are attributable to the exportable product, and by the Regulatory Commission of Alaska for the portions attributable to the product that remains and is refined in Alaska.

Generally, higher maintenance and operation costs will raise the tariff rate, while a higher volume throughput will lower it. The two primary variables in determining acceptable tariff rates are the cost of operating and maintaining the pipeline and the volume of product flowing through it. While operation and maintenance expenses are expected to rise slowly over time as the cost of goods and inflation increases, government and industry have more influence over pipeline throughput.

In the case of TAPS, the majority owner/carriers are also the majority shippers. As mentioned above, over 99 percent of TAPS is owned by BP, ConocoPhillips, and ExxonMobil, and these companies are also the major oil producers on Alaska's North Slope. This means that when one of these oil companies ships oil through TAPS, it is essentially charging itself for the cost. If the tariff is high, it receives a high payment on the other end.

Although it may be economically negligible for the TAPS owners, unjustifiably high tariffs adversely affect the State and federal revenue streams because those shipping costs are deductible expenses in the calculation of production taxes, income taxes, and royalty payments. In addition, non-owner/carrier companies wanting to ship product through TAPS must pay these tariffs without the benefit of having them "reimbursed" down the line.

One of two scenarios is likely to materialize in coming years in regards to flow and tariffs for TAPS. Under the first scenario, continuing decline in TAPS throughput would result in increasingly higher per barrel tariffs, which in turn would significantly cut into North Slope production profitability. Even if the pipeline could technically continue to operate, it might be economically challenged if the price of oil fell. Oil producers would produce oil from areas where they could still profit from oil sold at the prevailing market price. This scenario places Alaska's economy in severe risk in low oil price scenarios.

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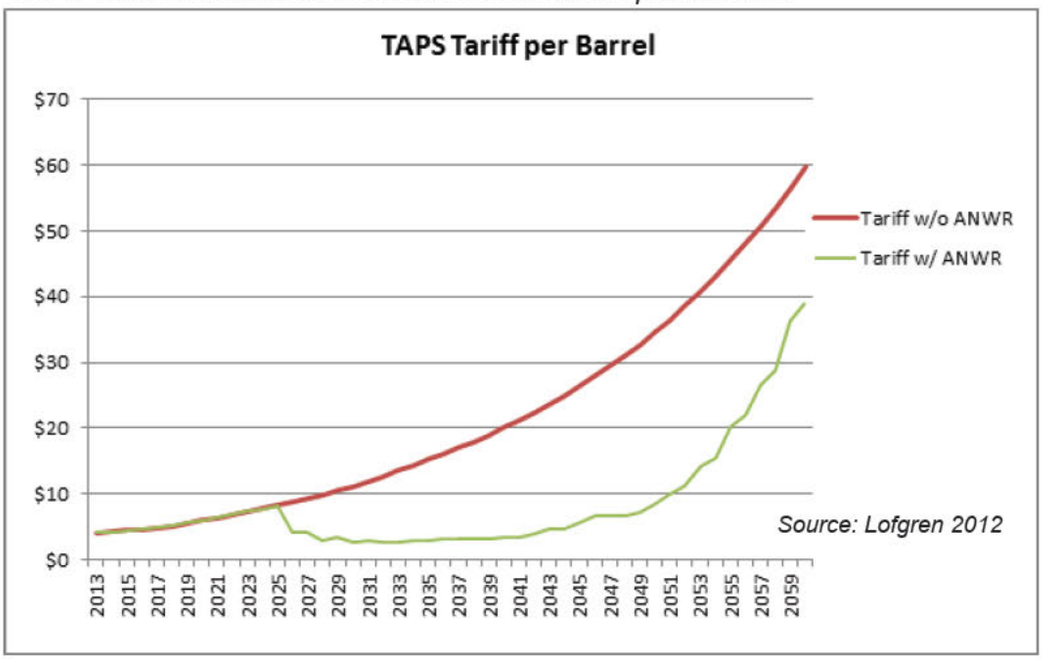
Figure 7-12

TAPS tariff forecasts with and without ANWR production.



The second scenario is one in which production and flow through the pipeline increases. This scenario would have the effect of lowering per-barrel operation and maintenance costs; reducing the amount of deductible transportation costs; increasing taxable revenue; increasing state and federal income tax, production tax and royalty share; and making North Slope development more attractive to smaller companies without an ownership share of TAPS.

Since tariffs are calculated based on production volumes and the cost of operating and maintaining the pipeline system, we can use production forecasts to predict the tariff over time. In future years, production from ANWR could have a substantial effect on the TAPS tariff. The red line on the chart above (Figure 7-12) estimates the TAPS tariff if production declines continue as forecasted in the Fall 2012 Revenue Source Book (ADOR, 2012a). The green line estimates the tariff if production from the 1002 Area was brought online in 2025, at the volumes predicted in the mid-case production scenario described earlier.

It should be noted that the steady increase in TAPS tariffs forecasted if throughput continues to decline does not include additional expenditures that could be required for low-flow mitigation infrastructure, upgrades, and repairs. The 2011 Low Flow Impact Study only made general findings regarding potential low flow issues at volumes below 350,000 barrels per day. The report did not estimate a particular plan of action or costs associated with mitigating low flows, but they would be expected to be substantial. Should costly mitigation measures be required to address such low levels of throughput, those costs could push the TAPS tariff higher than the rate estimated above.

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4. How low can it go?

In 2011, in the course of determining the value of TAPS for the calculation of property taxes, the issue of 'how low could the flow go' received renewed attention. Alaska Superior Court Judge Sharon Gleason issued a decision in December 2011 regarding the assessed value of TAPS in 2007, 2008, and 2009 (BP Pipelines [Alaska] Inc., et al., v. State of Alaska Department of Revenue, et al. – Decision Following Trial de Novo – 2007, 2008, 2009 Assessed Valuation, December 30, 2011) . The minimum throughput was a critical piece of information for Judge Gleason's decision, as the value of TAPS and its accumulated depreciation is directly attributable to how long the pipeline may be utilized. Judge Gleason's decision on the appraised value of TAPS was based on her conclusion that the pipeline could accommodate flows as low as 100,000 barrels per day.

In 2012, the U.S. Energy Information Administration (EIA) released its Annual Outlook report, which examines factors that shape the U.S. energy system over the long term. This report addressed what it deemed, "considerable uncertainty," about the TAPS's long-term future, and described scenarios that would necessitate the shutdown of TAPS as well as the North Slope oil fields. The EIA considered some cases where a shutdown could occur as early as 2020. The Annual Outlook also asserts that the discovery and production of large new oil sources to add to the pipeline's throughput would more readily alleviate these concerns, rather than mitigation of low flow impacts by extensive infrastructure spending and process modifications. According to the EIA, "there is considerable uncertainty about the long-term viability of North Slope oil production and continued operation of TAPS through 2035. The two most important determinants of their future viability are the wellhead oil price that North Slope producers receive and the availability and cost of developing new North Slope oil resources." (EIA, 2012a)

The legacy fields of Prudhoe Bay and Kuparuk River have passed their peak production volumes, and will one day become uneconomical for continued production. Offshore resources in the Chukchi and Beaufort Seas are only now being field tested with preliminary exploration drilling programs. Economic finds in those areas are expected, but the engineering, permitting, and legal challenges for construction of hundreds of miles of feeder pipeline to TAPS present additional complications and uncertainty for these prospects' ability to mitigate low flows in the short term, which are already at critical levels. Also, there is no certainty that oil produced offshore will be routed to TAPS for transportation to market. While the 1002 Area also lacks developed infrastructure, it is onshore and does not face many of the challenges that these other potential reservoirs do. It is close proximity to developments on state land on ANWR's border that feed into TAPS. Responsible development of the resources is one of the State's best options for dramatically reversing the North Slope's production declines.

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E. Alaska's Economy

The sections above describe the significant benefits that would result from responsible development of the petroleum resources in the 1002 Area. These benefits would accrue to the nation as a whole, but could be transformative for the State of Alaska and its residents.

The state's economy is dependent on natural resource development, with oil and gas revenues making up over 90 percent of the State's unrestricted revenue. Payroll dollars, government spending, and royalty and tax revenue all underlie a well-functioning Alaskan economy. Oil revenues support the provision of basic services to residents across Alaska, many of whom live in remote areas that have scarcities of basic goods and extremely high costs of living. Many of the stark concerns of low oil production would be even more pronounced in Alaska if recent declines had occurred without this decades record high oil prices.

While there are valid short-term concerns regarding low TAPS throughput and production declines, there are also significant economic opportunities in the State's future. The economic benefits described in this chapter are an example of one possible future for Alaska. There are many steps that would have to be taken for ANWR oil production to materialize, but it cannot be seriously contemplated until comprehensive modern exploration defines the resource potential of the 1002 Area.

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Chapter 8

Future Outcomes and Conclusion

A. Summary

Previous chapters have described a potential exploration plan for the 1002 Area as well as the potentially impacted resources, suggested mitigation measures, and potential benefits to the nation and to the State of Alaska related to oil and gas exploration. It is important to note that since the passage of ANILCA in 1980, the power to allow oil and gas development in ANWR has always resided with the U.S. Congress.

The oil and gas resource potential of the 1002 Area is estimated to be on the scale of other mega field discoveries in northern Alaska and Canada. However, until and unless Congress acts, the full potential of this area will remain unknown. Given that the federal government is not taking the lead to improve the assessment of the resources and potential for investment, the State has chosen to make the case for the value, importance, and public benefit of assessing the resource and allowing private competitive evaluation of the public findings.

The State of Alaska strongly objects to the planning process undertaken by the USFWS. The draft CCP/EIS that has been prepared fails to analyze or consider any alternative that addresses management of future oil and gas activities. This is contrary to the directives in NEPA to *consider all reasonable alternatives,* particularly when an alternative may have foreseeable positive impacts on the human environment and the decision to exclude this alternative is based on incomplete or unavailable information.

An adequate resource assessment using modern technology is necessary in order for Congress to make an informed decision regarding management of ANWR, specifically the 1002 Area. This alternative has not been considered by the USFWS as part of the draft CCP/EIS. In order to make the decisions that will best serve the country, Congress needs to review the best scientific information about oil and gas potential and be fully informed of what the country would be giving up if the ANWR 1002 Area is designated as a wilderness area.

The vintage 2-D seismic data that underlies current estimates is generations behind the technologies and methods used today to locate and delineate potential reservoirs. Even with new interpretation of this seismic data, there is a wide variability in the amounts of oil that have been estimated.

A thorough 3-D seismic and exploration drilling program will provide the level of detail needed for government and industry to fully understand the area's potential to yield the substantial benefits predicted if full development is permitted to occur. The necessary next step in realizing these benefits is for Congress to act, and for the President to authorize a 3-D seismic and exploration drilling

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program in the 1002 Area of ANWR. The State supports this action and stands ready to provide the knowledge and expertise that resides in managing our oil and gas resources so that the exploration program can be conducted in an efficient and environmentally safe manner.

1. Domestic Energy Supply

Increasing the domestic supply of crude oil would increase the energy security of our nation by tempering declines from existing North Slope fields, supplementing contributions from non-conventional oil plays in the contiguous states, and reducing the reliance on international imports. Chapter 7 further describes the benefits of a steady supply of domestically sourced crude oil, as well as the indirect benefits to our economy from secure supplies.

Once explored, the 1002 Area's proximity to the major shipping infrastructure of TAPS could protect the United States from oil price volatility that may jeopardize non-conventional oil plays. TAPS has shown great resiliency to price fluctuations, functioning at a price range from $10 to $140 per barrel over the last 15 years. Unconventional oil plays have not shown that level of resiliency and could impact domestic energy supply were there to be a significant reduction in price per barrel.

Figure 8-1

Total potential revenues in billions of dollars from all sources.

	Federal Government 10% (Bonus and Royalty Only)	Federal Government 50% (Bonus and Royalty Only)
Bonus Bids	$0.83	$4.15
Royalties	$7.90	$39.30
Income Tax	$152.90	$152.90
	$161.63	**$196.35**

	State of Alaska 90% (Bonus and Royalty Only)	State of Alaska 50% (Bonus and Royalty Only)
Bonus Bids	$7.47	$4.15
Royalties	$70.80	$39.30
Production Tax	$128.87	$128.87
Income Tax	$6.50	$6.50
Property Tax	$7.55	$7.55
Conservation Surcharge	$0.132	$0.132
	$221.32	**$186.50**

Data: ADNR-DO&G 2012

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2. Economic Benefits

Once the oil and gas potential of the 1002 Area is better defined by a modern seismic and exploration drilling program, future oil production would be driven by the type and extent of development that is economically feasible. Many variables are considered in determining the process for developing a major oil discovery.

Financial benefits in the form of bonus bids alone could add over $8 billion to federal and state treasuries. Assuming the mid-case production scenario described in Chapter 3, projected future economically recoverable reserves of over 5.2 BBO may exist with a production period of nearly 40 years. As described in Chapter 7, at these svolumes, the 1002 Area's development could provide hundreds of billions of dollars in revenue to both the federal government and state government through royalties and various taxes.

3. Trans-Alaska Pipeline System (TAPS)

The only year that has seen less TAPS throughput per day than 2012 was 1977, when the pipeline was brought online half-way through the year. Since the peak throughput in 1988, total throughput has continued to decline as the giant oil fields of Prudhoe Bay and Kuparuk mature.

Chapter 7 described in detail the potential consequences to the pipeline infrastructure and to the State's economy should flows continue on their current downward trajectory. To avoid the potential negative corrosion and operational impacts due to the effects of low throughput in TAPS, it is imperative that the amount of production and transportation through TAPS increase as soon as possible. The 1002 Area, with its promising resource potential and close proximity to TAPS, remains the key on-shore resource to help stem throughput decline in the TAPS in the long term.

4. Alaska Economic Security

Alaska is dependent on oil production revenues, which fund state and local government operations and programs, infrastructure projects, and schools. Oil revenues collected by the state government in the form of bonus bids, royalties, and production taxes make up over 90 percent of the state's budget. This economic boon supports employment opportunities including thousands of jobs that support oil field operations, construction projects, and ancillary businesses.

B. Seismic Exploration and Exploration Drilling

The results of a complete 3-D seismic and exploration well drilling program will provide the information necessary to determine the viability of development in the 1002 Area. Making long-term and substantial land management decisions should be informed by the most comprehensive resource study possible. As this proposal has described, technological advancements allow for collection of this information with minimal impact on the region's natural environment.

In Chapter 5, the ADNR-DO&G's geological, geophysical, and engineering experts outlined a potential exploration program that would provide government

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and industry the data needed to make accurate determinations of resource size and distribution in the 1002 Area. The exploration proposal consists of a multi-phased approach, beginning with a multi-year seismic acquisition program then transitioning into planning and permitting that informs and authorizes the multi-year exploration drilling phase. All phases of the exploration proposal that require entry into the 1002 Area would be conducted entirely during the winter, using temporary access roads and pads made out of ice. These methods are required for exploration activities on Alaska's North Slope, and allow the collection and analysis of comprehensive resource data with minimal lasting impacts on the environment.

This exploration program, however, is just one of several possible solutions to enable a systematic and thorough evaluation of the petroleum resources in the 1002 Area. Although the subsequent post-exploration phases are hypothetical and therefore cannot be discussed in detail, this proposal concludes below with an outline of issues and considerations for future decision-making.

C. Development Considerations

Upon discovery of technically and economically recoverable petroleum reserves, any subsequent oil and gas development, production and transportation activities would depend upon many factors and be affected by dozens of agencies, permits, policies, and standards. Remaining questions that would have to be answered and issues that would be analyzed in the years after a seismic and exploration drilling program would include the following:

1. Operating Plan

How will the fields be developed? Which agency will have jurisdiction?

BLM has oversight over oil production on on-shore federal lands, and would likely assume jurisdiction over oil production activity in ANWR. The regulations followed for other federal lands, NPR-A for example, would likely be the basis for how ANWR is leased and developed in the future. It should be noted, however, that by Congress authorizing "…activities leading to production…" as ANILCA requires, before any production development can take place, many of the specifics regarding how the field or fields are developed could be included in the enabling legislation. These mandates may not follow traditional jurisdictions or procedures.

2. Technology

What technology will be used in the 1002 Area?

Many of the technological advances in drilling engineering, now used around the world, were conceived and developed by North Slope operators as they tried to reduce costs and environmental impacts in the Arctic.

Unlike the proposed winter-only seismic and drilling exploration program, it is likely that production drill pads and facilities would be constructed of gravel. Pad

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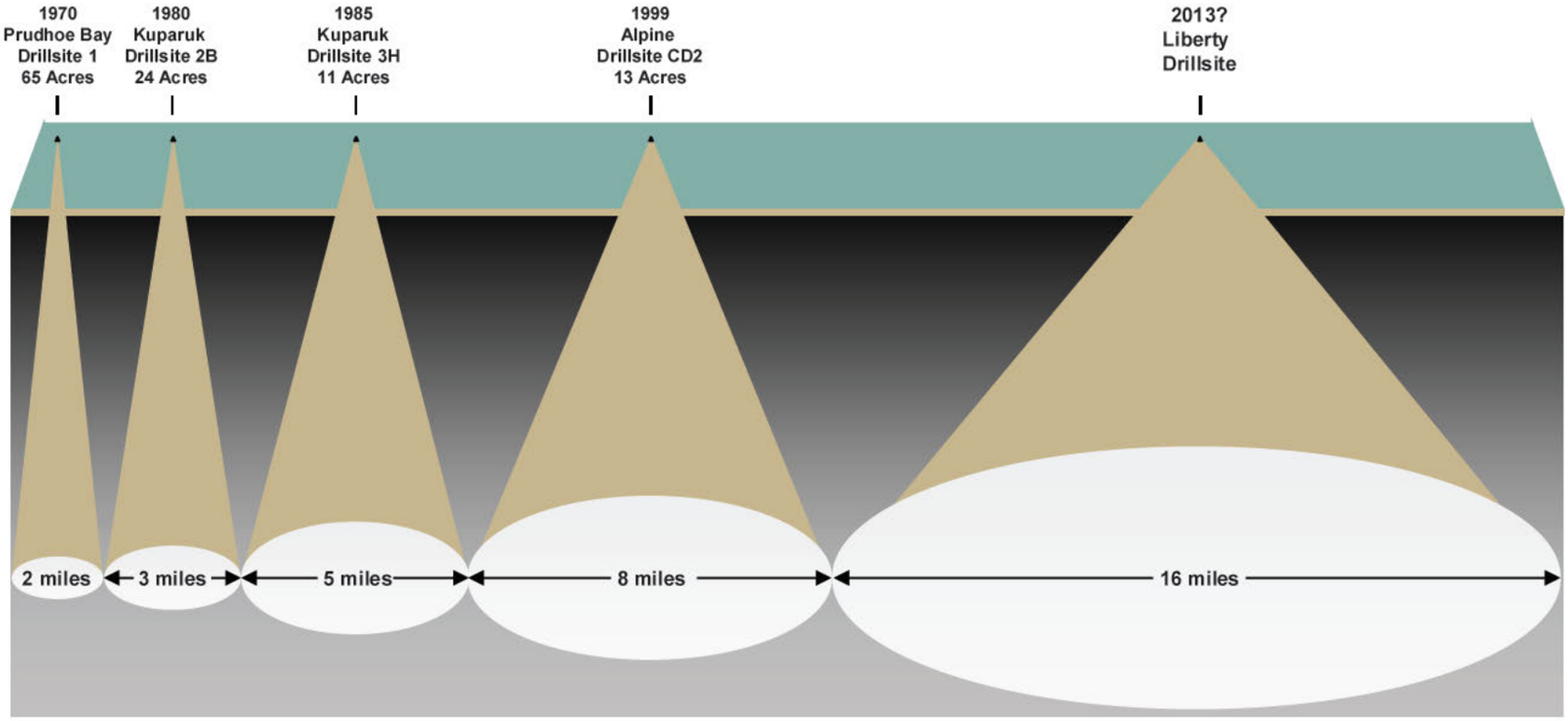
Figure8-2

Alaskan North Slope Drillsite Reach Evolution: Pad size and corresponding subsurface drillable acreage.



Source: ADNR-DO&G 2012

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access roads and pipeline access roads, however, may be either temporary (ice) or permanent (gravel).

Drilling technology has greatly advanced since the 1002(h) report recommended that the entire area be opened for development (Clough, et al, 1987). From a single pad, a well drilled with modern technology is now able to penetrate one or more small targets, identified by the 3-D seismic, at distances of more than four miles from the drill rig location. The size of pads required for wells has also diminished appreciably as technology has advanced. Application of the extended reach drilling method allows numerous exploration and development wells to be drilled within a radius of **in excess of five miles from a single drill pad (ADNR-DO&G, 2012).**

3. Field Distribution

Where are the viable fields located? How will phased development proceed to enable smaller fields to become economically viable in later years?

A comprehensive exploration plan, similar to the one proposed in Chapter 5, would provide geologists and geophysicists in both industry and government the information needed to identify the areas with the highest potential for economically recoverable reserves. As described in Chapter 3, the most recent comprehensive analysis of the vintage 2-D seismic data shows that a majority of the oil in place exists in the western portion, or undeformed zone, of the 1002 Area. If this can be proven and refined further, through modern 3-D seismic surveys and exploration wells, field locations could be determined to a higher degree of accuracy and a plan for systematically producing those fields could be developed.

4. Revenues

How will the proceeds from bonus payments and royalties be split between the federal and state government? How will the revenues from the 1002 Area be designated or spent?

The question of how to split the proceeds of production from the 1002 Area will likely be decided by Congress in the enabling legislation. Under current law, revenues from resource development on federal lands is split, with 90 percent going the state and 10 percent going to the federal government. However, Congress could decide to apply a different standard to ANWR oil and gas development. Many of the more recent bills introduced in Congress have prescribed a 50/50 split for ANWR oil revenues akin to the split arrangement for the National Petroleum Reserve - Alaska.

5. Transportation

What will be the method for transporting product to TAPS? What is the most efficient system of gathering pipelines, given what is discovered about the distribution of fields throughout the 1002 Area?

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The 1002 Area, with its promising resource potential, is approximately 60 miles east of TAPS Pump Station 1 located in the Prudhoe Bay unit. In addition to TAPS, the Endicott and Badami pipelines extend 40 miles towards ANWR. Winter 2012-13 construction is planned for an extension of the Endicott/Badami pipeline system to the Point Thomson Unit, less than 10 miles from ANWR's northwestern boundary. Whether future pipelines in the 1002 Area will make use of these pipelines or whether oil will be collected and transported directly to TAPS will depend on the location of reserves found and how development proceeds over the years.

Whichever method is ultimately selected, the addition of oil from the 1002 Area is critically important to preserve the infrastructure and operation of TAPS in the long term.

6. Environmental Impacts and Mitigation Measures

What environmental impacts are anticipated during the production phase? What mitigation measures will be required to reduce environmental impact?

During the production phase of potential ANWR development, the environmental impacts and mitigation measures that will have to be considered will differ from the impacts considered during the exploration phase. In particular, because some facilities, pads, pipelines and access corridors would exist year-round when the wells are producing, additional mitigation measures would be required to prevent or reduce the direct impacts to habitats and species, and prevent the subsequent short- and long-term indirect impacts to populations and uses.

Additional species, such as migratory birds, would be encountered in the summer, requiring the designation of mitigation considerations to avoid areas and practices that would significantly and adversely affect them. Calving, nesting, and rearing areas and habitats would warrant additional mitigation measures. Migration corridors, insect relief areas, and food location would also necessitate consideration during the planning stages of production.

Despite these additional considerations, industry is well adapted to provide for needed mitigation measures to minimize environmental impact of production facilities. Both spatial and temporal restrictions to sensitive areas are currently employed by industry operating on Alaska's North Slope and have proven effective as approved by the agencies listed in Appendix D.

7. Permitting

What permits must be obtained for development?

In addition to the regulatory process outlined in Chapter 5 for a winter seismic and drilling exploration program, several layers of environmental review will be required to advance any proposed project to the development stage.

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It would be anticipated that the lease sale, as well as any specific development plan, would mandate an environmental review process according to the requirements of the National Environmental Policy Act (NEPA). Through this process, ample opportunities for inter-agency coordination and public involvement exist. These opportunities serve to bring to light available information regarding the proposed project to help shape alternatives, project design, and mitigation measures.

Many agencies require one or more permits and/or authorizations, as well as mandated inter-agency consultations, tribal coordination, and public notice and involvement. A typical development project on the North Slope could be anticipated to acquire the list of permits and authorizations found in Appendix D.

D. Conclusion

Often overlooked in the debate surrounding the future of the 1002 Area is the fact that much of the information regarding the resource assets of the area was gathered in conjunction with the ANWR petroleum exploration programs of the mid-80s. Those programs provided the impetus, support and means to compile comprehensive studies of the environmental and wildlife values of the area.

Since that time, industry innovation and a more complete understanding of the sensitive environmental conditions in the Arctic have progressed in tandem, allowing new development techniques designed to minimize or eliminate impact on the environment. However, these new technologies have never been used to update the scientific knowledge of the subsurface resources of the 1002 Area. Updating this information is critical for informing future ANWR management decisions.

How much oil lies beneath the permafrost along the coastal plain of ANWR? Only Congress holds the authority to permit the actions that will provide this answer. The history of the great compromise that shaped ANILCA and dedicated over 100 million acres in Alaska to conservation purposes is unknown to most citizens engaging in the current debate of wilderness versus development of the 1002 Area. This has become one of the last unresolved issues in ANILCA's promise, and through this proposal, Congress has the opportunity to honor the legacy of that great compromise. To respect the Natural Resource Policy of Alaska's Constitution, and honor the decades of resolutions by the Alaska legislature, and meet the requirements of NEPA, these steps must be taken to fully define the oil and gas reserves of the 1002 Area.

The State's proposal is a way forward. At the end of the exploration program, Congress, the State, industry, and the public will all know what oil and gas resources are available under the 1002 Area. This will allow Congress to make an informed decision regarding an area that has been under debate since the 1980s.

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Appendix B
ANWR: A Timeline of History

1958 The Alaska Statehood Act establishes a new owner state with 103 million acres, with perpetual state ownership of the subsurface energy resources and hard rock minerals. It mandates that 90 percent of revenues earned from resource development on Alaska federal lands be returned to the State. Alaska's statehood was effective on Jan. 3, 1959.

1960 U.S. Secretary of Interior signed a Public Land Order establishing the 8.9 million acre Arctic National Wildlife Range, PLO 2214.

1971 President Richard Nixon signed the Alaska Native Claims Settlement Act (ANCSA). The Act gave the Kaktovik Inupiat Corporation (KIC) surface rights to 92,160 acres of federal lands adjacent to the village, of which 69,120 were to be selected within the Arctic National Wildlife Range.

1980 President Jimmy Carter signed the Alaska National Interest Lands Conservation Act (ANILCA). The Act expanded the Arctic Range to approximately 18 million acres, renamed it the Arctic National Wildlife Refuge, designated eight million acres as wilderness, and designated three wild and scenic rivers.

Section 1002 of the Act also directed to inventory the fish and wildlife resources of the coastal plain and to explore and identify those areas with oil and gas potential in the 1.5 million acres of the Refuge coastal plain. ANILCA also allowed KIC to relinquish their selected lands outside the Arctic Refuge, and to select replacement lands within the Refuge.

Section 1317 directed a one-time wilderness review of ANWR.

Section 1326(b) stated that no further studies of Federal lands in the State of Alaska for the single purpose of considering establishment of a conservation system unit….or for related or similar purposes shall be conducted unless authorized by this Act [ANILCA] or further Act of Congress.

1983 The U.S. Fish and Wildlife Service (USFWS) published an Environmental Impact Statement (EIS) that identified the coastal plain as highly prospective for significant accumulations of oil and gas, and recommended exploration to estimate volume of potential resources. The USFWS recognized that the results of exploration will provide valuable information for evaluating potential oil and gas resources to meet the nation's need for domestic sources of energy.

Federal regulations were promulgated for oil and gas exploration in the Arctic National Wildlife Refuge, 50 CFR 37.

The Chandler Lake land exchange agreement conveyed subsurface ownership of KIC lands from the federal government to the Arctic Slope Regional Corporation. This exchange also allowed an exploratory oil well to be drilled on KIC lands.

1983-85 Exploration for oil and gas of the ANWR 1002 area was conducted on the coastal plain, using 2-D seismic, gravity, and shallow surveys, surface mapping, field observations, with analyses for geochemistry and hydrocarbon reservoir potential.

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1987 The USDOI published a Legislative EIS with research findings, results of the 1983-1985 exploration, with recommendations for land management and continued exploration of the coastal plain under ANILCA, Section 1002(h). The report, the result of a decade of studies, recommended that oil and gas exploration continue where this could be done without significant adverse effects on fish and wildlife, their habitats, or the environment.

1988 The USFWS published the "Arctic National Wildlife Refuge: Comprehensive Conservation Plan, Environmental Impact Statement, Wilderness Review, Wild River Plans". Secretary of the Interior Donald Paul Hodel recommended to Congress that an orderly oil and gas leasing program for the entire 1.5 million-acre 1002 Area proceed.

1995 Congress passed a bill to develop the 1002 Area. President Clinton vetoed it.

1997 President Clinton signed the National Wildlife Refuge System Improvement Act, to provide specific guidance to the Refuge System, and established the mission "to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of fish, wildlife, and plant resources and their habitats within the United States for the benefit of present and future generations of Americans."

1998 USGS published a comprehensive assessment of undiscovered oil and gas resources in ANWR (OFG 98-34). The findings estimated the technically recoverable and oil-in-place resources, with about 74 percent ascribed to the ANWR 1002 Area.

2005 USGS published a report that assessed the undiscovered oil resources of the 1002 Area (Attanasi, 2005; Survey Open File Report 2005-1217).

USGS (Attanasi, 2005; Open File Report 2005-1359) also published an economic assessment that used full-cycle cost functions to predict economically recoverable oil and gas. The study found 73 to 83 percent of technically recoverable oil to be economically recoverable.

2011 Three federal acts including options to open the coastal plain to oil and gas leasing were before Congress: The Security Act of 2011, S. 352; the No Surface Occupancy Western Arctic Coastal Plain Domestic Energy Security Act, S. 351; and the American Energy Independence and Price Reduction Act, H.R. 49.

USFWS published a draft Comprehensive Conservation Plan (CCP), June 2011. An oil and gas exploration program was not considered in the Alternatives presented in the draft CCP.

2013 Alaska Department of Natural Resource, Division of Oil and Gas (ADNR-DO&G) provides a feasible, proposed oil and gas exploration proposal for the ANWR 1002 Area, including a resource study, and recommended protections and mitigations to prevent unnecessary adverse effects to the coastal plain environment.

Source: Institute of the North, 2004; USFWS, 2008

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Appendix C

Permits and Authorizations for Proposed Exploration Program

Federal Authorizations and Approvals	
U.S. Fish and Wildlife Service (USFWS)	Concurrence on approval of proposed exploration program.
	Application for Rights-of-way
	Endangered Species Act (ESA) Consultation. Letter of ESA "No Effect" determination.
	Letter of Authorization (LOA) for Incidental Take of Polar Bears; Polar Bear/Personnel Encounter Plan.
	Essential Fish Habitat Assessment (No consultation with National Marine Fisheries Service may be required).
	ANILCA 810 subsistence evaluation and findings with BLM.
	Consultation with the State of Alaska primary regulatory agencies, as required. (ADEC, AOGCC, ADF&G)
National Marine Fisheries Service (NMFS)	Letter of Authorization (LOA) for Incidental Take of Small Numbers of Marine Mammals incidental to barging equipment and supplies to ports, docks and sea lift facilities.
Bureau of Land Management (BLM)	Application for Permit to Drill
	Concurrence on Rights-of-way.
	Consultation with State of Alaska Primary regulatory agencies, as required. (ADEC, AOGCC, ADF&G)
	Coordination of ANILCA 810 subsistence evaluation and findings with USFWS.
U.S. Army Corps of Engineers (USACE)	Application for Section 404 Permit, under Clean Water Act (CWA), as needed during exploration.
	Application for Section 10 Permit, under Rivers and Harbors Act (RHA) of 1899, as needed during exploration.
	Potential coordination with the Conservation Fund for approved compensatory wetlands mitigation, with communcation with the North Slope Borough, as needed.
U.S. Environmental Protection Agency	Hazardous substance storage or disposal under RCRA, as needed.

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State Authorizations and Approvals	
Alaska Department of Environmental Conservation (ADEC)	Domestic Wastewater Discharge Permit, under APDES Primacy for the NPDES (general permit/ camp contractor; drilling in Phase 3)
	Wastewater and Water Treatment System approval; permit to operate systems (camp contractor; drilling in Phase 3).
	Solid Waste Storage and Disposal Permits, as needed. Temporary storage of drilling wastes, camp wastes.
	Spill Prevention, Control, and Countermeasures (SPCC) C-Plan - Primacy for C-Plan Program in Alaska (drilling/ testing contractor in Phase 3); Oil Discharge Prevention and Contingency Plan (ODPCP).
	Air Quality Minor Source General Permit
	Certificate of Financial Responsibility
Alaska Department of Natural Resources (ADNR)	Temporary Water Use Permits (TWUP), as needed during exploration program.
	Application for Rights-of-way, or coordination with current rights-of-way lessee(s) for temporary use across State lands for access to exploration sites.
	Cultural Resources Coordination/ Consultation with Alaska Office of History and Archaeology - State Historic Preservation Office (SHPO), Alaska Heritage Resources Survey compliance.
Alaska Oil and Gas Conservation Commission (AOGCC)	Aplication for a Permit to Drill; shallow hazard survey.
	Approval for annular disposal of drilling wastes, as needed. UIC Program Primacy
Alaska Department of Fish and Game (ADF&G)	Fish Habitat Permit (Division of Habitat)
	Coordination with subsistence fishing and hunting requirements; avoidance of conflicts with cultural and subsistence harvests.
	Anadromous and resident fish species protections; overwintering and spawning locations protections.
Local Authorizations and Approvals	
North Slope Borough (NSB)	Municipal Code, Title 19 compliance and permits under AS 29.40.020-.040
	Potential coordination with the USACE and the Conservation Fund for approved compensatory wetlands mitigation, as needed.
	Cultural Resources Coordination/ Consultation with NSB for compliance with Traditional Land Use Inventory (TLUI).
Village of Kaktovik	Coordination with federally recognized tribe for use of community services and transportation facilities, as needed.
Kaktovik Inupiat Corporation	Coordination for use of subsurface mineral estate, rights-of-ways, community services and transportation facilities, as needed.
Arctic Slope Regional Corporation (ASRC)	Coordination for use of subsurface mineral estate, and surface rights-of-way, as needed.
Alaska Eskimo Whaling Commission (AEWC)	Issuance of a Conflict Avoidance Agreement to minimize impacts to subsistence whaling for transport within marine waters.

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Appendix D
Permits and Authorizations for North Slope Development

FEDERAL:

National Oceanic and Atmospheric Administration (NOAA)

- Provides consultation under the Endangered Species Act of 1973, Section 7(a)(2) regarding effects to threatened or endangered species.
- Provides consultation under the Magnuson-Stevens Fishery Management and Conservation Act for effects on Essential Fish Habitat.
- Provides consultation under the Fish and Wildlife Coordination Act regarding effects on fish and wildlife resources.
- Provides consultation under the Marine Mammal Protection Act regarding effects on marine mammals.
- Issues Incidental Harassment Authorization under the Marine Mammal Protection Act for incidental takes of protected marine mammals (bowhead whales and ringed seals).

U.S. Army Corps of Engineers (USACE)

- Issues a section 404 permit under the Federal Water Pollution Control Act of 1972, as amended (Clean Water Act; 33 USC § 1344) for discharge of dredged and fill material into waters of the U.S, including wetlands.
- Issues a section 10 permit under the Rivers and Harbors Appropriations Act of 1899 (33 USC § 403) for structures or work in, of affecting, navigable waters of the U.S.
- Issues a section 103 Ocean Dumping permit under section 103 of the Marine Protection Research and Sanctuaries Act of 1972 (33 USC § 1413) for transport of dredged material for ocean disposal.

U.S. Bureau of Land Management (U.S. BLM)

- Reviews and approves Applications for Permit to Drill (including drilling plans and surface-use plans of operations) and subsequent well operations as prescribed, and other Federal laws, for development and production of Federal leases.
- Approves lease administration requirements including Unit Agreements and Plans of Development, Communitization Agreements and Participating Area Determinations, under the Mineral Leasing Act of 1920 (30 USC §§ 181 et seq.), Federal Oil and Gas Royalty Management Act of 1982 (43 USC §§1701 et seq.), Department of the Interior Appropriations Act, Fiscal Year 1981(Public Law 96-514), and other Federal laws, for exploration and development of oil and gas leases.
- Issues geophysical permits to conduct seismic activities as described in 43 CFR part 3150, under authority of the Mineral Leasing Act of 1920, Alaska National Interest Lands Conservation Act (16 USC §§ 3101 et seq.), Federal Land Policy and Management Act of 1976 (43 USC §§ 1701 et seq.), and Department of the Interior Appropriations Act, Fiscal Year 1981.
- Issues rights-of-way grants and temporary use permits for the construction, operation, and maintenance of pipeline, production, and related facilities.
- Delegates authority to ADEC for review and approval of Oil Discharge Prevention and Contingency Plans and Certification of Financial Responsibility for accidental oil discharge into navigable waters under section 1016 of the Oil Pollution Act of 1990 (OPA90; 33 USC § 2716), and Section 311(j)(5) of the Federal Water Pollution Control Act (33 USC § 1321(j)(5); 30 CFR part 254).

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U.S. Environmental Protection Agency (USEPA)

- Issues an Underground Injection Control Class 1 Industrial Well permit under the Safe Drinking Water Act (42 USC §§ 300f et seq.; 40 CFR parts 144 and 146) for underground injection of Class I (industrial) waste materials.

- Requires a Spill Prevention Containment and Countermeasure (SPCC) Plan under section 311 of the Federal Water Pollution Control Act of 1972, as amended (Clean Water Act; 33 USC § 1321;40 CFR part 112) for storage of over 660 gallons of fuel in a single container or over 1,320 gallons in aggregate in tanks above ground.

- Conducts a review and evaluation of the Draft and Final EIS for compliance with CEQ guidelines (40 CFR parts 1500-1508) and section309 of the Clean Air Act (42 USC § 7609).

- Authority delegated to ADEC to issue air quality permits for facilities operating within state jurisdiction, including a Title V operating permit and a Prevention of Significant Deterioration (PSD) permit under the Clean Air Act, as amended (42 USC §§ 7401 et seq.), to address air pollutant emissions.

U.S. Fish and Wildlife Service (USFWS)

- Provides consultation under the Endangered Species Act of 1973, section 7(a)(2) regarding effects to threatened or endangered species.

- Provides consultation under the Fish and Wildlife Coordination Act regarding effects to fish and wildlife resources.

- Issues a Letter of Authorization under the Marine Mammal Protection Act for incidental takes of marine mammals.

STATE:

Alaska Department of Environmental Conservation (ADEC)

- Under authority transferred from the USEPA, issues an Alaska Pollutant Discharge and Elimination System (APDES) permit under section 402, Federal Water Pollution Control Act of 1972, as amended (Clean Water Act; 33 USC § 1342) for discharges into waters of the U.S.

- Issues a Certificate of Reasonable Assurance for discharge of dredged and fill material into U.S. waters under section 401, Federal Water Pollution Control Act of 1972, as amended in 1977 (Clean Water Act; 33 USC § 1341); AS 46.03.020; 18 AAC chapters 15, 70, and 72.

- Issues a Certificate of Reasonable Assurance/NPDES and Mixing Zone Approval for wastewater disposal into all state waters under section 402, Federal Water Pollution Control Act of 1972, as amended (Clean Water Act; 33 USC § 1342); AS 46.03.020, .100, .110, .120, and .710; 18 AAC chapters, 10, 15, and 70, and ; § 72.500.

- Issues a Class I well wastewater disposal permit for underground injection of non-domestic wastewater under AS 46.03.020, .050, and .100.

- Reviews and approves all public water systems including plan review, monitoring program, and operator certification under AS 46.03.020, .050, .070, and .720, 18 AAC § 80.005.

- Approves domestic wastewater collection, treatment, and disposal plans for domestic wastewaters (18 AAC chapter 72).

- Approves financial responsibility for cleanup of oil spills (18 AAC chapter 75).

- Reviews and approves the Oil Discharge Prevention and Contingency Plan and the Certificate of Financial Responsibility for storage or transport of oil under AS 46.04.030 and 18 AAC chapter 75. The State review applies to oil exploration and production facilities, crude oil pipelines, oil terminals, tank vessels and barges, and certain non-tank vessels.

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ADEC cont.

- Issues a Title V Operating Permit and a PSD permit under Clean Air Act Amendments (Title V) for air pollutant emissions from construction and operation activities (18 AAC chapter 50).
- Issues a solid waste disposal permit for state lands under AS 46.03.010, 020, 100, and 110; AS 46.06.080; 18 AAC § 60.005; and 200.
- Reviews and approves solid waste processing and temporary storage facilities plan for handling and temporary storage of solid waste on Federal and state lands under AS 46.03.005, 010, and 020; and 18 AAC § 60.430.
- Approves the siting of hazardous waste management facilities.

Alaska Department of Fish and Game (ADFG)

- Issues Fish Habitat Permits under AS 16.05.871 for activities within streams used by fish that the agency determines could represent impediments to fish passage, or for travel in, excavation of, or culverting of anadromous fish streams.

Alaska Department of Natural Resources (ADNR)

- Issues a Material Sales Contract for mining and purchase of gravel from state lands under AS 38.05.850; and 11 AAC §§ 71.070 and .075.
- Issues Rights-of-Way (ROW) and Land Use permits for use of state land, ice road construction on state land, and state freshwater bodies under AS 38.05.850.
- Issues a Temporary Water Use and Water Rights permit under AS 46.15 for water use necessary for construction and operations.
- Issues pipeline ROW leases for pipeline construction and operation across state lands under AS 38.35.020.
- Issues a Cultural Resources Concurrence for developments that may affect historic or archaeological sites under the National Historic Preservation Act of 1966, as amended (16 USC §§ 470 et seq.), Alaska Historic Preservation Act (AS 41.35.010 through .240).

Alaska Oil and Gas Conservation Commission (AOGCC)

- Issues a Permit to Drill under 20 AAC § 25.05.
- Issues approval for annular disposal of drilling waste (20 AAC § 25.080).
- Authorizes Plugging, Abandonment, and Location Clearance (20 AAC § 25.105 through 25.172).
- Authorizes Production Practices (20 AAC §§ 25.200 through 25.245).
- Authorizes Class II Waste Disposal and Storage (20 § AAC 25.252).
- Approves Workover Operations (20 § AAC 25.280).
- Reports (20 AAC §§ 25.300 through 25.320).
- Authorizes Enhanced Recovery Operations under 20 AAC §§ 25.402-460.

LOCAL:

North Slope Borough (NSB)

- Issues Development Permits for oil and gas projects under NSB Code of Ordinance Title 19.

Source: BLM, 2012a, Appendix B

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From: Martin, John
To: Gieryic, Michael
Cc: Tracy Fischbach; Mitch Ellis; Ryan Mollnow; Stephanie Brady; Socheata Lor; Steve Berendzen; Joanna Fox; Doug Damberg; Joseph Darnell
Subject: Re: 1002 EA Meeting - CONTAINS SOLICITOR ADVICE - DO NOT RELEASE
Date: Sunday, November 5, 2017 2:34:57 PM

All

b5-DP/AC [redacted]

John

On Fri, Nov 3, 2017 at 3:20 PM, Gieryic, Michael <mike.gieryic@sol.doi.gov> wrote:

> Tracy,
>
> This message follows up on our group's meeting this past Wednesday, b5-DP/AC [redacted]
>
> Here is a link to BLM's 2012 NPR-A Final Integrated Activity Plan/ Environmental Impact Statement: https://eplanning.blm.gov/epl-front-office/eplanning/planAndProjectSite.do?methodName=dispatchToPatternPage&currentPageId=14702
>
> b5-DP/AC [redacted]
>
> [redacted]
>
> Additionally, I am attaching the State of Alaska's May 2013 proposed exploration plan for the 1002 area (in two parts). b5-DP/AC [redacted] (citing in some cases to other sources, including other BLM NEPA documents).
>
> Regards,
>
> Mike Gieryic
> Attorney-Adviser

Office of the Regional Solicitor
U.S. Department of the Interior
4230 University Drive, Suite 300
Anchorage, AK 99508
Phone: (907) 271-1420; Fax: (907) 271-4143
mike.gieryic@sol.doi.gov

From: Diane Granfors
To: Diane Granfors
Subject: 201710Coord_notes.docx
Date: Monday, November 6, 2017 1:02:40 PM
Attachments: ATT00001.txt
201710Coord_notes.docx

Sent from my iPad
****

Diane Granfors, Alaska I&M Coordinator
National Wildlife Refuge System
US Fish and Wildlife Service

Coordination notes October 2017

Diane out most of month at Ft. Collins detail for Jana and Collaboration and Conflict Training at NCTC

October 29 – NR staff
I&M this week

- ShinyR workshop (interactive data) – Hilmar, Jared, McCrea
- Denise coming in for ServCat training – Kristin and Hilmar to help her out – entering APB records
- Alaska LCC workshop all day Weds and Thursday
- Meet with Stephanie on Friday to discuss IMP planning, workshop with Tetlin
- Talked with Melissa Cady about their ROC process
- Just asked by Merry to participate on national TRACT data working group
- EPAPs, MS review

I&M expectations for lynx project
Project Record from McCrea
Tie back to IMPs

Position vacancies
Data manager GS level?

Briefing for Soch, Doug and Ronnie
Tetlin ROC process
Where we are with ROC and IMPs
Needs to get rolled out to managers

31 October 2017

- No RDT yesterday
- Arctic 1002 area - ?? From HQ – hearing on exploration on Thursday
- b5-DP (and not responsive) [redacted]
- Chiefs went over the I&M review. Chase making list of bullets – will be sending out through Chiefs in a few weeks.
- b5-DP (and not responsive) [redacted]
- b5-DP (and not responsive) [redacted]
- Arctic 1002 internal meeting for next week – J. Martin and Doug. John is out, so may need planning folks to help out. Internal discussion of b5-DP/AC [redacted]
- b5-DP (and not responsive) [redacted]
- b5-DP (and not responsive) [redacted]
- b5-DP (and not responsive) [redacted]

- Mitch going to detail to DC for 3 month starting Nov 13 – for Jeff Rupert (head of NR – planning and NR). Jeff is SES is being relocated to Boise Fire. Will allow Mitch to reposed directly to Alaska issues. Soch will be acting.

Wednesday – Alaska hydrology group. All day meeting.

Check with FES to see if they have an interest in Higher res IfSAR. (David Wigglesworth).

Telework agreements due Nov. 9 to HR.

b5-DP (and not responsive)

Take a look at packets for hires (email from Beth).

From:	Fischbach, Tracy
To:	Gieryic, Michael
Cc:	Mitch Ellis; Ryan Mollnow; Stephanie Brady; Socheata Lor; John Martin; Steve Berendzen; Joanna Fox; Doug Damberg; Joseph Darnell
Subject:	Re: 1002 EA Meeting - CONTAINS SOLICITOR ADVICE - DO NOT RELEASE
Date:	Monday, November 6, 2017 2:31:57 PM

Thanks so much, Mike. These will be really helpful. b5-DP/AC [redacted]

Thanks again! -T

Tracyann S Fischbach
Natural Resources Planner
National Wildlife Refuge System - Region 7
Division of Natural Resources & Conservation Planning
(907) 786-3369

Hours: Mon - Thurs 9:15 am to 3:15 pm
"Getting right down and smelling the fresh soil is good for any one." - from the 1913 Handbook for Girl Scouts by W. J. Hoxie

Need access to Refuge Documents?
Online Document Database (ServCat)
Need Refuge land status info for Alaska?
FWS Region 7 Land Mapper (FWS version)
FWS Region 7 Land Mapper (Public version)
Region 7 GeoPDF Map Portal

On Fri, Nov 3, 2017 at 3:20 PM, Gieryic, Michael <mike.gieryic@sol.doi.gov> wrote:

> Tracy,
>
> This message follows up on our group's meeting this past Wednesday, b5-DP/AC [redacted]
>
> Here is a link to BLM's 2012 NPR-A Final Integrated Activity Plan/ Environmental Impact Statement: https://eplanning.blm.gov/epl-front-office/eplanning/planAndProjectSite.do?methodName=dispatchToPatternPage&currentPageId=14702
>
> b5-DP/AC [redacted]
>
> [redacted]

b5-DP/AC [redacted]

Additionally, I am attaching the State of Alaska's May 2013 proposed exploration plan for the 1002 area (in two parts). b5-DP/AC [redacted] citing in some cases to other sources, including other BLM NEPA documents).

Regards,

Mike Gieryic
Attorney-Adviser
Office of the Regional Solicitor
U.S. Department of the Interior
4230 University Drive, Suite 300
Anchorage, AK 99508
Phone: (907) 271-1420; Fax: (907) 271-4143
mike.gieryic@sol.doi.gov

From: Greg Siekaniec
To: Darnell, Joseph
Cc: karen_clark@fws.gov
Subject: Re: Arctic NWR Vintage Seismic Data from 1980s
Date: Monday, November 6, 2017 9:07:57 PM

Joe,

We will begin looking for the information you are requesting.

Greg

Sent from my iPhone

On Nov 6, 2017, at 7:31 PM, Darnell, Joseph <joe.darnell@sol.doi.gov> wrote:

> Greg -
>
> Some legal question have come up over the status of the seismic data collected during the 1980s. I need to know where to secure a copy of the exploration plan submitted to the Service to secure the permit and any correspondence between the Service and the permittee over the terms of the permit and handling of data from the exploration work.
>
> Thanks.
>
> Joe
>
> *Joseph Darnell*
> *Regional Solicitor*
> *Alaska Region - Dept. of the Interior*
> *Anchorage, Alaska*
> *Direct Phone (907) 271-4118 / Main Office Phone (907) 271-4131*
> *Fax (907) 271-4143 / Mobile (907) 301-6687*
> *joe.darnell@sol.doi.gov*

From: Karen Clark
To: Greg Siekaniec
Subject: Re: Arctic NWR Vintage Seismic Data from 1980s
Date: Tuesday, November 7, 2017 8:12:53 AM

Will do!

Sent from my iPhone

On Nov 6, 2017, at 7:02 PM, Greg Siekaniec <greg_siekaniec@fws.gov> wrote:

> Karen,
>
> Please see Joe Darnell's request for old seismic data correspondence and information. Can you begin to investigate this question? BLM May hold some of the information but we should have the correspondence in our files. Perhaps at Arctic NWR?
>
> Thank you,
>
> Greg
>
> Sent from my iPhone
>
> Begin forwarded message:
>
> **From:** "Darnell, Joseph" <joe.darnell@sol.doi.gov>
> **Date:** November 6, 2017 at 7:31:46 PM CST
> **To:** Greg Siekaniec <greg_siekaniec@fws.gov>
> **Subject: Arctic NWR Vintage Seismic Data from 1980s**
>
> Greg -
>
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> *Joseph Darnell*
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> *Fax (907) 271-4143 / Mobile (907) 301-6687*

joe.darnell@sol.doi.gov

From: Steve Berendzen
To: Joanna Fox
Subject: Re: Arctic NWR Vintage Seismic Data from 1980s
Date: Tuesday, November 7, 2017 9:47:27 AM

I think Alfredo said it was right there in the first box he looked at. So I would check the most accessible & obvious boxes first. Is he available by phone or text? Might try checking with him if so

Sent from my iPhone

On Nov 7, 2017, at 6:35 AM, Joanna Fox <joanna_fox@fws.gov> wrote:

As misfortune would have it, Alfredo is out b5-DP/AC

b5-DP/AC

Sent from my iPad

Begin forwarded message:

From: Mitch Ellis <mitch_ellis@fws.gov>
Date: November 7, 2017 at 7:29:21 AM AKST
To: Steve Berendzen <steve_berendzen@fws.gov>, joanna_fox@fws.gov, Doug Damberg <doug_damberg@fws.gov>, Socheata Lor <socheata_lor@fws.gov>
Subject: Fwd: Arctic NWR Vintage Seismic Data from 1980s

Joanna and Doug - see email string below. Joe Darnell is asking for some correspondence and plans that Arctic may have in the files? Maybe check with Realty as well. Thanks.

Sent from my iPhone

Begin forwarded message:

From: Mitch Ellis <mitch_ellis@fws.gov>

Date: November 7, 2017 at 7:26:16 AM AKST
To: Karen Clark <karen_clark@fws.gov>
Subject: Re: Arctic NWR Vintage Seismic Data from 1980s

We'll see if we can track it down.

Sent from my iPhone

On Nov 7, 2017, at 6:12 AM, Karen Clark <karen_clark@fws.gov> wrote:

> Hey Mitch,
> Any thoughts about where a copy of this plan could be obtained? Do you think it could be in Arctic Refuge files? Let me know what you think so we can track this down.
>
> Thanks, Karen
>
> Sent from my iPhone
>
> Begin forwarded message:
>
> **From:** Greg Siekaniec <greg_siekaniec@fws.gov>
> **Date:** November 6, 2017 at 7:02:38 PM AKST
> **To:** karen_clark@fws.gov
> **Subject: Fwd: Arctic NWR Vintage Seismic Data from 1980s**
>
> Karen,
>
> Please see Joe Darnell's request for old seismic data correspondence and information. Can you begin to investigate this question? BLM May hold some of the information but we should have the correspondence in our files. Perhaps at Arctic NWR?
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> Thank you,

Greg

Sent from my iPhone

Begin forwarded message:

From: "Darnell, Joseph" <joe.darnell@sol.doi.gov>
Date: November 6, 2017 at 7:31:46 PM CST
To: Greg Siekaniec <greg_siekaniec@fws.gov>
Subject: Arctic NWR Vintage Seismic Data from 1980s

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Some legal question have come up over the status of the seismic data collected during the 1980s. I need to know where to secure a copy of the exploration plan submitted to the Service to secure the permit and any correspondence between the Service and the permittee over the terms of the permit and handling of data from the exploration work.

Thanks.

Joe

Joseph Darnell
Regional Solicitor
Alaska Region - Dept. of the Interior
Anchorage, Alaska
Direct Phone (907) 271-4118 / Main

Office Phone (907) 271-4131
Fax (907) 271-4143 / Mobile (907) 301-6687
joe.darnell@sol.doi.gov

From: Berendzen, Steve
To: Damberg, Doug
Cc: Joanna Fox
Subject: Re: Arctic NWR Vintage Seismic Data from 1980s
Date: Tuesday, November 7, 2017 10:23:22 AM

Doug, Joanna and other staff are looking for this in Arctic files, but Alfredo is gone and he normally has a better understanding of permit files. I think I mentioned last week that our files are boxed up and not really organized in any manner where things are easy to locate. We'll discuss this at our staff meeting this morning and make it a priority to get the old files from the mid-80's seismic testing located and available. It's possible we could use some help with this in the very near future, but I want to discuss with Joanna and staff first.

We'll do our best to locate what we have of these documents.

Steve Berendzen
Acting Manager, Arctic National Wildlife Refuge
907-456-0253

On Tue, Nov 7, 2017 at 7:51 AM, Damberg, Doug <doug_damberg@fws.gov> wrote:

> Doug C and John -
> Please see the email string below an let us know Realty has any of this information.
> Thx,
>
> Doug Damberg
> Refuge Supervisor, AK North Zone
> U.S. Fish and Wildlife Service
> 1011 E. Tudor Rd.; Anchorage, AK 99503
> Office: (907) 786-3329
> Cell: (907) 947-6302
>
> On Tue, Nov 7, 2017 at 7:29 AM, Mitch Ellis <mitch_ellis@fws.gov> wrote:
>
> > Joanna and Doug - see email string below. Joe Darnell is asking for some correspondence and plans that Arctic may have in the files? Maybe check with Realty as well. Thanks.
> >
> > Sent from my iPhone
> >
> > Begin forwarded message:
> >
> > **From:** Mitch Ellis <mitch_ellis@fws.gov>
> > **Date:** November 7, 2017 at 7:26:16 AM AKST
> > **To:** Karen Clark <karen_clark@fws.gov>
> > **Subject: Re: Arctic NWR Vintage Seismic Data from 1980s**
> >
> > We'll see if we can track it down.
> >
> > Sent from my iPhone
> >
> > On Nov 7, 2017, at 6:12 AM, Karen Clark <karen_clark@fws.gov> wrote:

Hey Mitch,
Any thoughts about where a copy of this plan could be obtained? Do you think it could be in Arctic Refuge files? Let me know what you think so we can track this down.

Thanks, Karen

Sent from my iPhone

Begin forwarded message:

> **From:** Greg Siekaniec <greg_siekaniec@fws.gov>
> **Date:** November 6, 2017 at 7:02:38 PM AKST
> **To:** karen_clark@fws.gov
> **Subject: Fwd: Arctic NWR Vintage Seismic Data from 1980s**
>
> Karen,
>
> Please see Joe Darnell's request for old seismic data correspondence and information. Can you begin to investigate this question? BLM May hold some of the information but we should have the correspondence in our files. Perhaps at Arctic NWR?
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>
> Greg
>
> Sent from my iPhone
>
> Begin forwarded message:
>
> > **From:** "Darnell, Joseph" <joe.darnell@sol.doi.gov>
> > **Date:** November 6, 2017 at 7:31:46 PM CST
> > **To:** Greg Siekaniec <greg_siekaniec@fws.gov>
> > **Subject: Arctic NWR Vintage Seismic Data from 1980s**
> >
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Thanks.

Joe

Joseph Darnell
Regional Solicitor
Alaska Region - Dept. of the Interior
Anchorage, Alaska
Direct Phone (907) 271-4118 / Main Office Phone (907) 271-4131
Fax (907) 271-4143 / Mobile (907) 301-6687
joe.darnell@sol.doi.gov

From: Karen Clark
To: joe.darnell@sol.doi.gov
Subject: Seismic data request
Date: Tuesday, November 7, 2017 10:38:39 AM

Hey Joe, I am helping to track down the information you requested- just wondering what your turn around for this is?

Thanks, Karen

Karen P. Clark
Deputy Regional Director
U.S. Fish & Wildlife Service- Alaska Region
karen_clark@fws.gov
907.786.3542 office
907.786.3493 direct
907.786.3306 fax

From: Douglas Campbell
To: Damberg, Doug
Subject: Re: Arctic NWR Vintage Seismic Data from 1980s
Date: Tuesday, November 7, 2017 10:57:04 AM

Doug

Steve B was able to find the SUP for the seismic. It's possible they have the results. I've not come across it in any of the realty files.

The other possibility is that Planning may have a copy that would be in the boxes HQ sent us several years ago that have info from the EIS etc of the development plan. John Martin or Pete Wikoff may know.

Sent from my iPhone

On Nov 7, 2017, at 8:51 AM, Damberg, Doug <doug_damberg@fws.gov> wrote:

> Doug C and John -
> Please see the email string below an let us know Realty has any of this information.
> Thx,
>
> Doug Damberg
> Refuge Supervisor, AK North Zone
> U.S. Fish and Wildlife Service
> 1011 E. Tudor Rd.; Anchorage, AK 99503
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>> **Date:** November 7, 2017 at 7:26:16 AM AKST
>> **To:** Karen Clark <karen_clark@fws.gov>
>> **Subject: Re: Arctic NWR Vintage Seismic Data from 1980s**
>>
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>> Sent from my iPhone

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> > **From:** Greg Siekaniec <greg_siekaniec@fws.gov>
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> > **To:** karen_clark@fws.gov
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> >
> > Greg
> >
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> > Begin forwarded message:
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> > > **From:** "Darnell, Joseph" <joe.darnell@sol.doi.gov>
> > > **Date:** November 6, 2017 at 7:31:46 PM CST
> > > **To:** Greg Siekaniec <greg_siekaniec@fws.gov>

Subject: Arctic NWR Vintage Seismic Data from 1980s

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Some legal question have come up over the status of the seismic data collected during the 1980s. I need to know where to secure a copy of the exploration plan submitted to the Service to secure the permit and any correspondence between the Service and the permittee over the terms of the permit and handling of data from the exploration work.

Thanks.

Joe

Joseph Darnell
Regional Solicitor
Alaska Region - Dept. of the Interior
Anchorage, Alaska
Direct Phone (907) 271-4118 / Main Office Phone (907) 271-4131
Fax (907) 271-4143 / Mobile (907) 301-6687
joe.darnell@sol.doi.gov

From:	Lor, Socheata
To:	John Brewer; Brady, Stephanie; Ryan Mollnow
Subject:	Fwd: 1983 SUP For Seismic Testing in 1002
Date:	Tuesday, November 7, 2017 12:38:03 PM
Attachments:	Scanned from a Xerox multifunction device.pdf

FYI.

Soch

~~~~~~~~~~~~~~~~~

Socheata Lor, Ph.D.
Deputy Assistant Regional Director - Region 7
National Wildlife Refuge System
U.S. Fish and Wildlife Service
1011 E. Tudor Road
Anchorage, AK 99503
Office: 907.786.3420
Cell: 907.891.6194

~~~~~~~~~~~~~~~~~

---------- Forwarded message ----------
From: **Berendzen, Steve** <steve_berendzen@fws.gov>
Date: Mon, Oct 30, 2017 at 4:44 PM
Subject: 1983 SUP For Seismic Testing in 1002
To: Jim Kurth <jim_kurth@fws.gov>
Cc: Mitch Ellis <mitch_ellis@fws.gov>, "Lor, Socheata" <socheata_lor@fws.gov>, "Campbell, Douglas" <douglas_campbell@fws.gov>, Doug Damberg <doug_damberg@fws.gov>

Jim,

I understand that you need a copy of the subject permit. I've attached it with the 2 sets of conditions that were issued for it and cover letters. If you need more specific information that was part of that permit or related in some way, please let me know.

Steve Berendzen
Acting Manager, Arctic National Wildlife Refuge
907-456-0253

FORM 3-1383
(REV. 11/75)

UNITED STATES DEPARTMENT OF THE INTERIOR
U.S. Fish and Wildlife Service

Arctic National Wildlife Refuge

SPECIAL USE PERMIT

Permit number	Sta. No. to be credited
83-C10	75600

Contract number

Date 4 November, 1983

Permittee *(Name and address)*

Geophysical Service, Inc.
5801 Silverado Way
Anchorage, Alaska 99502 ATTN: Mr. George Buzan

Period of use *(inclusive)*

From 15 December 19 83
To 10 May 19 85

Purpose *(Specify in detail privilege requested, or units of products involved)*

Conduct seismic exploration activities on the coastal plain area of the refuge.

Description *(Specify unit numbers; metes and bounds; or other recognizable designations)*

Coastal plain study area as described by Appendix 1 of 50 CFR Part 37.

Amount of fee $_____ If not a fixed fee payment, specify rate and unit of charge: _____

Refer to 50 CFR 37.46

☐ Full payment

☐ Partial payment-Balance of payments to be made as follows:

Estimated cost of preparing special use permit - $500.
Estimated costs of monitoring operations during each calendar quarter will be assessed at the outset of the quarter.

Record of Payments

Special Conditions

See attachments. The activities authorized by this permit shall be conducted in accordance with the permittee's approved exploration plan and plan of operation, or as hereafter modified or revised, Section 1002 of the Alaska National Interest Lands Conservation Act 94 Stat. 2449, as amended by Section 110, Pub. L. No. 7-394, 96 Stat. 1982, 16 USC Section 3142, and 50 CFR Part 37, or as hereafter amended or supplemented.

This permit is issued by the U.S. Fish and Wildlife Service, and accepted by the undersigned, subject to the terms, covenants, obligations, and reservations, expressed or implied therein, and to the conditions and requirements appearing on the reverse side.

Permittee *(Signature)* George Buzan

Issuing Officer *(Signature and title)* Don Ross for Ellen Clason
Don Ross, Acting Refuge Manager

0000001190

COASTAL PLAIN STUDY AREA
ARCTIC NATIONAL WILDLIFE REFUGE
SPECIAL CONDITIONS FOR SEISMIC STUDIES
Special Use Permit 85-C10

1. The permittee will notify the Refuge Manager and Field Monitor 3 days prior to mobilizing for exploration activities. The Refuge Manager can be contacted during normal work hours at 907-456-0250. Field Monitors can be contacted at 907-640-6320. Methods of communicating with the Field Monitors via radio will be established prior to mobilizing for exploration.

2. Surface vehicle traffic is to occur only when the seasonal frost in the tundra and underlying mineral soils is an average minimum depth of 12 inches and the average snow cover a minimum depth of 6 inches as determined by a Field Monitor. Exceptions will require the written approval of a Field Monitor.

3. Surface vehicle operations will cease when the spring melt of snow begins, approximately 5 May. The ending date for the season will be determined by a Field Monitor. A 72 hour advance notice will be given, except in emergencies.

4. To prevent surface disturbance, tracked vehicles will not execute tight turns by locking one track.

5. Camp and temporary airstrip locations and camp move routes must be approved in advance by a Field Monitor.

6. All equipment and temporary structures placed by the permittee within the refuge must be removed prior to termination of the permit.

7. The Special Areas listed below will be in effect during your permit. The most recent dates of issuance are also listed. Revised maps will be issued as new information becomes available.
   a) Muskoxen Calving Special Area; 1 November 1985.
   b) Brown Bear and Polar Bear Denning Special Area; 26 April 1983.
   c) Sadlerochit Spring Special Area; 26 April 1985.

8. A snow melter system shall be present with each mobile camp to provide potable water at dry camp sites. In addition, a tank or tanks capable of storing 1,000 gallons of potable water for camp use shall be a part of each camp's equipment, together with necessary hoses, fittings, and water pump.

9. Water may not be obtained from springs which support, directly or indirectly, overwintering fish populations.

10. Records shall be kept of the amount of shot hole wire used and of that returned for disposal. The Field Monitor may inspect these records at any time.

11. Fuels may be off-loaded from aircraft to surface vehicles on lagoon, lake, or river ice, but no storage of fuels, even on a temporary basis, may occur on those areas.

12. Fuel line couplings for bulk fuel transfers will be of the dry-disconnect type. Fueling crews will constantly monitor all fueling operations and be within reach of manual shutoff valves.

0000001191

13. Fuel barrels will be stored on end, with openings upright.

14. Fuel spill cleanup materials (absorbents) shall be available at all refueling sites and camps.

15. Vehicle refueling shall not occur within the annual floodplain of fish-bearing water courses or within 100 feet of any other water body, except when approved by a Field Monitor.

16. A Field Monitor shall be contacted by the permittee immediately upon the occurrence of a fuel spill.

17. This permit is not valid on claimed or approved Native allotments unless specifically approved. See attached list of known allotments.

18. No archaeological or historic site or any Native camp, village, cemetery, or grave may be disturbed, and no item can be removed from any of these sites. Local subsistence use camps shall be avoided by a distance of 2 miles.

19. The permittee will notify the Field Monitor of the tail number of aircraft being used.

20. Operational reports required pursuant to 50 CFR 37.51 are to be submitted to the Refuge Manager. Information submitted in operational reports is not considered confidential, and will be subject to public disclosure.

21. Data required pursuant to 50 CFR 37.53 are to be submitted to the Regional Director, concurrently with submission to client group participants, and with the word "confidential" clearly marked on the envelope.

22. In addition to data obtained from the coastal plain, the permittee shall submit to the Regional Director all data obtained during this program which ties to adjacent areas.

23. The following list of offset distances of explosive charges from fish-bearing waters shall be followed. This temporarily replaces the requirements of 50 CFR 37.31(c)(3). The minimum acceptable offset from fish-bearing waters for various size charges is:

    1 to 2 pound charge - 80 feet.
    5 pound charge - 120 feet.
    10 pound charge - 170 feet.
    25 pound charge - 270 feet.
    100 pound charge - 530 feet.

24. Amendments or modifications to this permit must be approved in writing by the Refuge Manager or his designee.

Issuing Officer: Don Rost for Glen Elison Date: _____

Permittee: George Begay Date. Oct 1983

0000001192

E

COASTAL PLAIN STUDY AREA
ARCTIC NATIONAL WILDLIFE REFUGE
SPECIAL CONDITIONS FOR SEISMIC STUDIES
Special Use Permit 83-C10 (Revised February 8, 1985)

1. The permittee will notify the Refuge Manager and Field Monitor 3 days prior to mobilizing for exploration activities. The Refuge Manager can be contacted during normal work hours at 907-456-0250. Field Monitors can be contacted at 907-640-6320. Methods of communicating with the Field Monitors via radio will be established prior to mobilizing for exploration.

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3. Surface vehicle operations will cease when the spring melt of snow begins, approximately 5 May. The ending date for the season will be determined by a Field Monitor. A 72 hour advance notice will be given, except in emergencies.

4. To prevent surface disturbance, tracked vehicles will not execute tight turns by locking one track. Unnecessary vehicle turns are prohibited. Vehicles are to turn slowly with a wide radius. Turns should be made in areas of deeper snow and lower micro-relief.

5. Slopes over 20% will be avoided. Two tractors operating in tandem will be utilized to pull cat-trains up steep slopes or out of drifted areas to prevent spinning of tracks and subsequent vegetation and soil damage.

6. Blading of snow will be limited, so as to maintain adequate protective cover.

7. Camp and temporary airstrip locations and camp move routes must be approved in advance by a Field Monitor.

8. All equipment and temporary structures placed by the permittee within the refuge must be removed prior to termination of the permit.

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13. Fuel line couplings for bulk fuel transfers will be of the dry-disconnect type. Fueling crews will constantly monitor all fueling operations and be within reach of manual shutoff valves.

14. Fuel barrels will be stored on end, with openings upright.

15. Fuel spill cleanup materials (absorbents) shall be available at all refueling sites and camps.

16. Vehicle refueling shall not occur within the annual floodplain of fish-bearing water courses or within 100 feet of any other water body, except when approved by a Field Monitor.

17. A Field Monitor shall be contacted by the permittee immediately upon the occurrence of a fuel spill.

18. This permit is not valid on claimed or approved Native allotments unless specifically approved. See attached list of known allotments.

19. No archaeological or historic site or any Native camp, village, cemetery, or grave may be disturbed, and no item can be removed from any of these sites. Local subsistence use camps shall be avoided by a distance of 2 miles.

20. The permittee will notify the Field Monitor of the tail number of aircraft being used.

21. Operational reports required pursuant to 50 CFR 37.51 are to be submitted to the Refuge Manager. Information submitted in operational reports is not considered confidential, and will be subject to public disclosure.

22. Data required pursuant to 50 CFR 37.53 are to be submitted to the Regional Director, concurrently with submission to client group participants, and with the word "confidential" clearly marked on the envelope. Copies of all deliverables produced in the second quarter of calendar year 1985 are to be submitted to the Regional Director no later than June 15, 1985.

23. In addition to data obtained from the coastal plain, the permittee shall submit to the Regional Director all data obtained during this program which ties to adjacent areas.

24. Amendments or modifications to this permit must be approved in writing by the Refuge Manager or his designee.

Issuing Officer: _____ Date: Feb. 11, 1985

Permittee: Hank Guttormson Date: 14 February 1985

0000001194

w/permit GSI

RECEIVED JAN 0 3 1983

United States Department of the Interior

FISH AND WILDLIFE SERVICE
1011 E. TUDOR RD.
ANCHORAGE, ALASKA 99503
(907) 276-3800

IN REPLY REFER TO:

PSS

19 DEC 1983

RAM E
AO
RC
ASRM R
ORP NF
Biol
Biol FM
Biol PM
Biol CM
Biol
Ecol PC
RZB
CM
PAM
In

George Buzan, Project Manager
Geophysical Service, Inc.
5801 Silverado Way
Anchorage, AK 99502

Dear Mr. Buzan:

In response to your letter of 13 December 1983, I accept the proposed revisions to the Geophysical Service, Inc. (GSI) exploration plan and plan of operation for Arctic National Wildlife Refuge. Under these revisions you may add three additional geologists to each field crew to supervise the collection of bottomhole samples. You may also add one additional snowmobile to each crew for transportation of these personnel.

All crew members are to conduct themselves in accordance with GSI's approved exploration plan and plan of operation, federal regulations codified in 50 CFR 37, and all conditions of the GSI special use permit.

Sincerely,

Acting
Regional Director

cc: Refuge Manager, Arctic NWR

0000001195

October 18, 1984

George Buzan
Geophysical Services, Inc.
5801 Silverado Way
Anchorage, AK. 99502

Dear Mr. Buzan:

I am extending the time period covered by your Special Use Permit 83-C10 until October 31, 1985. The permit extension is necessary to cover clean-up and impact assessment work within the 1002 area following the winter 1984-85 seismic work.

Sincerely yours,

Glenn W. Elison
Refuge Manager

cc. Mr. Robert Putz, Regional Director
Mr. John Kurtz RF (N)

0000001196

From: Damberg, Doug
To: Fox, Joanna
Cc: Steve Berendzen
Subject: Re: Arctic NWR Vintage Seismic Data from 1980s
Date: Tuesday, November 7, 2017 2:36:19 PM

Please send it to the 3 of us when you are ready. Thanks much for your work on this one!

Doug Damberg
Refuge Supervisor, AK North Zone
U.S. Fish and Wildlife Service
1011 E. Tudor Rd.; Anchorage, AK 99503
Office: (907) 786-3329
Cell: (907) 947-6302

On Tue, Nov 7, 2017 at 11:30 AM, Fox, Joanna <joanna_fox@fws.gov> wrote:

> Hi Doug,
>
> Just a heads-up before I dig back into the files. I have located some of the records the solicitor is requesting, including an amended plan, submitted in 1984, to cover 1985 operations. Correspondence included with it references the original GSI Exploration Plan that was submitted in May 1983. I don't have that, but will see if Alfredo can direct me to the correct box in the cubicle in the event it's in the box. I am going to ask Gail to individually scan each of the documents I have located, and in the meantime, am going to keep searching for the 1983 Exploration Plan. Unless instructed otherwise, I will send everything we find in one message, electronically. Do you want me to send it to you first for review, or do you want me to send it all to you, Soch and Mitch? To err on the safe side, I may well send some documents that aren't of interest, but I think most of what I have now is relevant.
>
> Joanna
>
> _____
> Joanna L. Fox
> Deputy Refuge Manager
> Arctic National Wildlife Refuge
> 101 12th Avenue, Room 236
> Fairbanks, AK 99701
> (907) 456-0549
>
> Follow us on Facebook!
> www.facebook.com/arcticnationalwildliferefuge
>
> *"Do what you can, with what you have, where you are." -- Theodore Roosevelt*
>
> On Tue, Nov 7, 2017 at 7:29 AM, Mitch Ellis <mitch_ellis@fws.gov> wrote:
>
> > Joanna and Doug - see email string below. Joe Darnell is asking for some correspondence and plans that Arctic may have in the files? Maybe check with Realty as well. Thanks.
> >
> > Sent from my iPhone
> >
> > Begin forwarded message:
> >
> > **From:** Mitch Ellis <mitch_ellis@fws.gov>

Date: November 7, 2017 at 7:26:16 AM AKST
To: Karen Clark <karen_clark@fws.gov>
Subject: Re: Arctic NWR Vintage Seismic Data from 1980s

We'll see if we can track it down.

Sent from my iPhone

On Nov 7, 2017, at 6:12 AM, Karen Clark <karen_clark@fws.gov> wrote:

> Hey Mitch,
> Any thoughts about where a copy of this plan could be obtained? Do you think it could be in Arctic Refuge files? Let me know what you think so we can track this down.
>
> Thanks, Karen
>
> Sent from my iPhone
>
> Begin forwarded message:
>
> > **From:** Greg Siekaniec <greg_siekaniec@fws.gov>
> > **Date:** November 6, 2017 at 7:02:38 PM AKST
> > **To:** karen_clark@fws.gov
> > **Subject: Fwd: Arctic NWR Vintage Seismic Data from 1980s**
> >
> > Karen,
> >
> > Please see Joe Darnell's request for old seismic data correspondence and information. Can you begin to investigate this question? BLM May hold some of the information but we should have the correspondence in our files. Perhaps at Arctic NWR?
> >
> > Thank you,
> >
> > Greg
> >
> > Sent from my iPhone
> >
> > Begin forwarded message:
> >
> > > **From:** "Darnell, Joseph" <joe.darnell@sol.doi.gov>

Date: November 6, 2017 at 7:31:46 PM CST
To: Greg Siekaniec <greg_siekaniec@fws.gov>
Subject: Arctic NWR Vintage Seismic Data from 1980s

Greg -

Some legal question have come up over the status of the seismic data collected during the 1980s. I need to know where to secure a copy of the exploration plan submitted to the Service to secure the permit and any correspondence between the Service and the permittee over the terms of the permit and handling of data from the exploration work.

Thanks.

Joe

Joseph Darnell
Regional Solicitor
Alaska Region - Dept. of the Interior
Anchorage, Alaska
Direct Phone (907) 271-4118 / Main Office Phone (907) 271-4131
Fax (907) 271-4143 / Mobile (907) 301-6687
joe.darnell@sol.doi.gov

From: Lor, Socheata
To: John Brewer
Subject: Fwd: Arctic NWR Vintage Seismic Data from 1980s
Date: Tuesday, November 7, 2017 3:56:00 PM

Hi John,

FYI. Joanna created a Google folder for the material. Add to it if you come across any relevant documents.

Thank you!

Soch

~~~~~~~~~~~~~~~~~
Socheata Lor, Ph.D.
Deputy Assistant Regional Director - Region 7
National Wildlife Refuge System
U.S. Fish and Wildlife Service
1011 E. Tudor Road
Anchorage, AK 99503
Office: 907.786.3420
Cell: 907.891.6194
~~~~~~~~~~~~~~~~~

---------- Forwarded message ----------
From: **Fox, Joanna** <joanna_fox@fws.gov>
Date: Tue, Nov 7, 2017 at 1:49 PM
Subject: Re: Arctic NWR Vintage Seismic Data from 1980s
To: "Damberg, Doug" <doug_damberg@fws.gov>, Socheata Lor <Socheata_Lor@fws.gov>, Mitch Ellis <mitch_ellis@fws.gov>
Cc: Steve Berendzen <steve_berendzen@fws.gov>

I have shared scanned copies of the records we've located so far that are related to the GSI seismic exploration permit and exploration plan via Google Drive, at Geophysical Service, Inc. Records. Feel free to edit file names, download and share as you wish (you should all have full rights).

We also have some large format maps that are referenced in some of the correspondence. We don't have the ability to easily scan those, but can figure out a way to provide them if anyone is interested.

We're going through several additional boxes and folders to see what else we might have, and will scan and upload anything else as we find it. Still looking for the 1983 exploration plan.

Thanks,
Joanna

Joanna L. Fox
Deputy Refuge Manager
Arctic National Wildlife Refuge

101 12th Avenue, Room 236
Fairbanks, AK 99701
(907) 456-0549

Follow us on Facebook!
www.facebook.com/arcticnationalwildliferefuge

"Do what you can, with what you have, where you are." -- Theodore Roosevelt

On Tue, Nov 7, 2017 at 12:23 PM, Fox, Joanna <joanna_fox@fws.gov> wrote:

> I'm finding some files, and still looking for more. We've scanned what we've located so far, but I'm still looking for the 1983 Exploration Plan (I located a 1985 "amended" plan).
>
> _____
> Joanna L. Fox
> Deputy Refuge Manager
> Arctic National Wildlife Refuge
> 101 12th Avenue, Room 236
> Fairbanks, AK 99701
> (907) 456-0549
>
> Follow us on Facebook!
> www.facebook.com/arcticnationalwildliferefuge
>
> *"Do what you can, with what you have, where you are." -- Theodore Roosevelt*
>
> On Tue, Nov 7, 2017 at 12:20 PM, Damberg, Doug <doug_damberg@fws.gov> wrote:
>
> > see Doug C's note below re: Planning files
> >
> > Doug Damberg
> > Refuge Supervisor, AK North Zone
> > U.S. Fish and Wildlife Service
> > 1011 E. Tudor Rd.; Anchorage, AK 99503
> > Office: (907) 786-3329
> > Cell: (907) 947-6302
> >
> > ---------- Forwarded message ----------
> > From: **Douglas Campbell** <douglas_campbell@fws.gov>
> > Date: Tue, Nov 7, 2017 at 8:56 AM
> > Subject: Re: Arctic NWR Vintage Seismic Data from 1980s
> > To: "Damberg, Doug" <doug_damberg@fws.gov>
> >
> > Doug
> >
> > Steve B was able to find the SUP for the seismic. It's possible they have the results. I've not come across it in any of the realty files.
> >
> > The other possibility is that Planning may have a copy that would be in the boxes HQ sent us several years ago that have info from the EIS etc of the development plan. John Martin

or Pete Wikoff may know.

Sent from my iPhone

On Nov 7, 2017, at 8:51 AM, Damberg, Doug <doug_damberg@fws.gov> wrote:

> Doug C and John -
> Please see the email string below an let us know Realty has any of this information.
> Thx,
>
> Doug Damberg
> Refuge Supervisor, AK North Zone
> U.S. Fish and Wildlife Service
> 1011 E. Tudor Rd.; Anchorage, AK 99503
> Office: (907) 786-3329
> Cell: (907) 947-6302
>
> On Tue, Nov 7, 2017 at 7:29 AM, Mitch Ellis <mitch_ellis@fws.gov> wrote:
>> Joanna and Doug - see email string below. Joe Darnell is asking for some correspondence and plans that Arctic may have in the files? Maybe check with Realty as well. Thanks.
>>
>> Sent from my iPhone
>>
>> Begin forwarded message:
>>
>> **From:** Mitch Ellis <mitch_ellis@fws.gov>
>> **Date:** November 7, 2017 at 7:26:16 AM AKST
>> **To:** Karen Clark <karen_clark@fws.gov>
>> **Subject: Re: Arctic NWR Vintage Seismic Data from 1980s**
>>
>> We'll see if we can track it down.
>>
>> Sent from my iPhone
>>
>> On Nov 7, 2017, at 6:12 AM, Karen Clark <karen_clark@fws.gov> wrote:
>>
>>> Hey Mitch,
>>> Any thoughts about where a copy of this plan could be obtained? Do you think it could be in Arctic Refuge files? Let me know what you think so we can track this down.
>>>
>>> Thanks, Karen

Sent from my iPhone

Begin forwarded message:

From: Greg Siekaniec <greg_siekaniec@fws.gov>
Date: November 6, 2017 at 7:02:38 PM AKST
To: karen_clark@fws.gov
Subject: Fwd: Arctic NWR Vintage Seismic Data from 1980s

Karen,

Please see Joe Darnell's request for old seismic data correspondence and information. Can you begin to investigate this question? BLM May hold some of the information but we should have the correspondence in our files. Perhaps at Arctic NWR?

Thank you,

Greg

Sent from my iPhone

Begin forwarded message:

From: "Darnell, Joseph" <joe.darnell@sol.doi.gov>
Date: November 6, 2017 at 7:31:46 PM CST
To: Greg Siekaniec <greg_siekaniec@fws.gov>
Subject: Arctic NWR Vintage Seismic Data from 1980s

Greg -

Some legal question have come up over the status of the seismic data collected during the 1980s. I need to know where to secure a copy of the exploration plan submitted to the Service to

secure the permit and any correspondence between the Service and the permittee over the terms of the permit and handling of data from the exploration work.

Thanks.

Joe

Joseph Darnell
Regional Solicitor
Alaska Region - Dept. of the Interior
Anchorage, Alaska
Direct Phone (907) 271-4118 / Main Office Phone (907) 271-4131
Fax (907) 271-4143 /
Mobile (907) 301-6687
joe.darnell@sol.doi.gov

From: Berendzen, Steve
To: Fox, Joanna
Subject: Re: Budget files
Date: Tuesday, November 7, 2017 5:46:59 PM

---

b5-DP/AC [redacted]

Steve Berendzen
Acting Manager, Arctic National Wildlife Refuge
907-456-0253

On Tue, Nov 7, 2017 at 3:29 PM, Fox, Joanna <joanna_fox@fws.gov> wrote:

> b5-DP/AC [redacted]
>
> [redacted]
>
> _____
> Joanna L. Fox
> Deputy Refuge Manager
> Arctic National Wildlife Refuge
> 101 12th Avenue, Room 236
> Fairbanks, AK 99701
> (907) 456-0549
>
> Follow us on Facebook!
> www.facebook.com/arcticnationalwildliferefuge
>
> *"Do what you can, with what you have, where you are." -- Theodore Roosevelt*
>
> On Tue, Nov 7, 2017 at 2:49 PM, Berendzen, Steve <steve_berendzen@fws.gov> wrote:
>
> > b5-DP/AC [redacted]
> >
> > Steve Berendzen
> > Acting Manager, Arctic National Wildlife Refuge
> > 907-456-0253
> >
> > On Tue, Nov 7, 2017 at 2:12 PM, Fox, Joanna <joanna_fox@fws.gov> wrote:
> >
> > > b5-DP/AC [redacted]
> > >
> > > _____
> > > Joanna L. Fox
> > > Deputy Refuge Manager

Arctic National Wildlife Refuge
101 12th Avenue, Room 236
Fairbanks, AK 99701
(907) 456-0549

Follow us on Facebook!
www.facebook.com/arcticnationalwildliferefuge

“Do what you can, with what you have, where you are.” -- Theodore Roosevelt

From:	Brady, Stephanie
To:	Joseph Darnell
Subject:	Fwd: 1983 SUP For Seismic Testing in 1002
Date:	Tuesday, November 7, 2017 5:51:27 PM
Attachments:	mime-attachment.html ATT00001.htm Scanned from a Xerox multifunction device.pdf ATT00002.htm

---

Attached to this email is the special use permit that was provided by Arctic Refuge - does the partially meet your request? Stephanie

stephanie_brady@fws.gov | Branch Chief, Conservation Planning and Policy |
U.S. Fish and Wildlife Service | National Wildlife Refuge System | Alaska |
907.306.7448
Did you know?
The **National Wildlife Refuge System** has:
50 million annual visitors, 850 million acres, and 566 units.

---------- Forwarded message ----------
From: **Ryan Mollnow** <ryan_mollnow@fws.gov>
Date: Wed, Nov 1, 2017 at 3:11 PM
Subject: Fwd: 1983 SUP For Seismic Testing in 1002
To: Tracy Fischbach <tracy_fischbach@fws.gov>, Stephanie Brady <stephanie_brady@fws.gov>, John Martin <john_w_martin@fws.gov>

For your files.

Thanks,
Ryan Mollnow
Division Natural Resources
Alaska Region
National Wildlife Refuge System

Begin forwarded message:

> **From:** Mitch Ellis <mitch_ellis@fws.gov>
> **Date:** November 1, 2017 at 2:47:34 PM AKDT
> **To:** Joe Darnell <joe.darnell@sol.doi.gov>, Mike Gieryic <mike.gieryic@sol.doi.gov>
> **Cc:** Ryan Mollnow <ryan_mollnow@fws.gov>
> **Subject: Fwd: 1983 SUP For Seismic Testing in 1002**
>
> Sent from my iPhone
>
> Begin forwarded message:

From: "Berendzen, Steve" <steve_berendzen@fws.gov>
Date: October 30, 2017 at 4:44:11 PM AKDT
To: Jim Kurth <jim_kurth@fws.gov>
Cc: Mitch Ellis <mitch_ellis@fws.gov>, "Lor, Socheata" <socheata_lor@fws.gov>, "Campbell, Douglas" <douglas_campbell@fws.gov>, Doug Damberg <doug_damberg@fws.gov>
Subject: 1983 SUP For Seismic Testing in 1002

Jim,

I understand that you need a copy of the subject permit. I've attached it with the 2 sets of conditions that were issued for it and cover letters. If you need more specific information that was part of that permit or related in some way, please let me know.

Steve Berendzen
Acting Manager, Arctic National Wildlife Refuge
907-456-0253

FORM 3-1383
(REV. 11/75)

UNITED STATES DEPARTMENT OF THE INTERIOR
U.S. Fish and Wildlife Service

Arctic National Wildlife Refuge

SPECIAL USE PERMIT

Permit number	Sta. No. to be credited
83-C10	75600

Contract number

Date 4 November, 1983

Permittee *(Name and address)*

Geophysical Service, Inc.
5801 Silverado Way
Anchorage, Alaska 99502 ATTN: Mr. George Buzan

Period of use *(inclusive)*

From 15 December 19 83
To 10 May 19 85

Purpose *(Specify in detail privilege requested, or units of products involved)*

Conduct seismic exploration activities on the coastal plain area of the refuge.

Description *(Specify unit numbers; metes and bounds; or other recognizable designations)*

Coastal plain study area as described by Appendix 1 of 50 CFR Part 37.

Amount of fee $_____ If not a fixed fee payment, specify rate and unit of charge: _____

Refer to 50 CFR 37.46

☐ Full payment

☐ Partial payment-Balance of payments to be made as follows:

Estimated cost of preparing special use permit - $500.
Estimated costs of monitoring operations during each calendar quarter will be assessed at the outset of the quarter.

Record of Payments

Special Conditions

See attachments. The activities authorized by this permit shall be conducted in accordance with the permittee's approved exploration plan and plan of operation, or as hereafter modified or revised, Section 1002 of the Alaska National Interest Lands Conservation Act 94 Stat. 2449, as amended by Section 110, Pub. L. No. 7-394, 96 Stat. 1982, 16 USC Section 3142, and 50 CFR Part 37, or as hereafter amended or supplemented.

This permit is issued by the U.S. Fish and Wildlife Service, and accepted by the undersigned, subject to the terms, covenants, obligations, and reservations, expressed or implied therein, and to the conditions and requirements appearing on the reverse side.

Permittee *(Signature)* George Buzan

Issuing Officer *(Signature and title)* Don Ross for Ellen Clason
Don Ross, Acting Refuge Manager

0000001209

COASTAL PLAIN STUDY AREA
ARCTIC NATIONAL WILDLIFE REFUGE
SPECIAL CONDITIONS FOR SEISMIC STUDIES
Special Use Permit 85-C10

1. The permittee will notify the Refuge Manager and Field Monitor 3 days prior to mobilizing for exploration activities. The Refuge Manager can be contacted during normal work hours at 907-456-0250. Field Monitors can be contacted at 907-640-6320. Methods of communicating with the Field Monitors via radio will be established prior to mobilizing for exploration.

2. Surface vehicle traffic is to occur only when the seasonal frost in the tundra and underlying mineral soils is an average minimum depth of 12 inches and the average snow cover a minimum depth of 6 inches as determined by a Field Monitor. Exceptions will require the written approval of a Field Monitor.

3. Surface vehicle operations will cease when the spring melt of snow begins, approximately 5 May. The ending date for the season will be determined by a Field Monitor. A 72 hour advance notice will be given, except in emergencies.

4. To prevent surface disturbance, tracked vehicles will not execute tight turns by locking one track.

5. Camp and temporary airstrip locations and camp move routes must be approved in advance by a Field Monitor.

6. All equipment and temporary structures placed by the permittee within the refuge must be removed prior to termination of the permit.

7. The Special Areas listed below will be in effect during your permit. The most recent dates of issuance are also listed. Revised maps will be issued as new information becomes available.
   a) Muskoxen Calving Special Area; 1 November 1985.
   b) Brown Bear and Polar Bear Denning Special Area; 26 April 1985.
   c) Sadlerochit Spring Special Area; 26 April 1985.

8. A snow melter system shall be present with each mobile camp to provide potable water at dry camp sites. In addition, a tank or tanks capable of storing 1,000 gallons of potable water for camp use shall be a part of each camp's equipment, together with necessary hoses, fittings, and water pump.

9. Water may not be obtained from springs which support, directly or indirectly, overwintering fish populations.

10. Records shall be kept of the amount of shot hole wire used and of that returned for disposal. The Field Monitor may inspect these records at any time.

11. Fuels may be off-loaded from aircraft to surface vehicles on lagoon, lake, or river ice, but no storage of fuels, even on a temporary basis, may occur on those areas.

12. Fuel line couplings for bulk fuel transfers will be of the dry-disconnect type. Fueling crews will constantly monitor all fueling operations and be within reach of manual shutoff valves.

0000001210

13. Fuel barrels will be stored on end, with openings upright.

14. Fuel spill cleanup materials (absorbents) shall be available at all refueling sites and camps.

15. Vehicle refueling shall not occur within the annual floodplain of fish-bearing water courses or within 100 feet of any other water body, except when approved by a Field Monitor.

16. A Field Monitor shall be contacted by the permittee immediately upon the occurrence of a fuel spill.

17. This permit is not valid on claimed or approved Native allotments unless specifically approved. See attached list of known allotments.

18. No archaeological or historic site or any Native camp, village, cemetery, or grave may be disturbed, and no item can be removed from any of these sites. Local subsistence use camps shall be avoided by a distance of 2 miles.

19. The permittee will notify the Field Monitor of the tail number of aircraft being used.

20. Operational reports required pursuant to 50 CFR 37.51 are to be submitted to the Refuge Manager. Information submitted in operational reports is not considered confidential, and will be subject to public disclosure.

21. Data required pursuant to 50 CFR 37.53 are to be submitted to the Regional Director, concurrently with submission to client group participants, and with the word "confidential" clearly marked on the envelope.

22. In addition to data obtained from the coastal plain, the permittee shall submit to the Regional Director all data obtained during this program which ties to adjacent areas.

23. The following list of offset distances of explosive charges from fish-bearing waters shall be followed. This temporarily replaces the requirements of 50 CFR 37.31(c)(3). The minimum acceptable offset from fish-bearing waters for various size charges is:

    1 to 2 pound charge - 80 feet.
    5 pound charge - 120 feet.
    10 pound charge - 170 feet.
    25 pound charge - 270 feet.
    100 pound charge - 530 feet.

24. Amendments or modifications to this permit must be approved in writing by the Refuge Manager or his designee.

Issuing Officer: Don Rose for Glen Elison Date: _____

Permittee: George Begay Date. Oct 1983

0000001211

E

COASTAL PLAIN STUDY AREA
ARCTIC NATIONAL WILDLIFE REFUGE
SPECIAL CONDITIONS FOR SEISMIC STUDIES
Special Use Permit 83-C10 (Revised February 8, 1985)

1. The permittee will notify the Refuge Manager and Field Monitor 3 days prior to mobilizing for exploration activities. The Refuge Manager can be contacted during normal work hours at 907-456-0250. Field Monitors can be contacted at 907-640-6320. Methods of communicating with the Field Monitors via radio will be established prior to mobilizing for exploration.

2. Surface vehicle traffic is to occur only when the seasonal frost in the tundra and underlying mineral soils is an average minimum depth of 12 inches and the average snow cover a minimum depth of 6 inches as determined by a Field Monitor. Exceptions will require the written approval of a Field Monitor.

3. Surface vehicle operations will cease when the spring melt of snow begins, approximately 5 May. The ending date for the season will be determined by a Field Monitor. A 72 hour advance notice will be given, except in emergencies.

4. To prevent surface disturbance, tracked vehicles will not execute tight turns by locking one track. Unnecessary vehicle turns are prohibited. Vehicles are to turn slowly with a wide radius. Turns should be made in areas of deeper snow and lower micro-relief.

5. Slopes over 20% will be avoided. Two tractors operating in tandem will be utilized to pull cat-trains up steep slopes or out of drifted areas to prevent spinning of tracks and subsequent vegetation and soil damage.

6. Blading of snow will be limited, so as to maintain adequate protective cover.

7. Camp and temporary airstrip locations and camp move routes must be approved in advance by a Field Monitor.

8. All equipment and temporary structures placed by the permittee within the refuge must be removed prior to termination of the permit.

9. The Special Areas listed below will be in effect during your permit. The most recent dates of issuance are also listed. Revised maps will be issued as new information becomes available.
    a) Muskoxen Calving Special Area; 1 November 1983.
    b) Brown Bear and Polar Bear Denning Special Area; 26 April 1983.
    c) Sadlerochit Spring Special Area; 26 April 1983.

10. A snow melter system shall be present with each mobile camp to provide potable water at dry camp sites. In addition, a tank or tanks capable of storing 1,000 gallons of potable water for camp use shall be a part of each camp's equipment, together with necessary hoses, fittings, and water pump.

11. Water may not be obtained from springs which support, directly or indirectly, overwintering fish populations.

0000001212

12. Fuels may be off-loaded from aircraft to surface vehicles on lagoon, lake, or river ice, but no storage of fuels, even on a temporary basis, may occur on those areas.

13. Fuel line couplings for bulk fuel transfers will be of the dry-disconnect type. Fueling crews will constantly monitor all fueling operations and be within reach of manual shutoff valves.

14. Fuel barrels will be stored on end, with openings upright.

15. Fuel spill cleanup materials (absorbents) shall be available at all refueling sites and camps.

16. Vehicle refueling shall not occur within the annual floodplain of fish-bearing water courses or within 100 feet of any other water body, except when approved by a Field Monitor.

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20. The permittee will notify the Field Monitor of the tail number of aircraft being used.

21. Operational reports required pursuant to 50 CFR 37.51 are to be submitted to the Refuge Manager. Information submitted in operational reports is not considered confidential, and will be subject to public disclosure.

22. Data required pursuant to 50 CFR 37.53 are to be submitted to the Regional Director, concurrently with submission to client group participants, and with the word "confidential" clearly marked on the envelope. Copies of all deliverables produced in the second quarter of calendar year 1985 are to be submitted to the Regional Director no later than June 15, 1985.

23. In addition to data obtained from the coastal plain, the permittee shall submit to the Regional Director all data obtained during this program which ties to adjacent areas.

24. Amendments or modifications to this permit must be approved in writing by the Refuge Manager or his designee.

Issuing Officer: _____ Date: Feb. 11, 1985

Permittee: Hank Guttormson Date: 14 February 1985

0000001213

w/permit GSI

RECEIVED JAN 0 3 1983

United States Department of the Interior

FISH AND WILDLIFE SERVICE
1011 E. TUDOR RD.
ANCHORAGE, ALASKA 99503
(907) 276-3800

IN REPLY REFER TO:

PSS

19 DEC 1983

RAM E
AO
RC
ASRM R
ORP NF
Biol
Biol FM
Biol PM
Biol CM
Biol
Ecol PC
RZB
CM
PAM

George Buzan, Project Manager
Geophysical Service, Inc.
5801 Silverado Way
Anchorage, AK 99502

Dear Mr. Buzan:

In response to your letter of 13 December 1983, I accept the proposed revisions to the Geophysical Service, Inc. (GSI) exploration plan and plan of operation for Arctic National Wildlife Refuge. Under these revisions you may add three additional geologists to each field crew to supervise the collection of bottomhole samples. You may also add one additional snowmobile to each crew for transportation of these personnel.

All crew members are to conduct themselves in accordance with GSI's approved exploration plan and plan of operation, federal regulations codified in 50 CFR 37, and all conditions of the GSI special use permit.

Sincerely,

Acting
Regional Director

cc: Refuge Manager, Arctic NWR

0000001214

October 18, 1984

George Buzan
Geophysical Services, Inc.
5801 Silverado Way
Anchorage, AK. 99502

Dear Mr. Buzan:

I am extending the time period covered by your Special Use Permit 83-C10 until October 31, 1985. The permit extension is necessary to cover clean-up and impact assessment work within the 1002 area following the winter 1984-85 seismic work.

Sincerely yours,

Glenn W. Elison
Refuge Manager

cc. Mr. Robert Putz, Regional Director
Mr. John Kurtz RF (N)

0000001215

From:	Brady, Stephanie
To:	Lor, Socheata; Tracy Fischbach
Cc:	Fox, Joanna; Damberg, Doug; Ryan Mollnow; Steve Berendzen; John Brewer
Subject:	Re: Arctic NWR Vintage Seismic Data from 1980s
Date:	Tuesday, November 7, 2017 5:54:15 PM

I am searching through the files that we have on our planning drive - I have looped in Tracy because she has a better handle on where these documents might reside - if we have it. Stephanie

stephanie_brady@fws.gov | Branch Chief, Conservation Planning and Policy |
U.S. Fish and Wildlife Service | National Wildlife Refuge System | Alaska |
907.306.7448
Did you know?
The **National Wildlife Refuge System** has:
50 million annual visitors, 850 million acres, and 566 units.

---------- Forwarded message ----------
From: **Lor, Socheata** <socheata_lor@fws.gov>
Date: Tue, Nov 7, 2017 at 12:42 PM
Subject: Re: Arctic NWR Vintage Seismic Data from 1980s
To: "Fox, Joanna" <joanna_fox@fws.gov>
Cc: "Damberg, Doug" <doug_damberg@fws.gov>, Ryan Mollnow <ryan_mollnow@fws.gov>, "Brady, Stephanie" <stephanie_brady@fws.gov>, Steve Berendzen <steve_berendzen@fws.gov>, John Brewer <john_brewer@fws.gov>

Thanks for keeping us posted, Joanna. John Brewer is also looking and he found a couple of Records of Decision (1984 and 1985) and he's still looking.

Soch
~~~~~~~~~~~~~~~~~
Socheata Lor, Ph.D.
Deputy Assistant Regional Director - Region 7
National Wildlife Refuge System
U.S. Fish and Wildlife Service
1011 E. Tudor Road
Anchorage, AK 99503
Office: 907.786.3420
Cell: 907.891.6194
~~~~~~~~~~~~~~~~~

On Tue, Nov 7, 2017 at 12:23 PM, Fox, Joanna <joanna_fox@fws.gov> wrote:

> I'm finding some files, and still looking for more. We've scanned what we've located so far, but I'm still looking for the 1983 Exploration Plan (I located a 1985 "amended" plan).
>
> _____
> Joanna L. Fox
> Deputy Refuge Manager
> Arctic National Wildlife Refuge

101 12th Avenue, Room 236
Fairbanks, AK 99701
(907) 456-0549

Follow us on Facebook!
www.facebook.com/arcticnationalwildliferefuge

"Do what you can, with what you have, where you are." -- Theodore Roosevelt

On Tue, Nov 7, 2017 at 12:20 PM, Damberg, Doug <doug_damberg@fws.gov> wrote:

> see Doug C's note below re: Planning files
>
> Doug Damberg
> Refuge Supervisor, AK North Zone
> U.S. Fish and Wildlife Service
> 1011 E. Tudor Rd.; Anchorage, AK 99503
> Office: (907) 786-3329
> Cell: (907) 947-6302
>
> ---------- Forwarded message ----------
> From: **Douglas Campbell** <douglas_campbell@fws.gov>
> Date: Tue, Nov 7, 2017 at 8:56 AM
> Subject: Re: Arctic NWR Vintage Seismic Data from 1980s
> To: "Damberg, Doug" <doug_damberg@fws.gov>
>
> Doug
>
> Steve B was able to find the SUP for the seismic. It's possible they have the results. I've not come across it in any of the realty files.
>
> The other possibility is that Planning may have a copy that would be in the boxes HQ sent us several years ago that have info from the EIS etc of the development plan. John Martin or Pete Wikoff may know.
>
> Sent from my iPhone
>
> On Nov 7, 2017, at 8:51 AM, Damberg, Doug <doug_damberg@fws.gov> wrote:
>
> > Doug C and John -
> > Please see the email string below an let us know Realty has any of this information.
> > Thx,
> >
> > Doug Damberg
> > Refuge Supervisor, AK North Zone
> > U.S. Fish and Wildlife Service
> > 1011 E. Tudor Rd.; Anchorage, AK 99503
> > Office: (907) 786-3329

Cell: (907) 947-6302

On Tue, Nov 7, 2017 at 7:29 AM, Mitch Ellis <mitch_ellis@fws.gov> wrote:

Joanna and Doug - see email string below. Joe Darnell is asking for some correspondence and plans that Arctic may have in the files? Maybe check with Realty as well. Thanks.

Sent from my iPhone

Begin forwarded message:

From: Mitch Ellis <mitch_ellis@fws.gov>
Date: November 7, 2017 at 7:26:16 AM AKST
To: Karen Clark <karen_clark@fws.gov>
Subject: Re: Arctic NWR Vintage Seismic Data from 1980s

We'll see if we can track it down.

Sent from my iPhone

On Nov 7, 2017, at 6:12 AM, Karen Clark <karen_clark@fws.gov> wrote:

Hey Mitch,
Any thoughts about where a copy of this plan could be obtained? Do you think it could be in Arctic Refuge files? Let me know what you think so we can track this down.

Thanks, Karen

Sent from my iPhone

Begin forwarded message:

From: Greg Siekaniec <greg_siekaniec@fws.gov>
Date: November 6, 2017 at 7:02:38 PM AKST
To: karen_clark@fws.gov
Subject: Fwd: Arctic NWR Vintage Seismic Data from 1980s

Karen,

Please see Joe Darnell's request for

old seismic data correspondence and information. Can you begin to investigate this question? BLM May hold some of the information but we should have the correspondence in our files. Perhaps at Arctic NWR?

Thank you,

Greg

Sent from my iPhone

Begin forwarded message:

From: "Darnell, Joseph" <joe.darnell@sol.doi.gov>
Date: November 6, 2017 at 7:31:46 PM CST
To: Greg Siekaniec <greg_siekaniec@fws.gov>
Subject: Arctic NWR Vintage Seismic Data from 1980s

Greg -

Some legal question have come up over the status of the seismic data collected during the 1980s. I need to know where to secure a copy of the exploration plan submitted to the Service to secure the permit and any correspondence between the Service and the permittee over the terms of the permit and handling of data from the exploration work.

Thanks.

Joe

Joseph Darnell
Regional Solicitor
Alaska Region - Dept. of the Interior
Anchorage, Alaska
Direct Phone (907) 271-4118 / Main Office Phone

(907) 271-4131
Fax (907) 271-4143 /
Mobile (907) 301-6687
joe.darnell@sol.doi.gov

From: Darnell, Joseph
To: Brady, Stephanie
Subject: Re: 1983 SUP For Seismic Testing in 1002
Date: Tuesday, November 7, 2017 6:00:03 PM

Stephanie -

Yes, this is what Mitch sent me last week. Is there anything else in Arctic's or the Region's file particular as it pertains to handling data?

Joe

Joseph Darnell
Regional Solicitor
Alaska Region - Dept. of the Interior
Anchorage, Alaska
Direct Phone (907) 271-4118 / Main Office Phone (907) 271-4131
Fax (907) 271-4143 / Mobile (907) 301-6687
joe.darnell@sol.doi.gov

On Tue, Nov 7, 2017 at 3:51 PM, Brady, Stephanie <stephanie_brady@fws.gov> wrote:

> Attached to this email is the special use permit that was provided by Arctic Refuge - does the partially meet your request? Stephanie
>
> stephanie_brady@fws.gov | Branch Chief, Conservation Planning and Policy |
> U.S. Fish and Wildlife Service | National Wildlife Refuge System | Alaska |
> 907.306.7448
> *Did you know?*
> The **National Wildlife Refuge System** has:
> 50 million annual visitors, 850 million acres, and 566 units.
>
> ---------- Forwarded message ----------
> From: **Ryan Mollnow** <ryan_mollnow@fws.gov>
> Date: Wed, Nov 1, 2017 at 3:11 PM
> Subject: Fwd: 1983 SUP For Seismic Testing in 1002
> To: Tracy Fischbach <tracy_fischbach@fws.gov>, Stephanie Brady <stephanie_brady@fws.gov>, John Martin <john_w_martin@fws.gov>
>
> For your files.
>
> Thanks,
> Ryan Mollnow
> Division Natural Resources
> Alaska Region
> National Wildlife Refuge System
>
> Begin forwarded message:

From: Mitch Ellis <mitch_ellis@fws.gov>
Date: November 1, 2017 at 2:47:34 PM AKDT
To: Joe Darnell <joe.darnell@sol.doi.gov>, Mike Gieryic <mike.gieryic@sol.doi.gov>
Cc: Ryan Mollnow <ryan_mollnow@fws.gov>
Subject: Fwd: 1983 SUP For Seismic Testing in 1002

Sent from my iPhone

Begin forwarded message:

> **From:** "Berendzen, Steve" <steve_berendzen@fws.gov>
> **Date:** October 30, 2017 at 4:44:11 PM AKDT
> **To:** Jim Kurth <jim_kurth@fws.gov>
> **Cc:** Mitch Ellis <mitch_ellis@fws.gov>, "Lor, Socheata" <socheata_lor@fws.gov>, "Campbell, Douglas" <douglas_campbell@fws.gov>, Doug Damberg <doug_damberg@fws.gov>
> **Subject: 1983 SUP For Seismic Testing in 1002**
>
> Jim,
>
> I understand that you need a copy of the subject permit. I've attached it with the 2 sets of conditions that were issued for it and cover letters. If you need more specific information that was part of that permit or related in some way, please let me know.
>
> Steve Berendzen
> Acting Manager, Arctic National Wildlife Refuge
> 907-456-0253

From: Brady, Stephanie
To: Darnell, Joseph
Subject: Re: 1983 SUP For Seismic Testing in 1002
Date: Tuesday, November 7, 2017 6:10:26 PM

---

we have all hands on trying to find information for you - I am searching our planning files - and have asked Tracy to help. When do you need this by?

stephanie_brady@fws.gov | Branch Chief, Conservation Planning and Policy |
U.S. Fish and Wildlife Service | National Wildlife Refuge System | Alaska |
907.306.7448
Did you know?
The **National Wildlife Refuge System** has:
50 million annual visitors, 850 million acres, and 566 units.

On Tue, Nov 7, 2017 at 3:59 PM, Darnell, Joseph <joe.darnell@sol.doi.gov> wrote:

> Stephanie -
>
> Yes, this is what Mitch sent me last week. Is there anything else in Arctic's or the Region's file particular as it pertains to handling data?
>
> Joe
>
> *Joseph Darnell*
> *Regional Solicitor*
> *Alaska Region - Dept. of the Interior*
> *Anchorage, Alaska*
> *Direct Phone (907) 271-4118 / Main Office Phone (907) 271-4131*
> *Fax (907) 271-4143 / Mobile (907) 301-6687*
> *joe.darnell@sol.doi.gov*
>
> On Tue, Nov 7, 2017 at 3:51 PM, Brady, Stephanie <stephanie_brady@fws.gov> wrote:
>
> > Attached to this email is the special use permit that was provided by Arctic Refuge - does the partially meet your request? Stephanie
> >
> > stephanie_brady@fws.gov | Branch Chief, Conservation Planning and Policy |
> > U.S. Fish and Wildlife Service | National Wildlife Refuge System | Alaska |
> > 907.306.7448
> > *Did you know?*
> > The **National Wildlife Refuge System** has:
> > 50 million annual visitors, 850 million acres, and 566 units.
> >
> > ---------- Forwarded message ----------
> > From: **Ryan Mollnow** <ryan_mollnow@fws.gov>
> > Date: Wed, Nov 1, 2017 at 3:11 PM
> > Subject: Fwd: 1983 SUP For Seismic Testing in 1002
> > To: Tracy Fischbach <tracy_fischbach@fws.gov>, Stephanie Brady <stephanie_brady@fws.gov>, John Martin <john_w_martin@fws.gov>
> >
> > For your files.

Thanks,
Ryan Mollnow
Division Natural Resources
Alaska Region
National Wildlife Refuge System

Begin forwarded message:

From: Mitch Ellis <mitch_ellis@fws.gov>
Date: November 1, 2017 at 2:47:34 PM AKDT
To: Joe Darnell <joe.darnell@sol.doi.gov>, Mike Gieryic <mike.gieryic@sol.doi.gov>
Cc: Ryan Mollnow <ryan_mollnow@fws.gov>
Subject: Fwd: 1983 SUP For Seismic Testing in 1002

Sent from my iPhone

Begin forwarded message:

From: "Berendzen, Steve" <steve_berendzen@fws.gov>
Date: October 30, 2017 at 4:44:11 PM AKDT
To: Jim Kurth <jim_kurth@fws.gov>
Cc: Mitch Ellis <mitch_ellis@fws.gov>, "Lor, Socheata" <socheata_lor@fws.gov>, "Campbell, Douglas" <douglas_campbell@fws.gov>, Doug Damberg <doug_damberg@fws.gov>
Subject: 1983 SUP For Seismic Testing in 1002

Jim,

I understand that you need a copy of the subject permit. I've attached it with the 2 sets of conditions that were issued for it and cover letters. If you need more specific information that was part of that permit or related in some way, please let me know.

Steve Berendzen
Acting Manager, Arctic National Wildlife Refuge
907-456-0253

From: Darnell, Joseph
To: Brady, Stephanie
Subject: Re: 1983 SUP For Seismic Testing in 1002
Date: Tuesday, November 7, 2017 6:50:37 PM

Stephanie -

I am addressing some legal issues over use of the data. I would like to know what if anything the permittee and the participating companies were told about how the data was to be handled. If FWS doesn't have the file, then I guess it doesn't have it. Since the permit was issued by the Refuge wouldn't they have had a file? Maybe it was archived or ??? depending on what the records retention requirements are for refuges and/or the Service.

Thanks very much for the effort.

Joe

Joseph Darnell
Regional Solicitor
Alaska Region - Dept. of the Interior
Anchorage, Alaska
Direct Phone (907) 271-4118 / Main Office Phone (907) 271-4131
Fax (907) 271-4143 / Mobile (907) 301-6687
joe.darnell@sol.doi.gov

On Tue, Nov 7, 2017 at 4:10 PM, Brady, Stephanie <stephanie_brady@fws.gov> wrote:

> we have all hands on trying to find information for you - I am searching our planning files - and have asked Tracy to help. When do you need this by?
>
> stephanie_brady@fws.gov | Branch Chief, Conservation Planning and Policy |
> U.S. Fish and Wildlife Service | National Wildlife Refuge System | Alaska |
> 907.306.7448
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>
> On Tue, Nov 7, 2017 at 3:59 PM, Darnell, Joseph <joe.darnell@sol.doi.gov> wrote:
>
> > Stephanie -
> >
> > Yes, this is what Mitch sent me last week. Is there anything else in Arctic's or the Region's file particular as it pertains to handling data?
> >
> > Joe
> >
> > *Joseph Darnell*
> > *Regional Solicitor*
> > *Alaska Region - Dept. of the Interior*
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> > *Direct Phone (907) 271-4118 / Main Office Phone (907) 271-4131*
> > *Fax (907) 271-4143 / Mobile (907) 301-6687*
> > *joe.darnell@sol.doi.gov*
> >
> > On Tue, Nov 7, 2017 at 3:51 PM, Brady, Stephanie <stephanie_brady@fws.gov> wrote:

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stephanie_brady@fws.gov | Branch Chief, Conservation Planning and Policy | U.S. Fish and Wildlife Service | National Wildlife Refuge System | Alaska | 907.306.7448
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---------- Forwarded message ----------
From: **Ryan Mollnow** <ryan_mollnow@fws.gov>
Date: Wed, Nov 1, 2017 at 3:11 PM
Subject: Fwd: 1983 SUP For Seismic Testing in 1002
To: Tracy Fischbach <tracy_fischbach@fws.gov>, Stephanie Brady <stephanie_brady@fws.gov>, John Martin <john_w_martin@fws.gov>

For your files.

Thanks,
Ryan Mollnow
Division Natural Resources
Alaska Region
National Wildlife Refuge System

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> **From:** Mitch Ellis <mitch_ellis@fws.gov>
> **Date:** November 1, 2017 at 2:47:34 PM AKDT
> **To:** Joe Darnell <joe.darnell@sol.doi.gov>, Mike Gieryic <mike.gieryic@sol.doi.gov>
> **Cc:** Ryan Mollnow <ryan_mollnow@fws.gov>
> **Subject: Fwd: 1983 SUP For Seismic Testing in 1002**
>
> Sent from my iPhone
>
> Begin forwarded message:
>
> > **From:** "Berendzen, Steve" <steve_berendzen@fws.gov>
> > **Date:** October 30, 2017 at 4:44:11 PM AKDT
> > **To:** Jim Kurth <jim_kurth@fws.gov>
> > **Cc:** Mitch Ellis <mitch_ellis@fws.gov>, "Lor, Socheata" <socheata_lor@fws.gov>, "Campbell, Douglas"

<douglas_campbell@fws.gov>, Doug Damberg
<doug_damberg@fws.gov>
Subject: 1983 SUP For Seismic Testing in 1002

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Steve Berendzen
Acting Manager, Arctic National Wildlife Refuge
907-456-0253

From: Brady, Stephanie
To: Tracy Fischbach
Subject: Fwd: 1983 SUP For Seismic Testing in 1002
Date: Wednesday, November 8, 2017 12:06:27 PM

---

stephanie_brady@fws.gov | Branch Chief, Conservation Planning and Policy |
U.S. Fish and Wildlife Service | National Wildlife Refuge System | Alaska |
907.306.7448

---------- Forwarded message ----------
From: **Darnell, Joseph** <joe.darnell@sol.doi.gov>
Date: Tue, Nov 7, 2017 at 4:50 PM
Subject: Re: 1983 SUP For Seismic Testing in 1002
To: "Brady, Stephanie" <stephanie_brady@fws.gov>

Stephanie -

I am addressing some legal issues over use of the data. I would like to know what if anything the permittee and the participating companies were told about how the data was to be handled. If FWS doesn't have the file, then I guess it doesn't have it. Since the permit was issued by the Refuge wouldn't they have had a file? Maybe it was archived or ??? depending on what the records retention requirements are for refuges and/or the Service.

Thanks very much for the effort.

Joe

Joseph Darnell
Regional Solicitor
Alaska Region - Dept. of the Interior
Anchorage, Alaska
Direct Phone (907) 271-4118 / Main Office Phone (907) 271-4131
Fax (907) 271-4143 / Mobile (907) 301-6687
joe.darnell@sol.doi.gov

On Tue, Nov 7, 2017 at 4:10 PM, Brady, Stephanie <stephanie_brady@fws.gov> wrote:

> we have all hands on trying to find information for you - I am searching our planning files - and have asked Tracy to help. When do you need this by?
>
> stephanie_brady@fws.gov | Branch Chief, Conservation Planning and Policy |
> U.S. Fish and Wildlife Service | National Wildlife Refuge System | Alaska |
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> *Did you know?*
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> On Tue, Nov 7, 2017 at 3:59 PM, Darnell, Joseph <joe.darnell@sol.doi.gov> wrote:
>
> > Stephanie -

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Regional Solicitor
Alaska Region - Dept. of the Interior
Anchorage, Alaska
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Fax (907) 271-4143 / Mobile (907) 301-6687
joe.darnell@sol.doi.gov

b

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U.S. Fish and Wildlife Service | National Wildlife Refuge System | Alaska |
907.306.7448
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---------- Forwarded message ----------
From: **Ryan Mollnow** <ryan_mollnow@fws.gov>
Date: Wed, Nov 1, 2017 at 3:11 PM
Subject: Fwd: 1983 SUP For Seismic Testing in 1002
To: Tracy Fischbach <tracy_fischbach@fws.gov>, Stephanie Brady <stephanie_brady@fws.gov>, John Martin <john_w_martin@fws.gov>

For your files.

Thanks,
Ryan Mollnow
Division Natural Resources
Alaska Region
National Wildlife Refuge System

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From: Mitch Ellis <mitch_ellis@fws.gov>
Date: November 1, 2017 at 2:47:34 PM AKDT
To: Joe Darnell <joe.darnell@sol.doi.gov>, Mike Gieryic <mike.gieryic@sol.doi.gov>
Cc: Ryan Mollnow <ryan_mollnow@fws.gov>
Subject: Fwd: 1983 SUP For Seismic Testing in 1002

Sent from my iPhone

Begin forwarded message:

From: "Berendzen, Steve" <steve_berendzen@fws.gov>
Date: October 30, 2017 at 4:44:11 PM AKDT
To: Jim Kurth <jim_kurth@fws.gov>
Cc: Mitch Ellis <mitch_ellis@fws.gov>, "Lor, Socheata" <socheata_lor@fws.gov>, "Campbell, Douglas" <douglas_campbell@fws.gov>, Doug Damberg <doug_damberg@fws.gov>
Subject: 1983 SUP For Seismic Testing in 1002

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Steve Berendzen
Acting Manager, Arctic National Wildlife Refuge
907-456-0253

From: Harwood, Christopher
To: Bertram, Mark
Cc: Arthur, Stephen
Subject: Re: biological districting
Date: Wednesday, November 8, 2017 12:19:12 PM

If it's ok with you two, we're going to have Roy attend, too, as I will not be around for the larger meeting with Doug on December 7.

On Tue, Nov 7, 2017 at 8:34 AM, Bertram, Mark <mark_bertram@fws.gov> wrote:

> Steve,
>
> My number is 907 456-0446. We can save you a dime and call you as well if you want to pass on your number.
>
> So we will all talk on Monday November 13 at 1:30pm Alaska time.
>
> Cheers,
> Mark
>
> Mark_Bertram@fws.gov
> Supervisory Wildlife Biologist
> US Fish and Wildlife Service
> Yukon Flats National Wildlife Refuge
> 101 12th Avenue, Room 264
> Fairbanks, Alaska 99701
> Voice: (907) 456-0446
> Cell: (907) 347-1524
> Fax: (907) 456-0447
> Toll Free: 1-800-531-0676
> http://www.fws.gov/refuge/yukon_flats/
> https://www.facebook.com/YukonFlatsNationalWildlifeRefuge/
>
> On Tue, Nov 7, 2017 at 8:09 AM, Arthur, Stephen <stephen_arthur@fws.gov> wrote:
>
> > Yes, I'll plan to call in then. Just let me know what phone number to call.
> >
> > Steve
> >
> > Stephen M. Arthur, Ph.D.
> > *Supervisory Wildlife Biologist*
> > *Arctic National Wildlife Refuge*
> > *101 12th Ave., Room 236*
> > *Fairbanks, AK 99701*
> > *(907)455-1830*
> >
> > On Mon, Nov 6, 2017 at 9:02 AM, Bertram, Mark <mark_bertram@fws.gov> wrote:
> >
> > > Steve and Chris,
> > >
> > > Would you both be available for a teleconference Monday November 13 at 1:30 pm Alaska Time to discuss biological districting?

Cheers,
Mark

Mark_Bertram@fws.gov
Supervisory Wildlife Biologist
US Fish and Wildlife Service
Yukon Flats National Wildlife Refuge
101 12th Avenue, Room 264
Fairbanks, Alaska 99701
Voice: (907) 456-0446
Cell: (907) 347-1524
Fax: (907) 456-0447
Toll Free: 1-800-531-0676
http://www.fws.gov/refuge/yukon_flats/
https://www.facebook.com/YukonFlatsNationalWildlifeRefuge/

On Mon, Nov 6, 2017 at 8:52 AM, Harwood, Christopher <christopher_harwood@fws.gov> wrote:

> I think Nov 13 is ok, but we generally have 9:00 staff meeting on Mondays so a later time would be better.
>
> On Mon, Oct 30, 2017 at 4:35 PM, Mark Bertram <mark_bertram@fws.gov> wrote:
>
> > Thanks Steve, I will wait for Chris to weigh in and we will pick a date and time
> >
> > Sent from my iPhone
> >
> > On Oct 30, 2017, at 3:43 PM, Arthur, Stephen <stephen_arthur@fws.gov> wrote:
> >
> > Nov 13 should work for me, and the previous week would be ok as well (assuming I can call in).
> >
> > Steve
> >
> > Stephen M. Arthur, Ph.D.
> > *Supervisory Wildlife Biologist*
> > *Arctic National Wildlife Refuge*
> > *101 12th Ave., Room 236*
> > *Fairbanks, AK 99701*
> > *(907)455-1830*
> >
> > On Wed, Oct 25, 2017 at 2:42 PM, Bertram, Mark <mark_bertram@fws.gov> wrote:
> >
> > > Hi Chris and Steve,
> > >
> > > I note you are both out of town with Steve gone thru Nov 10 and Chris thru Nov 5. I propose we get together at 9am Monday Nov 13 to discuss the districting idea. Please let me know if that day/time will work for you.

Cheers,
Mark

Mark_Bertram@fws.gov
Supervisory Wildlife Biologist
US Fish and Wildlife Service
Yukon Flats National Wildlife Refuge
101 12th Avenue, Room 264
Fairbanks, Alaska 99701
Voice: (907) 456-0446
Cell: (907) 347-1524
Fax: (907) 456-0447
Toll Free: 1-800-531-0676
http://www.fws.gov/refuge/yukon_flats/
https://www.facebook.com/YukonFlatsNationalWildlifeRefuge/

On Wed, Oct 25, 2017 at 2:20 PM, Bertram, Mark <mark_bertram@fws.gov> wrote:

> Hi Chris and Steve,
>
> Nathan Hawkaluk asked me to contact you both as a first step to opening a dialogue with the Fairbanks refuge biological staff (all 11 of them) regards to identifying strategies for us to get our biological priorities done on refuges as our resources decrease. The regional office refers to this as "Districting".
>
> As is often the case we are given very little information or direction to have this discussion so I am looking at this as a possible scenario building exercise. b5 - DP [redacted]
>
> So after we talk then we could put together a more organized agenda to have a broader discussion among the full Fairbanks refuge biological staff.
>
> Would you both be available to talk Friday Nov 10 at 9am? Steve, I know you are in the process of moving; so please suggest an alternate date/time if this one is too soon for you.
>
> Cheers,
> Mark

Mark_Bertram@fws.gov
Supervisory Wildlife Biologist
US Fish and Wildlife Service
Yukon Flats National Wildlife Refuge
101 12th Avenue, Room 264
Fairbanks, Alaska 99701
Voice: (907) 456-0446
Cell: (907) 347-1524
Fax: (907) 456-0447
Toll Free: 1-800-531-0676
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--
Christopher Harwood
Wildlife Biologist
U.S. Fish and Wildlife Service
Kanuti National Wildlife Refuge
101 12th Ave.; Room 206
Fairbanks, AK 99701
(907) 455-1836 (w)
(907) 456-0506 (fax)

"In my house, anyone who uses one word when they could have used ten just isn't trying hard."

- Josiah Edward Bartlet, PhD, Nobel Laureate

--
Christopher Harwood
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"In my house, anyone who uses one word when they could have used ten just isn't trying hard."

- Josiah Edward Bartlet, PhD, Nobel Laureate

From: Bertram, Mark
To: Harwood, Christopher
Cc: Arthur, Stephen
Subject: Re: biological districting
Date: Wednesday, November 8, 2017 12:57:11 PM

Sounds good.

Cheers,
Mark

Mark_Bertram@fws.gov
Supervisory Wildlife Biologist
US Fish and Wildlife Service
Yukon Flats National Wildlife Refuge
101 12th Avenue, Room 264
Fairbanks, Alaska 99701
Voice: (907) 456-0446
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Toll Free: 1-800-531-0676
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https://www.facebook.com/YukonFlatsNationalWildlifeRefuge/

On Wed, Nov 8, 2017 at 10:18 AM, Harwood, Christopher <christopher_harwood@fws.gov> wrote:

> If it's ok with you two, we're going to have Roy attend, too, as I will not be around for the larger meeting with Doug on December 7.
>
> On Tue, Nov 7, 2017 at 8:34 AM, Bertram, Mark <mark_bertram@fws.gov> wrote:
>
> > Steve,
> >
> > My number is 907 456-0446. We can save you a dime and call you as well if you want to pass on your number.
> >
> > So we will all talk on Monday November 13 at 1:30pm Alaska time.
> >
> > Cheers,
> > Mark
> >
> > Mark_Bertram@fws.gov
> > Supervisory Wildlife Biologist
> > US Fish and Wildlife Service
> > Yukon Flats National Wildlife Refuge
> > 101 12th Avenue, Room 264
> > Fairbanks, Alaska 99701
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https://www.facebook.com/YukonFlatsNationalWildlifeRefuge/

On Tue, Nov 7, 2017 at 8:09 AM, Arthur, Stephen <stephen_arthur@fws.gov> wrote:

Yes, I'll plan to call in then. Just let me know what phone number to call.

Steve

Stephen M. Arthur, Ph.D.
Supervisory Wildlife Biologist
Arctic National Wildlife Refuge
101 12th Ave., Room 236
Fairbanks, AK 99701
(907)455-1830

On Mon, Nov 6, 2017 at 9:02 AM, Bertram, Mark <mark_bertram@fws.gov> wrote:

Steve and Chris,

Would you both be available for a teleconference Monday November 13 at 1:30 pm Alaska Time to discuss biological districting?

Cheers,
Mark

Mark_Bertram@fws.gov
Supervisory Wildlife Biologist
US Fish and Wildlife Service
Yukon Flats National Wildlife Refuge
101 12th Avenue, Room 264
Fairbanks, Alaska 99701
Voice: (907) 456-0446
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Toll Free: 1-800-531-0676
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https://www.facebook.com/YukonFlatsNationalWildlifeRefuge/

On Mon, Nov 6, 2017 at 8:52 AM, Harwood, Christopher <christopher_harwood@fws.gov> wrote:

I think Nov 13 is ok, but we generally have 9:00 staff meeting on Mondays so a later time would be better.

On Mon, Oct 30, 2017 at 4:35 PM, Mark Bertram <mark_bertram@fws.gov> wrote:

Thanks Steve, I will wait for Chris to weigh in and we will pick a date and time

Sent from my iPhone

On Oct 30, 2017, at 3:43 PM, Arthur, Stephen <stephen_arthur@fws.gov> wrote:

Nov 13 should work for me, and the previous week would be ok as well (assuming I can call in).

Steve

Stephen M. Arthur, Ph.D.
Supervisory Wildlife Biologist
Arctic National Wildlife Refuge
101 12th Ave., Room 236
Fairbanks, AK 99701
(907)455-1830

On Wed, Oct 25, 2017 at 2:42 PM, Bertram, Mark <mark_bertram@fws.gov> wrote:

> Hi Chris and Steve,
>
> I note you are both out of town with Steve gone thru Nov 10 and Chris thru Nov 5. I propose we get together at 9am Monday Nov 13 to discuss the districting idea. Please let me know if that day/time will work for you.
>
> Cheers,
> Mark
>
> Mark_Bertram@fws.gov
> Supervisory Wildlife Biologist
> US Fish and Wildlife Service
> Yukon Flats National Wildlife Refuge
> 101 12th Avenue, Room 264
> Fairbanks, Alaska 99701
> Voice: (907) 456-0446
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[redacted]

So after we talk then we could put together a more organized agenda to have a broader discussion among the full Fairbanks refuge biological staff.

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Cheers,
Mark

Mark_Bertram@fws.gov
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US Fish and Wildlife Service
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Christopher Harwood
Wildlife Biologist
U.S. Fish and Wildlife Service
Kanuti National Wildlife Refuge
101 12th Ave.; Room 206
Fairbanks, AK 99701

> > > (907) 455-1836 (w)
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> > >
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U.S. Fish and Wildlife Service
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(907) 455-1836 (w)
(907) 456-0506 (fax)

"In my house, anyone who uses one word when they could have used ten just isn't trying hard."

- Josiah Edward Bartlet, PhD, Nobel Laureate

From: Fox, Joanna
To: Stephen Arthur
Subject: Fwd: Updates from LCC Visioning....
Date: Wednesday, November 8, 2017 1:12:38 PM

Hi Steve,

Would you be available to represent Arctic Refuge via teleconference at this Arctic LCC meeting? Steve and I have discussed, and are thinking that for the time being, at least, it would be ideal for you to continue being our primary representative - particularly in light of the interest in identifying existing data gaps in the 1002 and prioritizing additional research. We think your input would be particularly meaningful as we move forward.

It appears it will be Monday afternoon from 1-3. If you agree and are available, will you contact Wendy to let her know and to obtain an agenda and call-in information?

Thank you!
Joanna

Joanna L. Fox
Deputy Refuge Manager
Arctic National Wildlife Refuge
101 12th Avenue, Room 236
Fairbanks, AK 99701
(907) 456-0549

Follow us on Facebook!
www.facebook.com/arcticnationalwildliferefuge

"Do what you can, with what you have, where you are." -- Theodore Roosevelt

---------- Forwarded message ----------
From: **Wendy Loya** <wendy_loya@fws.gov>
Date: Tue, Nov 7, 2017 at 9:14 AM
Subject: Re: Updates from LCC Visioning....
To: "Berendzen, Steve" <steve_berendzen@fws.gov>

Hey Steve,
Thanks for the note. Steve Arthur has disengaged, but we do have Diane Granfors actively participating. I would welcome anyone from Arctic Refuge Staff to participate and help provide input on where we are going. I am in a meeting today and tomorrow (North Slope Science Initiative) but maybe we could chat on Thursday about how we are hoping to work across the Arctic in synthesizing climate and development impacts? If not this week then let's do that after your NCTC trip?

Thanks!
Wendy

Dr. Wendy M. Loya, Coordinator
Arctic Landscape Conservation Cooperative (LCC)
Anchorage, Alaska
907.786.3532 (office)
907.227.2942 (mobile)

On Nov 7, 2017, at 09:08, Berendzen, Steve <steve_berendzen@fws.gov> wrote:

> Wendy,
>
> I'll be at NCTC all of next week, so I won't be able to join this one either....
>
> Steve Berendzen
> Acting Manager, Arctic National Wildlife Refuge
> 907-456-0253
>
> On Fri, Nov 3, 2017 at 12:39 PM, Wendy Loya <wendy_loya@fws.gov> wrote:
>
> > Hi Everyone,
> >
> > Please fill out this doodle poll to schedule a meeting among Arctic partners. The Arctic LCC is not operating by Steering Committee at this time, so this is an open and non-advisory conversation about collaborative approaches to Arctic science needs. We'll try to convene in person in Anchorage and Fairbanks with phone connections to bring us together:
> >
> > https://doodle.com/poll/e7y4f8whbgrvm68y
> >
> > I'll send an agenda when we have a time and date chosen.
> >
> > Thanks to those of you that were able to make it to the LCC visioning workshop this week, all of the FWS Science Applications staff are grateful for your time and thoughtful participation!
> >
> > I am glad that a few of us were able to have lunch together this Thursday and start to take a hard look at the Arctic LCC and where we fit in under the new administrative priorities. What I heard was strong support for a collaborative body to continue to implement research recommendations that come out of NSSI and other Arctic initiatives, including meetings that gather community concerns. We have discussed the need to take time to synthesize the existing climate-driven research, and also think about how to bring together climate and development impacts in cumulative effects analyses in ways that would be

broadly useful for everyone from the North Slope Borough to the State to BLM/FWS and also relevant to our Canadian partners and fitting into Arctic Council-level interest in environmental impact assessment.

We'll carry onward with that conversation at the meeting, and invite new voices to share ideas.

Cheers!

Wendy

Dr. Wendy M. Loya, Coordinator

Arctic Landscape Conservation Cooperative (LCC)

Anchorage, Alaska

907.786.3532 (office)

907.227.2942 (mobile)

From: Karen Clark
To: joe.darnell@sol.doi.gov
Subject: Re: Seismic data request
Date: Wednesday, November 8, 2017 1:27:20 PM

Hey Joe- just checking back in on this one- do you have a suspense date for this request?

Thanks, Karen

Karen P. Clark
Deputy Regional Director
U.S. Fish & Wildlife Service- Alaska Region
karen_clark@fws.gov
907.786.3542 office
907.786.3493 direct
907.786.3306 fax

On Nov 7, 2017, at 8:37 AM, Karen Clark <karen_clark@fws.gov> wrote:

> Hey Joe, I am helping to track down the information you requested- just wondering what your turn around for this is?
>
> Thanks, Karen
>
> Karen P. Clark
> Deputy Regional Director
> U.S. Fish & Wildlife Service- Alaska Region
> karen_clark@fws.gov
> 907.786.3542 office
> 907.786.3493 direct
> 907.786.3306 fax

From:	Howard, Amee
To:	Charles Hamilton; Gregory Siekaniec; Karen Clark; Sara Boario; Mary Colligan; Jenifer Kohout; Patrick Lemons; Leonetti, Crystal
Subject:	Re: FYI - Mark-up on House Bill on Offshore-Onshore Energy Bill
Date:	Wednesday, November 8, 2017 1:40:23 PM

Hi All,

Additional information from this morning's mark-up hearing for HR 4239.

Excerpt from E&E News

Among other things, the bill would:

- Establish a revenue-sharing partnership among the federal government, Atlantic coast states and Alaskan planning areas. It would also "ensure disbursement certainty" for the four Gulf Coast states that fall under the 2006 Gulf of Mexico Energy Security Act. That law allows them to share 37.5 percent of oil and gas revenues produced in federal waters off their coasts.
- Prohibit the Interior Department from enforcing the Obama administration's December 2016 ban on drilling in much of the Arctic Ocean.
- Revoke the president's authority to designate national marine monuments and prevent presidents from blocking areas of the outer continental shelf from oil and gas drilling.
- Direct 6.25 percent of revenue from offshore energy development to the Interior and Transportation departments for certain deferred maintenance projects. The National Park Service, for instance, has a multibillion-dollar deferred maintenance backlog.
- Prohibit Interior from enforcing federal regulations on hydraulic fracturing on federal lands in states with corresponding rules in place.
- Prevent the Bureau of Land Management from hindering energy development on state and private lands with "unnecessary permits and additional federal environment reviews," according to a summary of the bill.
- Require the Bureau of Ocean Energy Management to conduct feasibility and compatibility studies for potential wind lease sales off the coasts of California, Hawaii, Puerto Rico and the U.S. Virgin Islands.
- Allow states with "well-established" regulatory programs to seek approval from Interior to manage specific oil and gas development responsibilities for federal lands within their borders.

Committee Democrats offered several unsuccessful amendments, including provisions that would have permanently reauthorized the Land and Water Conservation Fund and placed restrictions on methane venting and flaring on public lands.

The panel approved five of 16 amendments offered to the bill, which would:

- Ensure the bill does not affect the state of Florida, maintaining the moratorium on drilling imposed by the 2006 Gulf of Mexico Energy Security Act and the 2017-22 outer continental shelf leasing program.

- Clarify that the Interior Department, rather than the Commerce Department, has jurisdiction with respect to marine mammals in the outer continental shelf.
- Require Interior to resolve protests to mineral leases within 60 days following payment.
- Some technical changes, as well as language that would include American Samoa and the Northern Mariana Islands along with Guam in the bill.
- Amend the Migratory Bird Treaty Act so that the law does not prohibit any activity "proscribed" by Section 2 "that is accidental or incidental to the presence or operation of an otherwise lawful activity."

On Wed, Nov 8, 2017 at 6:35 AM, Charles Hamilton <charles_hamilton@fws.gov> wrote:

> FYI Beyer's Amendment striking the MMPA changes from the bill was just voted on it failed.
>
> Kind Regards,
>
> Charles Hamilton
> Special Assistant
> Marine Mammals Management
> US Fish & Wildlife Service
> 1011 East Tudor Rd., MS-341
> Anchorage, AK 99503
> Cell: (907) 903-9268
> Office: (907) 786-3804
> Sent from my iPhone
>
> On Nov 7, 2017, at 3:18 PM, Howard, Amee <amee_howard@fws.gov> wrote:
>
> > Hi All,
> >
> > FYI
> >
> > Offshore-Onshore Energy Bill mark-up this afternoon just introduced the bills.
> > https://naturalresources.house.gov/calendar/eventsingle.aspx?EventID=403264
> >
> > Full House Natural Resources committee mark-up will be tomorrow morning.
> > https://naturalresources.house.gov/calendar/eventsingle.aspx?EventID=403266
> >
> > H.R.4239 the SECURE American Energy Act was introduced on 11/03/17 and it absorbed the ASTRO Act which the Marine Mammals Program reviewed very quickly (Thank you again!!) last week.
> >
> > I am still working to discern if there will be any additional relevancy for programs in the mix...to be continued.
> >
> > Thanks so much!

Amee

--
Amee Howard
Congressional and Legislative Affairs
U.S. Fish & Wildlife Service
Anchorage, Alaska
Office: (907)786-3509
Mobile: (907)229-8575
https://www.fws.gov/alaska/

--
Amee Howard
Congressional and Legislative Affairs
U.S. Fish & Wildlife Service
Anchorage, Alaska
Office: (907)786-3509
Mobile: (907)229-8575
https://www.fws.gov/alaska/

From: Darnell, Joseph
To: Karen Clark
Subject: Re: Seismic data request
Date: Wednesday, November 8, 2017 1:59:28 PM

Karen -

I am addressing some legal issues over use of the data. I had a call from Stephanie who is looking. What I told her I would like to know is what if anything the permittee and the participating companies were told by the Service about how the data was to be handled. If FWS doesn't have any remaining file, then I guess it doesn't have it. b5 - AC [redacted]

Thanks for checking.

Joe

Joseph Darnell
Regional Solicitor
Alaska Region - Dept. of the Interior
Anchorage, Alaska
Direct Phone (907) 271-4118 / Main Office Phone (907) 271-4131
Fax (907) 271-4143 / Mobile (907) 301-6687
joe.darnell@sol.doi.gov

On Wed, Nov 8, 2017 at 11:27 AM, Karen Clark <karen_clark@fws.gov> wrote:

> Hey Joe- just checking back in on this one- do you have a suspense date for this request?
>
> Thanks, Karen
>
> Karen P. Clark
> Deputy Regional Director
> U.S. Fish & Wildlife Service- Alaska Region
> karen_clark@fws.gov
> 907.786.3542 office
> 907.786.3493 direct
> 907.786.3306 fax
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> >
> > Karen P. Clark
> > Deputy Regional Director
> > U.S. Fish & Wildlife Service- Alaska Region
> > karen_clark@fws.gov

907.786.3542 office
907.786.3493 direct
907.786.3306 fax

From: Karen Clark
To: greg_siekaniec@fws.gov
Subject: Fwd: Seismic data request
Date: Wednesday, November 8, 2017 2:20:31 PM

FYI

Karen P. Clark
Deputy Regional Director
U.S. Fish & Wildlife Service- Alaska Region
karen_clark@fws.gov
907.786.3542 office
907.786.3493 direct
907.786.3306 fax

Begin forwarded message:

From: "Darnell, Joseph" <joe.darnell@sol.doi.gov>
Date: November 8, 2017 at 11:59:19 AM AKST
To: Karen Clark <karen_clark@fws.gov>
Subject: Re: Seismic data request

Karen -

I am addressing some legal issues over use of the data. I had a call from Stephanie who is looking. What I told her I would like to know is what if anything the permittee and the participating companies were told by the Service about how the data was to be handled. If FWS doesn't have any remaining file, then I guess it doesn't have it. b5 - AC [redacted]

Thanks for checking.

Joe

Joseph Darnell
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Alaska Region - Dept. of the Interior
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> 907.786.3493 direct
> 907.786.3306 fax

From: Howard, Amee
To: Eric Taylor
Cc: Sara Boario; Leonetti, Crystal; Gregory Siekaniec; Karen Clark
Subject: Re: FYI - Mark-up on House Bill on Offshore-Onshore Energy Bill
Date: Wednesday, November 8, 2017 2:30:34 PM
Attachments: hr_4239_cheney_1.pdf

Hi All,

Additional info...Senator Cheney offered the amendment regarding MBTA.

Testimony begins at 2:00:35 of the video below.
https://www.youtube.com/watch?v=tAUH72OV9ps

I have also attached Senator Cheney's written amendment.

Thanks so much!
Amee

On Wed, Nov 8, 2017 at 12:04 PM, Howard, Amee <amee_howard@fws.gov> wrote:

> Hi Eric,
>
> FYI - If this bill passes as amended today, there will be connections to MBTA as well. See the Summary below. Last bullet point. I have attached the legislation below for your reference. Links to the House Natural Resources Committee page are below as well.
>
> Let me know if you have any questions.
>
> Thanks so much!
> Amee
>
> ---------- Forwarded message ----------
> From: **Howard, Amee** <amee_howard@fws.gov>
> Date: Wed, Nov 8, 2017 at 11:40 AM
> Subject: Re: FYI - Mark-up on House Bill on Offshore-Onshore Energy Bill
> To: Charles Hamilton <charles_hamilton@fws.gov>, Gregory Siekaniec <gregory_siekaniec@fws.gov>, Karen Clark <karen_clark@fws.gov>, Sara Boario <sara_boario@fws.gov>, Mary Colligan <mary_colligan@fws.gov>, Jenifer Kohout <Jenifer_Kohout@fws.gov>, Patrick Lemons <Patrick_Lemons@fws.gov>, "Leonetti, Crystal" <crystal_leonetti@fws.gov>
>
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> Excerpt from E&E News
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> Among other things, the bill would:

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Kind Regards,

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Special Assistant
Marine Mammals Management
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> Amee

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Amee Howard
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Amendment #1

Amendment to H.R. 4239
Offered by Ms. Cheney

At the end of Title II, add the following new section:

SEC. 207. CLARIFICATION REGARDING LIABILITY UNDER MIGRATORY BIRD TREATY ACT. Section 6 of the Migratory Bird Treaty Act (16 U.S.C. 707) is amended by adding at the end of the following:

''(e) This Act shall not be construed to prohibit any activity proscribed by section 2 of this Act that is accidental or incidental to the presence or operation of an otherwise lawful activity.''.

From:	Michael Brady
To:	stephanie_brady@fws.gov
Subject:	Fwd: RDT Meeting Notes - November 6th
Date:	Wednesday, November 8, 2017 2:57:24 PM
Attachments:	ATT00001.htm RDTNotes11717tdd.pdf

Sent from my iPhone

Begin forwarded message:

> **From:** "Davis, Tauline" <tauline_davis@fws.gov>
> **Date:** November 7, 2017 at 1:49:04 PM AKST
> **To:** FW7 All Users-dynamic <fw7allusers-dynamic@fws.gov>
> **Subject: RDT Meeting Notes - November 6th**
>
> Good afternoon attached are the RDT meeting notes for this week. Have a great week!
>
> --
> Tauline Davis
> 907-786-3542
> Executive Assistant
> Regional Director's Office

For Internal Use – Not for Further Distribution

U.S. Fish and Wildlife Service - Region 7

Regional Directorate Team Announcements 11-06-17

"News You Can Use" – As Provided by Each RDT Member

For more in-depth news from the RDT on face-to-face visits and program highlights, please visit our message board https://fishnet.fws.doi.net/regions/7/RD/rdtblog/default.aspx
& please visit the Region 7 Fishnet - Site (link is below)
https://fishnet.fws.doi.net/regions/7/

Regional Director's Office (Karen Clark, and Tauline Davis)

- Greg is out of the office on leave and attending the Wildlife and Sport Fish Restoration Joint Federal-State Task Force on Federal Assistance Policy meeting. Greg will return to the office on November 16th, Karen Clark is Acting RD
- Karen will be attending the Sea Grant meeting on Tuesday and Wednesday
- The RDT December Off Site meeting agenda was sent out to the RDT for input, if you have any suggested agenda items please get them to Karen
- The November RDT On Site Meeting has been cancelled

Executive Assistant Updates (Tauline Davis)

- Holiday party planning notes were sent out to meeting representatives, the next Holiday Party Planning Meeting is November 29th at 2pm in the MSMC
- The RDT December Off Site meeting logistics were sent out to the RDT, please ensure your lodging has been secured

Diversity & Civil Rights (Tonyua Robinson)

- No representative/No report

Conservation of Arctic Flora and Fauna (CAFF) Chair (Cynthia Jacobson)

- No representative/No report

Assistant Regional Director - Budget and Administration (Mike Lewis, Acting)

Budget & Finance

- The monthly BAM meeting will be held this Wednesday at 9:00 a.m. in the OSM Conference Room
- There will be a Budget Tracking System BETA session on Thursday, November 9th from 10:00 a.m. - 2:00 p.m. in the IRTM training room. Staff may participate via Vidyo
- A questionnaire has been sent to obtain topic feedback for the 2018 administrative workshop, scheduled for February 26 – March 2, 2018. Responses are due by November 17, 2017. If there are staff who have not yet received it, they can access it with the following link. Hotel information - Reduced rate rooms have been reserved at the Hilton Garden Inn Anchorage and staff can reserve their rooms through the following link or call Direct: +1 907 929 3099 Group Name: United States Fish and Wildlife Services. Rooms will be released if not reserved by January 28th

- Award caps have been provided to the programs along with award guidance. Remember b5-DP (and not responsive) [redacted]
- b5-DP (and not responsive) [redacted]
- Please have Quicktime completed by COB Wednesday, due to the holiday

Assistant Regional Director - External Affairs (Sara Boario)

- A big thank you to all Refuges and Marine Mammals staff who worked with Amee last week to coordinate feedback for the Director's testimony before the Senate Energy and Natural Resources Committee (Chair-Senator Murkowski) on Arctic Refuge last Thursday
- Thank you to Brittany Sweeney, Selawik Refuge, for contributing to EA's national communications campaign highlighting hunting and fishing traditions across the country. You can find her story - *Alaska's age old hunting and fishing traditions, hands on in 2017* - on our regional blog and website. It will also be featured on national outlets
- This week, Alaska's NBC affiliate KTUU/Channel 2 news will be running a two part story on Alaska's World War II history on Attu and Kiska - part of Alaska Maritime National Wildlife Refuge. Reporter Kyle Hopkins produced the stories after traveling to the islands aboard the Tiglax in late August. The stories run Monday and Tuesday night. Also watch for digital stories produced for social media; Rose Primmer will be sharing them on our Facebook and Twitter accounts
- For those interested in participating in the region's Racial Equity Dialogues beginning November 15, please sign up directly through Crystal Leonetti
- b6 [redacted] will be on annual leave Wednesday 11/8 through Monday 11/13. Crystal Leonetti will be Acting

Office of Law Enforcement (OLE) (Ryan Noel)

- No report

Migratory Birds (Eric Taylor)

- Attending the R7 MBM all-employee meeting Monday-Tuesday (RO, Gordon Watson) to discuss budget, program priorities, data management plans, organization, MBM website
- The Service's deHavilland Beaver N754 will be moved from the Alaska Aviation Museum to the Ted Stevens Anchorage International Airport on Monday, November 6th. Installation in the airport is expected to occur Wednesday, November 8th thru Friday November 10th
- Paul Matusewic is working on the response to DTS066914 - Foreign Travel Submission Approval Process for the 1st Quarter of FY2018. Response for the 2nd Quarter of FY2018 is due November 15th to the R7 Foreign Travel Coordinator

- Tim Bowman is videotaping and photographing of aircraft N754 hanging at the Ted Stevens International airport
- Richard (Rick) Lanctot will attend to last minutes items regarding presentations/planning for the Western Hemisphere Shorebird Group meeting in Paracas, Peru. He will leave on Tuesday morning and be in meetings the rest of the week
- Stephen Brown (Manomet Inc.) and Rick Lanctot received a $74,569 grant from the National Fish and Wildlife Foundation to track arctic-breeding shorebirds from four sites on the Arctic Coastal Plain. Funds will be used to tag Pectoral Sandpiper, American Golden-Plover and Buff-breasted Sandpipers. Collaborators include Chris Latty, Arctic NWR; Rebecca Bentzen and Martin Robard of Wildlife Conservation Society and BP Exploration (Alaska) Inc., and Dan Ruthrauff of U.S. Geological Survey
- Rick Lanctot, Sarah Saalfeld and past employees, River Gates and Megan Boldenow (ES-Fairbanks) are co-authors on a new paper that shows that Arctic breeding sites have limited effects on the true survival rates of adult shorebirds (2018, *The Auk: ornithological Advances* 135:29-43)
- Kathy Kuletz will be in Seattle through November 9th, attending joint workshops of the Pacific Arctic Group (PAG) and the Distributed Biological Observatory (DBO). The PAG includes research groups conducting vessel-based studies in offshore waters of the Northern Bering, Chukchi, and Beaufort seas. The DBO is an array of eight internationally recognized sampling stations in the Pacific Arctic, with investigators collaborating on protocols and data sharing. Kathy will be presenting to both groups on the seabird surveys the USFWS is conducting in the Region and at DOB sites, and will participate in planning of cruise logistics and integration of projects
- Julian Fischer will continue to work with External Affairs, the Alaska Aviation Museum, and FWS Engineering to develop outreach materials associated with the display of the retired turbine beaver survey aircraft (N754) at the Ted Stevens Anchorage International Airport

Wildlife and Sport Fish Restoration (WSFR) - (Mary Price - Acting)

- Steve Klein is in Minnesota participating in a WSFR Program Funding Analysis work session Nov 7-8. Mary Price is Acting WSFR Chief.
- WSFR staff participated in a very productive off-site meeting Nov 1-2; the first off-site meeting since 2013. Special thanks to the RD and to Rose and Andrea of External Affairs for joining in at different times. Their input and discussions were very productive and helpful to our program.

National Wildlife Refuge System (Mitch Ellis)

- Refuge and Regional Office staff are drafting b5 DP (and not responsive) [redacted]
- "Show Some Love" - this year's CFC campaign slogan. Devin Geraghty will be in the RO on Tuesday, November 14 at 9:00 in the Gordon Watson Room to talk about the CFC and answer questions. It's open to all employees in person and via VTC. We hope to have at least one key worker per program/refuge/field office. We still have not heard from all offices. If you are interested in being a key worker or volunteering some of your

time and great ideas, please send your name to Toni Romero. We look forward to making the Region 7, 2017 CFC Campaign a big success. Thank you for your support!

- Ryan Mollnow has been appointed as the Refuge Program's Regional Hunting and Fishing Chief in response to a recent Director's memo in support of Secretarial Order 3347. In this temporary assignment, Ryan will work with Alaska refuge managers and as part of a national team to review regulations, evaluate access, coordinate with user groups, and other activities that will facilitate hunting, fishing and other recreational activities.
- Mitch will begin his temporary assignment in Headquarters as the Chief of the Division of Natural Resources in the Refuge Program. The detail will be for 90-120 days. In the meantime, Soch Lor will be Acting ARD.
- There have been several requests for contact information regarding the International Porcupine Caribou Board from the Departments of Interior and State via our regional International Affairs Specialist. We are working with headquarters to determine the appropriate contact in that office.
- Refuge program staff assisted with the preparation of Arctic NWR 1002 Area testimony for our Deputy Director in anticipation of budget reconciliation legislation hearings in Congress. Special thanks to the Arctic Refuge staff for their assistance with the process, including a last minute briefing with the Deputy Director.
- Respected elder Angela Huntington (wife of Sidney Huntington) passed away on October 11, 2017, in Galena. She was 91 years old. Much of Sidney Huntington's life was documented in the book "Shadows on the Koyukuk," written with Jim Rearden in 1993.
- Selawik Refuge Manager Susan Georgette will be attending the Native Village of Selawik tribal council meeting on November 7 to discuss upcoming projects.
- Steve Miller, Deputy Refuge Manager at Kenai Refuge will be at the Fall National Fire Leadership Team Meeting this next week in San Diego as the Region 7 representative for the Line Officers Team.
- Regional Refuges Chief, Mitch Ellis, is working with Carol Damberg. He will be attending the Alaska Board of Game meeting Friday, November 10th to provide an agency update to the Board on behalf to the Regional Director.
- The Refuge Information Technician booth at the Elders and Youth Conference, which proceeds AFN, yielded an encouraging RIT program contact with the Cook Inlet Tribal Council (CITC). One of the missions of CITC is to train Alaska Natives, who have come to Anchorage from rural villages, for careers in communication, education, and public relations. After receiving the needed training, many of the CITC participants intend to return to their home village to apply for positions with tribal, state, or federal governments. Kevin Painter, the Regional RIT Coordinator, will be fostering the partnership with CITC in the hopes of developing an application pool for RIT positions around the region. Other programs who use local hire authority to fill jobs in villages may want to look into the efforts of CITC.

Office of Subsistence Management (Stewart Cogswell, Acting)

- Gene and Tom Doolittle are traveling, Stewart Cogswell is Acting
- The Ninilchik Traditional Council commitment statement letter will be completed today
- The following meetings will take place this week:

- Southcentral Alaska Subsistence Regional Advisory Council meeting, November 6-7, Islands and Ocean Visitor Center, Homer
- Public Hearing on Temporary Special Action Request WSA 17-05 (Unit 12 remainder caribou harvest limit increase), November 7, 6-8 p.m., Tetlin National Wildlife Refuge conference room, Tok
- Eastern Interior Alaska Subsistence Regional Advisory Council meeting, November 8-9, Pike's Waterfront Lodge, Fairbanks. There has been a location change to Fairbanks for this meeting

Office of Science Applications (Sarena Selbo)

- Aaron Poe, ABSI LCC Coordinator and John Faris, Captain of the R/V Tiglax will be presenting on rats and marine invasive species at the Pacific Marine Expo on November 16 in Seattle
- Wendy Loya, Arctic LCC Coordinator, will attend the North Slope Science Initiative Science Technical Advisory Panel/Senior Staff meeting on Nov 7-8th in Anchorage. One of the topics on the agenda is how to address north slope residents' concerns about aviation noise disturbance during hunting. Please contact Wendy if you would like to see the agenda and receive notes from the meeting wendy_loya@fws.gov
  - Sarena Selbo will attend the Executive Session as the RDs Acting
- Eight 2017 FWS Science Awards Nominations have been submitted for review by the Regional Science Panel this week. Selected nominations will be reviewed by the RDT and submitted for National review by November 30
- Leanna Heffner (Western Alaska LCC) was selected as the Northwest Boreal LCC Partnership Director from a large and highly competitive field of candidates. Leanna will be based with the Wildlife Management Institute and will coordinate with Science Applications staff. The timing of Leanna's transition to her new position is still being determined
- The Northwest Boreal LCC is pleased to announce the launch of the Northwest Boreal Science and Management Research Tool: https://aknwc.databasin.org/sciencebase Explore thousands of curated scholarly articles, state and federal resource reports, land management plans, and more. Each entry includes geographic information about the area of study, allowing users to draw a box on a map to narrow searches to information directly related to a specific region in Alaska, the Yukon, British Columbia, and Northwest Territories. This project is a collaboration among Alaska Resources Library & Information Services (ARLIS), Alaska Climate Science Center, DataBasin, and Northwest Boreal LCC

Fisheries & Ecological Services (Mary Colligan)

- Thank you to the Refuge Program (particularly Brian McCaffery) for assisting Jennie Spegon in developing a comment letter on the Newtok/Mertarvik Airport project for the FAA. This was a fantastic cross-programmatic effort and we very much appreciate the role Refuge staff played. The final comment letter was coordinated with RO and DOI-OEPC (so also thanks to Melissa Burns and Phil Johnson).
- Conex units at the shared warehouse on Sand Lake were broken into two weeks ago. b5 DP (and not responsive)

b5 DP (and not responsive)

- Leah Kenney, Steve Brockmann, Doug Cooper, and Erin Knoll (RO) participated in a two-day Yellow Cedar Conference in Juneau. This was a great information sharing meeting that will be invaluable in informing the office's ongoing SSA for the yellow cedar petition response.
- The lower Eklutna Dam recently experienced a significant slide/failure. Heavy equipment was swept downstream and some parts were buried. Fortunately, no one was on site and there were no injuries. Kevin Foley is coordinating with the State (ADFG) to assess the impacts. A portion of the lower dam still remains in place and will need to be removed in the future; completion of the dam removal will be delayed until a complete safety assessment can be conducted.
- The full board and executive board meetings of the Eskimo Walrus Commission have been rescheduled for December 6-8.
- The U.S. delegation for the U.S.-Russia polar bear bilateral agreement held a coordination call last week in preparation for the upcoming Commissioner virtual meeting on November 21st. The North Slope Borough, State of Alaska, Marine Mammal Commission, State Department, USFWS International Affairs, and the Office of the Solicitor were on the call. The discussion went smoothly and no issues or disagreements were raised. An interested party call will be held on November 6th.
- Walrus haulout monitoring at Point Lay ended this week. No further reports will occur until next season.
- On November 1st we received an application for incidental harassment authorization under the Marine Mammal Protection Act from Hilcorp for a seismic survey in Cook Inlet planned for April 2018.
- A 2-day workshop is being held this week with the U.S. Geological Survey, National Park Service, and other partners to discuss population monitoring of sea otters. The workshop will be held in the Gordon Watson Conference room on November 8th and 9th.
- Leah Kenney will be attending a Seabird Bycatch Mitigation Workshop in Seattle, November 6-8th. Leah will be presenting on the 2015 Groundfish Fishery Biological Opinion and the status of the 2018 Halibut Fishery Biological Opinion.
- Leah Kenney, Robb Kaler (Migratory Birds Management), Michelle Kissling (Marine Mammals Management), and USGS colleagues recently published a paper in Marine Pollution Bulletin, "Mercury concentrations in multiple tissues of Kittlitz's murrelets". Migratory Birds Management and the Fairbanks Field Office partially funded work related to this project.
- Cathy Shaw returns to work part time on November 6th.

From:	Fischbach, Tracy
To:	Joseph Darnell
Cc:	Brady, Stephanie; Socheata Lor
Subject:	Re: 1983 SUP For Seismic Testing in 1002
Date:	Wednesday, November 8, 2017 3:23:52 PM
Attachments:	Draft Response to GSI June 1984.pdf GSI Data Confidentiality Letter 8 Feb 1984.pdf

Hi Joe,

Joanna Fox dug through their files and found several documents of correspondence with GSI, the group of oil exploration companies that were permitted in the 1002 area. The two attached files include a letter to FWS from GSI discussing their concerns about data confidentiality and a draft of our response to that letter. Do let us know if you want us to dig further.

Cheers, Tracy

Tracyann S Fischbach
Natural Resources Planner
National Wildlife Refuge System - Region 7
Division of Natural Resources & Conservation Planning
(907) 786-3369

Hours: Mon - Thurs 9:15 am to 3:15 pm
"Getting right down and smelling the fresh soil is good for any one." - from the 1913 Handbook for Girl Scouts by W. J. Hoxie

Need access to Refuge Documents?
Online Document Database (ServCat)
Need Refuge land status info for Alaska?
FWS Region 7 Land Mapper (FWS version)
FWS Region 7 Land Mapper (Public version)
Region 7 GeoPDF Map Portal

On Wed, Nov 8, 2017 at 10:05 AM, Brady, Stephanie <stephanie_brady@fws.gov> wrote:

> stephanie_brady@fws.gov | Branch Chief, Conservation Planning and Policy |
> U.S. Fish and Wildlife Service | National Wildlife Refuge System | Alaska |
> 907.306.7448
>
> ---------- Forwarded message ----------
> From: **Darnell, Joseph** <joe.darnell@sol.doi.gov>
> Date: Tue, Nov 7, 2017 at 4:50 PM
> Subject: Re: 1983 SUP For Seismic Testing in 1002
> To: "Brady, Stephanie" <stephanie_brady@fws.gov>
>
> Stephanie -

I am addressing some legal issues over use of the data. I would like to know what if anything the permittee and the participating companies were told about how the data was to be handled. If FWS doesn't have the file, then I guess it doesn't have it. Since the permit was issued by the Refuge wouldn't they have had a file? Maybe it was archived or ??? depending on what the records retention requirements are for refuges and/or the Service.

Thanks very much for the effort.

Joe

Joseph Darnell
Regional Solicitor
Alaska Region - Dept. of the Interior
Anchorage, Alaska
Direct Phone (907) 271-4118 / Main Office Phone (907) 271-4131
Fax (907) 271-4143 / Mobile (907) 301-6687
joe.darnell@sol.doi.gov

On Tue, Nov 7, 2017 at 4:10 PM, Brady, Stephanie <stephanie_brady@fws.gov> wrote:

> we have all hands on trying to find information for you - I am searching our planning files - and have asked Tracy to help. When do you need this by?
>
> stephanie_brady@fws.gov | Branch Chief, Conservation Planning and Policy |
> U.S. Fish and Wildlife Service | National Wildlife Refuge System | Alaska |
> 907.306.7448
> *Did you know?*
> The **National Wildlife Refuge System** has:
> 50 million annual visitors, 850 million acres, and 566 units.
>
> On Tue, Nov 7, 2017 at 3:59 PM, Darnell, Joseph <joe.darnell@sol.doi.gov> wrote:
>
> > Stephanie -
> >
> > Yes, this is what Mitch sent me last week. Is there anything else in Arctic's or the Region's file particular as it pertains to handling data?
> >
> > Joe
> >
> > *Joseph Darnell*
> > *Regional Solicitor*
> > *Alaska Region - Dept. of the Interior*
> > *Anchorage, Alaska*
> > *Direct Phone (907) 271-4118 / Main Office Phone (907) 271-4131*
> > *Fax (907) 271-4143 / Mobile (907) 301-6687*
> > *joe.darnell@sol.doi.gov*
> >
> > On Tue, Nov 7, 2017 at 3:51 PM, Brady, Stephanie <stephanie_brady@fws.gov> wrote:
> >
> > > Attached to this email is the special use permit that was provided by Arctic Refuge - does the partially meet your request? Stephanie
> > >
> > > stephanie_brady@fws.gov | Branch Chief, Conservation Planning and Policy |
> > > U.S. Fish and Wildlife Service | National Wildlife Refuge System | Alaska |
> > > 907.306.7448
> > > *Did you know?*

The **National Wildlife Refuge System** has:
50 million annual visitors, 850 million acres, and 566 units.

---------- Forwarded message ----------
From: **Ryan Mollnow** <ryan_mollnow@fws.gov>
Date: Wed, Nov 1, 2017 at 3:11 PM
Subject: Fwd: 1983 SUP For Seismic Testing in 1002
To: Tracy Fischbach <tracy_fischbach@fws.gov>, Stephanie Brady <stephanie_brady@fws.gov>, John Martin <john_w_martin@fws.gov>

For your files.

Thanks,
Ryan Mollnow
Division Natural Resources
Alaska Region
National Wildlife Refuge System

Begin forwarded message:

From: Mitch Ellis <mitch_ellis@fws.gov>
Date: November 1, 2017 at 2:47:34 PM AKDT
To: Joe Darnell <joe.darnell@sol.doi.gov>, Mike Gieryic <mike.gieryic@sol.doi.gov>
Cc: Ryan Mollnow <ryan_mollnow@fws.gov>
Subject: Fwd: 1983 SUP For Seismic Testing in 1002

Sent from my iPhone

Begin forwarded message:

From: "Berendzen, Steve" <steve_berendzen@fws.gov>
Date: October 30, 2017 at 4:44:11 PM AKDT
To: Jim Kurth <jim_kurth@fws.gov>
Cc: Mitch Ellis <mitch_ellis@fws.gov>, "Lor, Socheata" <socheata_lor@fws.gov>, "Campbell, Douglas" <douglas_campbell@fws.gov>, Doug Damberg <doug_damberg@fws.gov>
Subject: 1983 SUP For Seismic Testing in 1002

Jim,

I understand that you need a copy of the subject permit. I've attached it with the 2 sets of conditions that were issued for it and cover letters. If you need more specific information that was part of that permit or related in some way, please let me know.

Steve Berendzen
Acting Manager, Arctic National Wildlife Refuge
907-456-0253

Director (RF), Washington, D.C.
Attn. Curt Wilson

Regional Director, Alaska Original Signed by [illegible] XX 343-2590

Attached Draft Response to GSI

Mr. George Buzan, Project Manager
Mr. Ebert Baxter, Technical Committee Chairman
Geophysical Service Inc.
5801 Silverado Way
Anchorage, Alaska 99502

Dear Messrs. Buzan and Baxter:

Thank you for your letter of 3 February 1984. Your understanding that the U.S. Fish and Wildlife Service (FWS) is the agency with the lead responsibility for implementing Section 1002 of the Alaska National Interest Lands Conservation Act (ANILCA) is correct. As chief administrator of the FWS my formal reponses to your questions and concerns are as follows.

Application of ANILCA Data Confidentiality Provisions

It is the Department of the Interior's position that the U.S. Geological Survey (GS) can process the raw seismic data generated by Geophysical Service Inc., (GSI) during the 1002 exploration program and make the subsequent government analyses and interpretations available to the public at the time the Secretary's report [ANILCA, Section 1002(h)] is submitted to Congress.

The regulations governing geological and geophysical exploration of the coastal plain of Arctic National Wildlife Refuge (ANWR) require that the Department:

1. "...make raw data and information obtained as a result of carrying out exploratory activities and submitted by the permittee or a third party available to the public upon submittal to the Congress of the report..."; and

2. "...shall withhold from the public all processed, analyzed and interpreted data or information obtained as a result of carrying out exploratory activities and submitted by the permittee or a third party..." [50 CFR 37.54(a)].

0000001268

We will withhold all processed, analyzed, and interpreted data submitted by GSI. However, it is our position that any individual or institution (including the GS) could obtain the raw seismic data through the Freedom of Information Act, perform an independent analysis and interpretation of the data, and publish their results--so long as no commercial use of the data occurs.

I understand and share your concern that the prohibition against participation in future lease sales (Section 110 of Public Law 97-394, 96 Statute 1982) would be extremely difficult to enforce if any data or information is published. The Department of the Interior is aware of this problem and is currently studying ways in which the prohibitions in Section 110 can be fully implemented.

Handling of Data and Information

The FWS realizes the importance of maintaining the confidentiality of the data that is submitted to the FWS. The Alaska Regional Director of the FWS, Dr. Robert Putz, has adopted operational procedures to safeguard the confidentiality of data generated by the 1002 program. Data will be received and logged in by a FWS representative, transferred to the U.S. Bureau of Land Management (BLM) for secure storage, and later to the GS for processing and interpretation. Both the BLM and GS will keep the data in secure areas equipped with intrusion detection sensors. The number of individuals authorized to receive and handle the data will be kept at the minimum necessary to meet the Congressional mandates of Section 1002.

Site Visits

Dr. Putz (Bob) and his staff will be glad to arrange for and coordinate visits by selected GSI group members to the various sites that will serve as repositories for the seismic data. And he will be happy to discuss further the procedures that will be used for handling the seismic data and information. You should contact Bob directly to schedule these visits.

Dr. Robert Putz
Alaska Regional Director
U.S. Fish and Wildlife Service
1011 E. Tudor Rd.
Anchorage, AK 99503
Phone: (907) 786-3542

I hope that I have adequately addressed your questions and concerns. I truly appreciate the cooperation we have received from Geophysical Service Inc., in the exploration of the coastal plain of Arctic National Wildlife Refuge.

Sincerely,

Director

FAXFORM 2 of 2

HEUER:nlb:7775R:2/29/84

0000001269

COMPANY, U.S.A.
POST OFFICE BOX 4279 · HOUSTON, TEXAS 77001

EXPLORATION DEPARTMENT
ALASKA/PACIFIC DIVISION

February 8, 1984

TO MEMBERS OF THE 1984 ANWR G.S.I. GROUP

Enclosed are copies of our group letter to U. S. Fish and Wildlife Service pertaining to the preservation of data confidentiality for our ANWR group data.

Very truly yours,

Ebert M. Baxter, Jr.

Ebert M. Baxter, Jr.
Committee Chairman

EMB:lr
Enclosures

c: Mr. George Buzan, G.S.I. Anchorage
Mr. Larry Bowles, G.S.I. Dallas
Mr. Glen Elison, U. S. Fish & Wildlife Service
Regional Director, U. S. Fish & Wildlife Service

0000001270

GEOPHYSICAL SERVICE INC.
5801 SILVERADO WAY • ANCHORAGE, ALASKA 99502
907•563-3070 • TELEX 25-256

3 February 1984

Mr. Robert A. Jantzen, Director
U.S. Fish and Wildlife Service
Department of the Interior
Washington, D.C. 20240

Dear Mr. Jantzen:

There remain unresolved matters pertaining to the preservation of data confidentiality for data and information resulting from exploration of the coastal plain of the Arctic National Wildlife Refuge pursuant to Special Use Permit 83-C10. We, Geophysical Service Inc., the permittee, and Exxon Company, U.S.A., Technical Committee Chairman, on behalf of ourselves and other participants to the exploration (Enclosure 1) request you address these matters at the highest level in your agency since it may require an agreement among the Fish and Wildlife Service, the Bureau of Land Management and the U.S. Geological Survey. Because of the potential for an interagency memorandum of understanding to resolve our concerns, we are addressing this letter to you, with information copies to the Alaska Regional Director and the refuge manager.

A Memorandum of Understanding (MOU) (Enclosure 2) has been executed by the Fish and Wildlife Service (FWS), the Bureau of Land Management (BLM) and the United States Geological Survey (USGS) outlining the responsibilities of these agencies in handling data and information submitted in accordance with the terms of Section 1002(e)(2)(B) of the Alaska National Interest Lands Conservation Act (ANILCA), and in developing the report to Congress for ANWR under Section 1002(h) of ANILCA. Our understanding of the MOU is that the FWS is resonsible for overall administration of the Section 1002 program, the BLM is generally responsible for storage, handling, security, and transfer of appropriate data to the USGS, and the USGS has resonsibility for preparation of hydrocarbon resource assessment.

Application of ANILCA Data Confidentiality Provisions

A USGS memorandum to solicitor dated May 20, 1983 (Enclosure 3) indicates that the USGS processing of industry's raw seismic tapes, and subsequent analysis and interpretation of the data "can be released to the public at the time the Secretary's report is submitted to Congress." We submit that with regard to all such processed, analyzed or interpreted data, the USGS must comply with the confidentiality provisions of Section 1002(e)(2)(B) and (C) of ANILCA, and implementing regulations (50 CFR 37.4(b), 37.53(e),(f) and (g), and 37.54).

0000001271

Section 1002(e)(2)(B) and (C) state in part as follows:

> "(B) (the Secretary of Interior) shall require that all data and information (including processed, analyzed and interpreted information) obtained as a result of carrying out the plan shall be submitted to the Secretary; and (C) shall make such data and information available to the public except that any processed, analyzed and interpreted data or information shall be held confidential by the Secretary for a period of not less than two years...."(emphasis added).

We believe that any data that the USGS derives, analyzes, interprets, or processes from industry-submitted data is data "obtained as a result of carrying out the plan" under Section 1002(e)(2)(B). Thus, under 1002(e)(2)(C), such USGS-interpreted data must be held confidential for two years following any lease sale including the area from which the information was obtained. The provisions of ANILCA regarding restriction of commercial use of such data also apply.

We recognize that 50 CFR 37.45 states that certain confidentiality regulations which implement ANILCA do not apply to the USGS. However, the exemptions contained in 50 CFR 37.45 are only applicable in the event the USGS is issued a special use permit to independently conduct exploratory activities within the ANWR coastal plain. We believe it is the clear intent of Section 1002 of ANILCA, and the regulations promulgated thereto, that when the USGS is processing, analyzing or interpreting data which was submitted by a permittee pursuant to Section 1002(e)(2)(B), Section 1002(e)(2)(C) mandates that the resulting processed, analyzed or interpreted data must be held confidential.

Congress amended ANILCA in 1982 (Section 110 of Pub. L. 97-394) to further strengthen ANILCA's confidentiality provisions. The clear intent was to give consideration to the need to protect the economic viability of the program and to provide industry incentive to participate. If the USGS is allowed to make information derived from industry data available to the public, the confidentiality provisions of ANILCA are negated.

Handling of Data and Information

It is important to ensure that the confidentiality of submitted data is maintained throughout all inter-agency and intra-agency handling of the data. We thus recommend that the FWS adopt operational procedures which assure a continuous train of accountability and notice of responsibilities which are incumbent on each person with access to the data and information. These procedures should apply to all entities within the Department of Interior, its agents and subcontractors, and other government personnel who may have access to the data under the terms of 50 CFR 37.54(c). We invite your consideration of Enclosure 4 which details procedures recommended in response to the call for comments on this subject by the Department in F.R. 48:76, dated Tuesday, April 19, 1983 (page 16839).

Site Visits

We respectfully request that the Director allow visits by a representative committee to the various sites of the Department, its agents and subcontractors, where the data will be handled or which will act as a repository of the data. The representative committee will consist of four or five persons from GSI and industry participants. The purpose of these visits will be to assure the participating companies that the submitted data is being handled in accordance with the established handling and notice procedures, and that the physcial facilities are adequate.

Industry is concerned about the confidentiality of the submitted data because of the enormous costs involved in the private funding of the Section 1002 program. Private industry funding of a program of this type is extraordinary. The visits will assist in facilitating further investment in this program or similar future programs. The visits will be conducted informally and will focus on viewing the facilities and talking with various personnel handling the data and information.

We look forward to working with you and your staff, the BLM and the USGS to resolve to our mutual satisfaction the concerns expressed in this letter. To insure procedures are in place before data and information start being submitted by us to the Regional Director of the Service, actions need to take place as soon as possible. Please contact us at the locations listed below should you require additional information.

Very truly yours,

Ebert Baxter

Ebert Baxter
EXXON COMPANY, U.S.A.
Chairman, Technical
Committee of Participant Group
P.O. Box 4279
Houston, Texas 77001
713/591-5141

George Buzan

George Buzan
GEOPHYSICAL SERVICE INC.
Project Manager
5801 Silverado Way
Anchorage, Alaska 99502
907/563-3070

cc: Alaska Regional Director of U.S. Fish and Wildlife Service
Refuge Manager, Arctic National Wildlife Refuge

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Enclosure 1

ANWR Group Participants

Amerada Hess Corporation	Murphy Oil USA, Inc.
Amoco Production Company	Petrofina Delaware, Incorporated
ARCO Alaska Inc.	Phillips Petroleum Company
Champlin Petroleum Company	Placid Oil Company
Chevron U.S.A. Inc.	Shell Oil Company
Conoco Inc.	Sohio Alaska Petroleum Company
Elf Aquitaine Oil & Gas	Sun Exploration and Production Co.
Exxon Company, U.S.A.	Superior Oil Company
Getty Oil Company	Texaco USA
Gulf Oil Exploration and Production Co.	
Marathon Oil Company	Union Oil Company of California
Mobil Oil Corporation	Union Texas Petroleum Corporation

Enclosure 2

MEMORANDUM OF UNDERSTANDING

BETWEEN THE

FISH AND WILDLIFE SERVICE

THE

BUREAU OF LAND MANAGEMENT

AND THE

GEOLOGICAL SURVEY

OF THE

U.S. DEPARTMENT OF THE INTERIOR

BACKGROUND:

Section 1002 of the Alaska National Interest Lands Conservation Act of 1980 (ANILCA) or P.L. 96-487 as amended (the Act), provides for a comprehensive and continuing inventory and assessment of the fish and wildlife resources of the coastal plain of the Arctic National Wildlife Refuge (ANWR). It also authorizes seismic and surface geological exploratory activity within the coastal plain in a manner that avoids significant adverse effects on the fish and wildlife and other resources. The Act also provides that after initial guidelines are prescribed, any person may submit one or more plans for oil and gas exploratory activity (referred to as "exploration plans"), and that any exploration plan which is determined to be consistent with the guidelines must be approved. This determinaton must be made within 90 days of plan submission unless this 90-day period is extended for up to 30 additional days by written notice to the applicant.

Section 1002(h) of the Act requires the Secretary to submit to Congress, not earlier than five years nor later than five years and nine months after the enactment day of the Act (2 December 1980), a report containing:

1. The identification, by means other than drilling of exploratory wells, of those areas within the coastal plain that have oil and gas production potential and estimate of the volume of the oil and gas concerned;

2. The description of the fish and wildlife, their habitats, and other resources that are within the areas identified under Paragraph 1;

3. An evaluation of the adverse effects that the carrying out of further exploration for, and the development and production of, oil and gas within such areas will have on the resources referred to in Paragraph 2;

4. A description of how such oil and gas, if produced within such area, may be transported to processing facilities;

5. An evaluation of how such oil and gas relates to the national need for additional domestic sources of oil and gas; and

6. The recommendations of the Secretary to Congress with respect to whether further exploration for, and the development and production of, oil and gas within the coastal plain should be permitted and, if so, what additional legal authority is necessary to ensure that the adverse effects of such activities on fish and wildlife, their habitats, and other resources are avoided or minimized.

PURPOSE:

The Fish and Wildlife Service (FWS) is responsible for administering the ANILCA Section 1002 program including reviewing and approving exploration plans and preparing the Secretary's report to Congress. However, certain aspects of the exploration plan review and approval process (as outlined in Appendix A), data analysis, and report preparation require technical knowledge and expertise possessed by the Bureau of Land Management (BLM) and the Geological Survey (GS). The purpose of this Memorandum of Understanding (MOU) is to establish the basis for interagency working procedures enabling the FWS to use the technical assistance of the BLM and GS in the exploration plan review process, data analysis, and preparation of the report to Congress as prescribed by Sections 1002(e) through (h) of the ANILCA. In administering the Section 1002 program, the FWS objectives are to obtain the best possible data for assessing the oil and gas resource potential of the coastal plain, while ensuring that there are no significant adverse effects on the fish and wildlife, their habitats or the environment.

WHEREAS, the Director of the FWS has the lead responsibility for administration of the ANILCA Section 1002 program, including exploration plan review and approval and preparation of the report to Congress; and the FWS is primarily responsible for the conservation, protection and enhancement of the national fish and wildlife resources and, in accordance with the National Wildlife Refuge System Administration Act, is responsible for the administration and management of the National Wildlife Refuge System which includes the ANWR; and

WHEREAS, the BLM has the responsibility and expertise to examine, classify, and evaluate the mineral resources of federal lands and has expertise regarding supervision of technical operations related to oil and gas exploration and development on federal lands; and

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WHEREAS, the GS has the responsibility to conduct systematic research and investigations of the geologic structure and mineral resources of the nation and has expertise regarding gathering, interpreting and distributing information concerning the nation's energy and mineral resources, including oil and gas;

IT IS MUTUALLY AGREED THAT:

1. The FWS through the Alaska Regional Director has the lead responsibility for all activities and decisions required pursuant to ANILCA Sections 1002(e) through (h), including:

a. Review of exploration plans to determine consistency with the initial guidelines governing exploratory activities (ANILCA Section 1002(d)) and review of requests for revisions to the approved plans or waiver's to special use permit conditions.

b. Establishment of an interagency review panel to aid the FWS Regional Director in making the above determinations. The chairperson and two other members of this review panel will be FWS personnel.

c. Conducting a pre-application conference or conferences for persons wishing to submit exploration plans.

d. Publishing the exploration plans for public review.

e. Conducting the public hearings for exploration plan review and receiving public comments on the plans.

f. Coordination with state and other federal agencies, native corporations, private organizations and industry.

g. Approving, modifying and/or disapproving exploration plans in accordance with 50 CFR Section 37.22.

h. Issuing special use permits with appropriate stipulations for exploratory activities under approved plans.

i. Establishing and supervising a field monitoring program to conduct on-site surveillance of exploration activities and to determine the ecological effects of these activities.

j. Collecting reimbursable expenses from applicants/ permittees as provided in 50 CFR Sections 37.46.

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k. Overseeing preparation of the Secretary's report to Congress. An interagency work group will be formed by the FWS Regional Director to accomplish this task.

l. Receiving industry-generated data from the exploration program.

2. The BLM, through the Director, will assist the FWS as follows in activities required pursuant to ANILCA Sections 1002(e) through (h):

a. Provide two personnel knowledgeable in the technical aspects of geological and geophysical exploration to serve on the interagency review panel. One or both of these personnel will participate in the pre-application conference(s) and public hearings regarding the exploration plans.

b. If determined necessary by the FWS Regional Director and with concurrence of the BLM Director, provide field monitors to accompany field crews to assure quality of data obtained by permittees.

c. Receive from the FWS data and information obtained by permittees as a result of carrying out exploratory activities and be responsible for the subsequent storage, handling, and security of such data and information as required in their analysis, transfer to GS in a timely manner, and disclosure in accordance with the Act and the guidelines.

d. Interpret and analyze available geological, geophysical, engineering, and economic data in accordance with agency ability and expertise in order to assist the FWS in developing the assessments identified in ANILCA Sections 1002(h)(1), (4), (5), and (6). This is to be accomplished as further described in Item 5 below.

e. Assist the FWS in preparing sections of the Secretary's report to Congress. This is to be accomplished as further described in Item 5 below.

3. The GS through the Director, will assist the FWS as follows in activities required pursuant to ANILCA Sections 1002(e) through (h):

a. Provide two personnel knowledgeable in the technical aspects of geological and geophysical exploration to serve on the interagency review panel. One or both of these personnel will participate in the pre-application conference(s) and public hearings regarding the exploration plans.

b. Conduct geological or geophysical studies, consistent with agency expertise, that are determined by the FWS Regional Director to be necessary for preparing an adequate report to Congress.

c. Interpret and analyze available geological, geophysical, engineering and economic data in accordance with agency expertise and abilities in order to assist the FWS in developing the assessments identified in ANILCA Section 1002(h)(1), (4), (5), and (6). This is to be accomplished as further described in Item 5 below.

d. Assist the FWS in preparing sections of the Secretary's report to Congress. This is to be accomplished as further described in Item 5 below.

4. The role of the interagency review panel referenced in Item 1b above will be advisory in nature. The interagency review panel will review exploration plans and, if requested by the FWS Regional Director, permittee requests for revisions to exploration plans. The panel will then make recommendations to the FWS Regional Director concerning plan approval or disapproval, plan modification, joint participation, assignment of areas and for group participation. Conclusions and recommendations of the review panel will not be binding upon the FWS Regional Director. Members of the interagency review panel may call upon other technical specialists, as necessary, to assist them in performing their role as panel members.

5. In preparing the report to Congress the FWS Regional Director, BLM Director, and GS Director shall each designate at least one but not more than three individuals to serve on an advisory work group. Additional work group members from other federal agencies may be requested by the FWS Regional Director if needed. The senior FWS member will be the group leader. This work group will answer to the FWS Regional Director and will be the forum for mutual exchange and synthesis of the technical information necessary to complete the report to Congress. The group leader will be responsible for overall report coordination, quality, adhering to agreed schedules, and for providing guidance to the group members in completing their tasks. The following will be used as a guide for completing the report to Congress:

a. The GS will have the lead role in providing assistance to the FWS in completing those portions of the report to Congress addressing the requirements of the ANILCA Section 1002(h)(1). Portions of this assessment will be completed by the BLM as defined in an action plan to be mutually agreed upon by the Directors of the FWS, BLM and GS.

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b. The BLM will have the lead role in providing assistance to the FWS in completing those portions of the report to Congress addressing the requirements of ANILCA Section 1002(h)(4) and (5).

c. Each respective group member may coordinate with and receive assistance from other resource specialists as necessary.

d. A schedule for completion of the report will be developed by representatives of the FWS, BLM and GS and will be submitted to the FWS Regional Director for his approval. This schedule will be followed in completing the report.

e. The work group's product will be submitted to the FWS Regional Director for his review, approval, or revision as necessary, and distribution as a draft report to the BLM and GS for comment. After the FWS Regional Director makes such further revisions as he deems necessary, the final report will be forwarded to the BLM and GS for review. The final report with any minority reports attached, will then be forwarded to the Secretary through appropriate FWS and Departmental channels.

6. Formal communication with the public concerning all aspects of exploration activities will be the responsibility of the FWS. Technical aspects will be delegated to the BLM or GS as appropriate. Public inquiries will be directed to the FWS Regional Office.

7. Public hearings for exploration plans review will be chaired by the FWS Regional Director or his designee. Designated members of the interagency review panel will serve as the hearing panel.

8. The FWS will coordinate and arrange for all necessary field accommodations for BLM and GS or their contractor personnel in conjunction with monitoring activities.

9. The FWS Regional Director delegates to the BLM State Director the reponsibility for the storage, physical security, transfer, and disclosure of the data obtained as a result of carrying out exploratory activities generated by this program in accordance with the Act and 50 CFR Section 37.54. The FWS Regional Director retains the right to review such data and information at any time.

10. For any proprietary or confidential data that are transferred by the BLM to any other agency or party, the transferree must assume sole responsibility for maintaining the confidentiality of such data at the time of transfer.

11. The FWS, BLM, and GS will provide each other with information copies of all appropriate correspondence relating to the oil and gas exploration program.

12. The FWS will receive and supply the BLM and GS with copies of all written public comments regarding the exploration plans.

13. Nothing in this MOU will be construed as limiting or affecting in any way the authority or legal responsibilities of the FWS, BLM or GS Directors, or as binding the FWS, BLM or GS to perform beyond the respective authority of each, or to require either party to assume or expend any funds in excess of appropriations available.

14. Agency representatives shall meet as needed to discuss past and future procedures under this agreement, its adequacy and timeliness, or other matters of mutual concern and interest. Amendments to this agreement may be proposed by any of the three agencies and shall become effective upon mutual approval. Meetings to discuss the MOU may be called by the FWS Regional Director, BLM Director or GS Director.

15. In accordance with the regulations governing the program (50 CFR 37.46), certain direct and indirect costs incurred by the Department in administering the private sector exploration activities will be reimbursed to the government by the private entities involved. In order to assure interagency consistency and accuracy in recordkeeping for justifying expenses for reimbursement, a standardized cost-tracking system will be used by each agency. This cost tracking procedure will operate as outlined in Appendix B.

16. This agreement shall be in effect from the date of execution until such time as alternate arrangements for handling data disclosure in accordance with ANILCA Section 1002(e)(2)(C), are mutually worked out between the FWS and BLM. Any of the agencies included in this MOU may withdraw from participation under the terms herein after having given 30 days written notice to the other participating agencies.

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17. The FWS will have authority over, responsibility for, and control of all activities and actions relative to the ANILCA Section 1002 Program.

May 6, 83
Date

Acting Director
Fish and Wildlife Service

JUN 3 0 1983
Date

Acting Director
Bureau of Land Management

May 11, 1983
Date

Acting Director
Geological Survey

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APPENDIX A

Process for Reviewing and Approving Exploration Plans Under the Arctic National Wildlife Refuge Oil and Gas Surface Exploration Program (ANILCA Section 1002)

The following general procedure is proposed for reviewing, evaluating, and approving exploration plans:

1. Under the final regulations governing the exploration program, exploration plans must be submitted 31 days following promulgation of those regulations or on March 1, 1984. During this 31-day period, the Fish and Wildlife Service (FWS) will hold a joint pre-application conference with all interested applicants in order to discuss details of the regulations. Another conference may be held at a later date prior to the second plan submission date if determined necessary. The interagency review panel (described in Section 1b of the MOU) will be expected to participate in the pre-application conferences.

2. Applicants will submit exploration plans on the dates established above. Plans of operation for the proposed activities will be submitted 30 days prior to commencing field operations except that they shall be submitted 10 days prior to commencing surface geological studies proposed to commence before August 1, 1983. An exploration plan is the general description of how the exploratory activities are to be arranged and carried out. The plan of operation is the detailed procedure proposed for executing the exploration plan. All submitted exploration plans will be published in the Federal Register and in newspapers of general circulation in Alaska. Additionally, one or more public hearings will be held concerning the exploration plans. The public hearings will be chaired by the FWS Regional Director or his designated representative. Selected members of the interagency review panel will serve as the hearing panel.

3. The exploration plans and public comments on them will be reviewed by the interagency review panel and by the staffs of the Arctic National Wildlife Refuge (ANWR) and the FWS Regional Office. Copies of the exploration plans will be sent as well to appropriate State agencies, local governments and Native organizations for review and comment.

   The interagency review panel members may call upon other technical experts to aid them in evaluating the exploration plans if necessary. The exploration plans will be evaluated in terms of consistency with the regulations governing the program, the applicant's technical and financial ability to carry out the proposal, the applicant's history of compliance with terms of prior exploration permits and whether or not any of the plans

are unnecessarily duplicative. The review panel will recommend to the Regional Director whether an exploration plan should be approved, disapproved, or approved in part. The panel may also recommend plan modification, joint exploration, group participation or assignment of areas for exploration. The Regional Director will have 90 days (with a 30 day extension if necessary) from plan submission to make a decision concerning approval of each exploration plan.

4. Within 45 days after approval of an exploration plan the FWS will issue a special use permit for the particular activity. The special use permit will include stipulations to protect the refuge's fish, wildlife, and other resources. These stipulations will be developed by the ANWR and FWS Regional Office staffs.

5. Permittees under the exploration program may request the Regional Director for permission to revise their approved exploration plans. The interagency review panel will be consulted in such cases for evaluating the proposed revisions and making recommendations concerning them.

APPENDIX B

Cost-Tracking Procedure

BACKGROUND:

See the Memorandum of Understanding (MOU) for implementing ANILCA Section 1002 between the Fish and Wildlife Service (FWS), the Bureau of Land Management (BLM), and the Geological Survey (GS) dated _____. This cost-tracking procedure is an appendix to that MOU.

PURPOSE:

As provided in the guidelines developed to regulate the ANILCA Section 1002 exploratory activities (50 CFR 37.46), the actual direct and indirect costs incurred by the Department in administering the private sector exploration activities are to be reimbursed to the government by the private entities involved. The types of activities for which the government may ask for reimbursement include the following:

(1) Publishing, reviewing, modifying, approving or disapproving the applicant's or permittee's exploration plan(s).

(2) Reviewing evidence of the permittee's compliance with any order given by the Regional Director under Section 37.13.

(3) Preparing and issuing the permittee's special use permit(s).

(4) Reviewing the permittee's plan(s) of operation.

(5) Inspecting, monitoring, and enforcing the permittee's compliance with its approved exploration plan(s), plan(s) of operation, special use permit(s), and all applicable regulations and orders.

(6) Performing the permittee's obligations pursuant to 50 CFR 37.31(a).

(7) Identifying, evaluating, and preserving historic, archeological and cultural resources in areas explored by the permittee.

This cost-tracking procedure sets forth a method for documenting actual government costs incurred in performing the types of activities outlined above. These costs will be used for justifying reimbursement to be obtained by the FWS from the private sector applicants/permittees for the above services performed.

COST-TRACKING PROCEDURE:

In order to assure interagency consistency and accuracy in record keeping for justifying expenses incurred in performing work in the areas outlined above, the funding categories listed below will be utilized by each agency in tracking costs for reimbursement to the government.

Exploration Plan Review/Approval

Program Services

Costs associated with managerial, coordinating, and administrative tasks necessary for agency involvement in the 1002 program operations, which relate to exploration plan review/approval and which are too broad in scope or too small individually to warrant assignment to one of the other activity categories.

Program Planning

Planning tasks which relate to exploration plan review/approval. Includes setting objectives, meshing interdependent or interrelated actions within the program, program scheduling, etc.

Plan Evaluation

Costs involved in evaluating exploration plans during the initial review process.

Plan Publication

Costs associated with publishing exploration plans in the Federal Register and newpapers.

Pre-Application Conference

Costs associated with participation in the pre-application conference to be held with permittees prior to submission of exploration plans.

Public Hearing

Cost associated with preparing for, holding or participating in public hearings held for initial exploration plan review or modification review.

Plan Revision Evaluation

Costs incurred in evaluating permittee requests for revisions to exploration plans.

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Special Use Permit Issuance

Program Services

Costs associated with managerial, coordinating, and administrative tasks necessary for agency involvement in the 1002 program operations, which relate to special use permit issuance and which are too broad in scope or too small individually to warrant assignment to one of the other activity categories.

Program Planning

Planning tasks which relate to special use permit issuance. Includes setting objectives, meshing interdependent or interrelated actions within the program, program scheduling, etc.

Applicant Conference

Costs associated with preparing for or participating in conference held with applicants prior to or after special use permit issuance.

Interagency Coordination

Costs incurred in coordinating with other government agencies and native groups during development of special use permit conditions.

Permit Development/Issuance

Costs associated with developing special use permit conditions and actually issuing the permit.

Permit Revision

Costs associated with revising special use permits.

Monitoring/Enforcement*

Program Services

Costs associated with managerial, coordinating, and administrative tasks necessary for agency involvement in the 1002 program operations, which relate to monitoring/enforcement and which are too broad in scope or too small individually to warrant assignment to one of the other activity categories.

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*Lodging, food, communication, and transportation furnished by the permittee will be considered payment in kind and cannot be claimed later as reimbursable to the government.

Program Planning

Planning tasks which relate to monitoring/enforcement. Includes setting objectives, meshing interdependent or interrelated actions within the program, program scheduling, etc.

Review Plan of Operation

Costs involved in reviewing applicant plans of operation.

Compliance Surveillance

Costs involved in making inspection visits to permittee field crews to monitor operations for compliance with exploration plans, special use permit conditions, provisions of 50 CFR 37, and other applicable laws and regulations.

Field Reconnaissance

Costs involved in making special trips to the field for site-specific requests, permit waiver requests, environmental conflicts or emergency situations.

Environmental Briefing

Costs involved in developing, supporting and presenting environmental briefings to permittee field crews.

Data Quality Monitoring

Costs associated with monitoring activities of permittee field crews engaged in geologic or geophysical investigations to ensure adequate quality of data.

Permittee Obligations

Costs associated with performance of permittee obligations pursuant to 50 CFR 37.31(a).

Cultural Resource Protection

Costs involved in identifying, evaluating, and preserving historic, archeological, and cultural resources in areas explored by the permittee.

Reporting

Costs of preparing reports required in monitoring permittee activities and enforcing applicable laws and regulations.

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A separate account of expenses will be maintained as outlined above for each applicant/permittee, with each category further broken down by salaries, travel/per diem and miscellaneous costs. In order to facilitate compilation and coordination of interagency expense data for private sector reimbursement, a quarterly actual cost report will be submitted to the FWS by the GS and BLM to include the expenses incurred in these categories for each individual applicant/permittee during the preceding quarter.

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Proposed Schedule for Preparation of the Report to Congress

ANILCA Section 1002(h)

January 1984	Preliminary location of structures - USGS
September 1984	Processed data submitted by permittees, 1984 seismic program
January 1985	Preliminary report, time maps - BLM Depth maps and preliminary development scenarios - BLM
October 1984	First cut, quantified oil and gas assessment - USGS
November 1985	Specific transportation plan - BLM
December 1985	Final quantified oil and gas assessment - USGS Regional maps, development scenarios - BLM Infrastructure and transportation economics - BLM
January-April 1986	Draft and assemble Report to Congress - FWS, BLM, USGS
1 May 1986	Draft Report to Congress completed
May 1986	Draft Report reviewed by BLM, USGS, FWS
June 1986	Revise Draft Report to Congress - FWS
July 1986	Final Report to Congress printed, circulate to BLM, USGS for review and attachment of minority reports - FWS
August 1986	Submit Report to Secretary - FWS
September 1986	Submit Report to Congress - Secretary

Enclosure 3

United States Department of the Interior

GEOLOGICAL SURVEY
RESTON, VA. 22092

OFFICE OF THE DIRECTOR

MAY 20 1983

SOLICITOR
DOI

Memorandum

To: Solicitor

Through: Assistant Secretary--Energy and Minerals

From: Director, Geological Survey

Subject: Public Release of Seismic Data, Arctic National Wildlife Refuge, Alaska

Section 1002 of the Alaska National Interest Lands Conservation Act of 1980 (ANILCA) authorizes geological and geophysical exploration of the Arctic National Wildlife Refuge (ANWR) coastal plain in a manner that avoids significant adverse effects on fish, wildlife, and other resources. The purpose of such exploration is to obtain data and information about the oil and gas production potential of the coastal plain which will be used by the Department in preparing a report to Congress. The Secretary's report to Congress will contain, among other things, the identification of areas within the coastal plain that have oil and gas potential and an estimate of the volume of oil and gas concerned. Also, the report will contain a recommendation on the desirability of further oil and gas exploration, development, and production. It is anticipated that private industry will collect most of the geological and geophysical data on the ANWR.

The Fish and Wildlife Service (FWS), the lead agency in all Section 1002 activities, has asked the U.S. Geological Survey (USGS) to help prepare the oil and gas assessment part of the Secretary's report to Congress. To provide the FWS with a credible, adequately documented assessment of the undiscovered oil and gas resources of the ANWR, we will need to process selected industry seismic tapes and include in our report the processed, interpreted seismic record sections, and possibly several subsurface maps derived from our processed seismic tapes and interpreted seismic record sections. The USGS has the necessary in-house expertise and capabilities to process industry's raw seismic tapes.

The Federal Register notice, dated April 19, 1983, entitled Geological and Geophysical Exploration of the Coastal Plain, Arctic National Wildlife Refuge, Alaska, Final Rule, states (Section 37.54):

> "The Department shall make raw data and information obtained as a result of carrying out exploratory activities and submitted by the permittee or a third party available to the public upon submittal to the Congress of the report required by subsection (h) of the Act...."

The Supplementary Information to the Final Rule suggests that seismic tapes are considered to be raw data and that seismic record sections are created from the processing of seismic tapes and thus are not considered to be raw data. Therefore, private industry's seismic record sections would not be released to the public at the time the Secretary submits his report to Congress. Processed, analyzed, and interpreted data obtained as a result of carrying out exploratory activities and submitted by the permittee or a third party will not be released to the public until 10 years after the submission of such data or information, or until 2 years after any lease sale, including the area within the ANWR from which such data or information were obtained, whichever period is longer.

The USGS has studied the Geological and Geophysical Exploration of the Coastal Plain, Arctic National Wildlife Refuge, Alaska, Final Rule, and has determined that our in-house processing of industry's raw seismic tapes and subsequent analysis and interpretation of the data can be released to the public at the time the Secretary's report is submitted to Congress. If you concur in this, please sign below.

Doyle G. Frederick

Doyle G. Frederick

Concur:

William P. Horn 7/6/83

Solicitor Date

ENCLOSURE 4

Recommended Procedures for Handling of Data and Information Resulting from Exploration of the Coastal Plain of the Arctic National Wildlife Refuge, Alaska.

HANDLING OF DATA AND INFORMATION

Effective execution of activities of agency personnel in order to comply fully with public policy is essential to resolving this issue. We believe operational procedures should be documented that cover all tasks, and inter-agency interactions and transfers of the data. Those procedures should apply to all agents of the Government, its agents, subcontractors, and to some degree, private parties to whom the Secretary of the Interior, via the FWS, release the data. We are aware that your agency has already received recommendations on this subject in response to the call for comments which appeared in the Federal Register on april 19, 1983, page 16839. We offer this Enclosure 3 for your consideration, which briefly summarizes they types of procedures we wuld like to see implemented.

ACCESS AND RELEASE

People obtaining access to the data from other than the permittee should sign an application requesting the data which specifies who they are and where the data will reside, what data is accessed, where and how it is to be used, alerts the applicant to their responsibilities, liabilities, and required security measures and establishes the first link in a continuous train-of-evidence custody of the data and all products resulting from its use. There should be only one release point within FWS, at which all chain-of-custody records are kept.

AWARENESS

All data accessed should contain warning labels appropriate to the form of the data and information. Such warning labels should contain information about the limits of use, responsibilities and liabilities. Such labels should be affixed to all products resulting from the data accessed. The label should also specify security measures required.

PRIOR AUTHORITY

To transfer data accessed, and products resulting from its use, the FWS should have to give prior approval. The permittee should be informed of this event and of all parties involved (whether they are Government or private).

RIGHT TO INSPECT

The FWS should assert a right to inspect the facilities and handling procedures of parties who access the data, with such right to include the right of representatives of the permittee to do likewise.

All the above should trail the data and information and all products through all parties to the original access, their agents, subcontractors, counsel and all other third parties.

SITE VISITS

Private industry funding of a program of this type is extraordinary and the risks of that investment are related to the assurance of data confidentiality. Therefore, we believe it is reasonable to request the Director allow visits by a small group representative of the permittee and participants to their program to sites where the data is handled. These informal visits would be primarily for viewing the facilities and measures for preservation of confidentiality and for talking with Government agents who work with the dta about their handling procedures.

These unresolved matters are very important to industry, and specifically to us and the other participants to the exploration plan. Your attention is urgently needed so that effective measures will be in place before data begins to be submitted in early February, 1984. We look forward to working with you and your staff, and with the USGS, and BLM, to resolve to our mutual satisfaction these matters. Please contact us at the locations listed.

From: Darnell, Joseph
To: Fischbach, Tracy
Cc: Brady, Stephanie; Socheata Lor
Subject: Re: 1983 SUP For Seismic Testing in 1002
Date: Wednesday, November 8, 2017 3:36:28 PM

Tracy -

Very helpful. If Joanna thinks she has exhausted all possible sources then no need to go further. It there are some other possible repositories there in Fairbanks it would be great if she is able to check in case she might locate the final/signed copy of the letter back to GSI and/or any follow on correspondence from GSI on the topic.

Joe

Joseph Darnell
Regional Solicitor
Alaska Region - Dept. of the Interior
Anchorage, Alaska
Direct Phone (907) 271-4118 / Main Office Phone (907) 271-4131
Fax (907) 271-4143 / Mobile (907) 301-6687
joe.darnell@sol.doi.gov

On Wed, Nov 8, 2017 at 1:23 PM, Fischbach, Tracy <tracy_fischbach@fws.gov> wrote:

> Hi Joe,
>
> Joanna Fox dug through their files and found several documents of correspondence with GSI, the group of oil exploration companies that were permitted in the 1002 area. The two attached files include a letter to FWS from GSI discussing their concerns about data confidentiality and a draft of our response to that letter. Do let us know if you want us to dig further.
>
> Cheers, Tracy
>
> Tracyann S Fischbach
> Natural Resources Planner
> National Wildlife Refuge System - Region 7
> Division of Natural Resources & Conservation Planning
> (907) 786-3369
>
> Hours: Mon - Thurs 9:15 am to 3:15 pm
> "Getting right down and smelling the fresh soil is good for any one." - from the 1913 Handbook for Girl Scouts by W. J. Hoxie
>
> **Need access to Refuge Documents?**
> Online Document Database (ServCat)
> ***Need Refuge land status info for Alaska?***
> FWS Region 7 Land Mapper (FWS version)
> FWS Region 7 Land Mapper (Public version)
> Region 7 GeoPDF Map Portal
>
> On Wed, Nov 8, 2017 at 10:05 AM, Brady, Stephanie <stephanie_brady@fws.gov> wrote:

stephanie_brady@fws.gov | Branch Chief, Conservation Planning and Policy |
U.S. Fish and Wildlife Service | National Wildlife Refuge System | Alaska |
907.306.7448

---------- Forwarded message ----------
From: **Darnell, Joseph** <joe.darnell@sol.doi.gov>
Date: Tue, Nov 7, 2017 at 4:50 PM
Subject: Re: 1983 SUP For Seismic Testing in 1002
To: "Brady, Stephanie" <stephanie_brady@fws.gov>

Stephanie -

I am addressing some legal issues over use of the data. I would like to know what if anything the permittee and the participating companies were told about how the data was to be handled. If FWS doesn't have the file, then I guess it doesn't have it. Since the permit was issued by the Refuge wouldn't they have had a file? Maybe it was archived or ??? depending on what the records retention requirements are for refuges and/or the Service.

Thanks very much for the effort.

Joe

Joseph Darnell
Regional Solicitor
Alaska Region - Dept. of the Interior
Anchorage, Alaska
Direct Phone (907) 271-4118 / Main Office Phone (907) 271-4131
Fax (907) 271-4143 / Mobile (907) 301-6687
joe.darnell@sol.doi.gov

On Tue, Nov 7, 2017 at 4:10 PM, Brady, Stephanie <stephanie_brady@fws.gov> wrote:

> we have all hands on trying to find information for you - I am searching our planning files - and have asked Tracy to help. When do you need this by?
>
> stephanie_brady@fws.gov | Branch Chief, Conservation Planning and Policy |
> U.S. Fish and Wildlife Service | National Wildlife Refuge System | Alaska |
> 907.306.7448
> *Did you know?*
> The **National Wildlife Refuge System** has:
> 50 million annual visitors, 850 million acres, and 566 units.
>
> On Tue, Nov 7, 2017 at 3:59 PM, Darnell, Joseph <joe.darnell@sol.doi.gov> wrote:
>
> > Stephanie -
> >
> > Yes, this is what Mitch sent me last week. Is there anything else in Arctic's or the Region's file particular as it pertains to handling data?
> >
> > Joe

Joseph Darnell
Regional Solicitor
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Direct Phone (907) 271-4118 / Main Office Phone (907) 271-4131
Fax (907) 271-4143 / Mobile (907) 301-6687
joe.darnell@sol.doi.gov

On Tue, Nov 7, 2017 at 3:51 PM, Brady, Stephanie <stephanie_brady@fws.gov> wrote:

> Attached to this email is the special use permit that was provided by Arctic Refuge - does the partially meet your request? Stephanie
>
> stephanie_brady@fws.gov | Branch Chief, Conservation Planning and Policy | U.S. Fish and Wildlife Service | National Wildlife Refuge System | Alaska | 907.306.7448
> *Did you know?*
> The **National Wildlife Refuge System** has:
> 50 million annual visitors, 850 million acres, and 566 units.
>
> ---------- Forwarded message ----------
> From: **Ryan Mollnow** <ryan_mollnow@fws.gov>
> Date: Wed, Nov 1, 2017 at 3:11 PM
> Subject: Fwd: 1983 SUP For Seismic Testing in 1002
> To: Tracy Fischbach <tracy_fischbach@fws.gov>, Stephanie Brady <stephanie_brady@fws.gov>, John Martin <john_w_martin@fws.gov>
>
> For your files.
>
> Thanks,
> Ryan Mollnow
> Division Natural Resources
> Alaska Region
> National Wildlife Refuge System
>
> Begin forwarded message:
>
> **From:** Mitch Ellis <mitch_ellis@fws.gov>
> **Date:** November 1, 2017 at 2:47:34 PM AKDT
> **To:** Joe Darnell <joe.darnell@sol.doi.gov>, Mike Gieryic <mike.gieryic@sol.doi.gov>
> **Cc:** Ryan Mollnow <ryan_mollnow@fws.gov>
> **Subject: Fwd: 1983 SUP For Seismic Testing in 1002**
>
> Sent from my iPhone

Begin forwarded message:

From: "Berendzen, Steve" <steve_berendzen@fws.gov>
Date: October 30, 2017 at 4:44:11 PM AKDT
To: Jim Kurth <jim_kurth@fws.gov>
Cc: Mitch Ellis <mitch_ellis@fws.gov>, "Lor, Socheata" <socheata_lor@fws.gov>, "Campbell, Douglas" <douglas_campbell@fws.gov>, Doug Damberg <doug_damberg@fws.gov>
Subject: 1983 SUP For Seismic Testing in 1002

Jim,

I understand that you need a copy of the subject permit. I've attached it with the 2 sets of conditions that were issued for it and cover letters. If you need more specific information that was part of that permit or related in some way, please let me know.

Steve Berendzen
Acting Manager, Arctic National Wildlife Refuge
907-456-0253

From: Greg Siekaniec
To: Karen Clark
Subject: Re: Seismic data request
Date: Wednesday, November 8, 2017 4:49:08 PM

---

b5 DP/AC [redacted]

Greg

Sent from my iPhone

On Nov 8, 2017, at 3:20 PM, Karen Clark <karen_clark@fws.gov> wrote:

> FYI
>
> Karen P. Clark
> Deputy Regional Director
> U.S. Fish & Wildlife Service- Alaska Region
> karen_clark@fws.gov
> 907.786.3542 office
> 907.786.3493 direct
> 907.786.3306 fax
>
> Begin forwarded message:
>
> **From:** "Darnell, Joseph" <joe.darnell@sol.doi.gov>
> **Date:** November 8, 2017 at 11:59:19 AM AKST
> **To:** Karen Clark <karen_clark@fws.gov>
> **Subject: Re: Seismic data request**
>
> Karen -
>
> I am addressing some legal issues over use of the data. I had a call from Stephanie who is looking. What I told her I would like to know is what if anything the permittee and the participating companies were told by the Service about how the data was to be handled. If FWS doesn't have any remaining file, then I guess it doesn't have it. b5 - AC [redacted]
>
> Thanks for checking.
>
> Joe
>
> *Joseph Darnell*
> *Regional Solicitor*
> *Alaska Region - Dept. of the Interior*

Anchorage, Alaska
Direct Phone (907) 271-4118 / Main Office Phone (907) 271-4131
Fax (907) 271-4143 / Mobile (907) 301-6687
joe.darnell@sol.doi.gov

On Wed, Nov 8, 2017 at 11:27 AM, Karen Clark <karen_clark@fws.gov> wrote:

> Hey Joe- just checking back in on this one- do you have a suspense date for this request?
>
> Thanks, Karen
>
> Karen P. Clark
> Deputy Regional Director
> U.S. Fish & Wildlife Service- Alaska Region
> karen_clark@fws.gov
> 907.786.3542 office
> 907.786.3493 direct
> 907.786.3306 fax
>
> On Nov 7, 2017, at 8:37 AM, Karen Clark <karen_clark@fws.gov> wrote:
>
> > Hey Joe, I am helping to track down the information you requested- just wondering what your turn around for this is?
> >
> > Thanks, Karen
> >
> > Karen P. Clark
> > Deputy Regional Director
> > U.S. Fish & Wildlife Service- Alaska Region
> > karen_clark@fws.gov
> > 907.786.3542 office
> > 907.786.3493 direct
> > 907.786.3306 fax

From: Fischbach, Tracy
To: Darnell, Joseph
Cc: Brady, Stephanie; Socheata Lor
Subject: Re: 1983 SUP For Seismic Testing in 1002
Date: Wednesday, November 8, 2017 5:18:19 PM

Ok. I'll let her know. I'll ask John Martin about it next week, too. He was digging through all of the boxes and may have seen something.

Tracyann S Fischbach
Natural Resources Planner
National Wildlife Refuge System - Region 7
Division of Natural Resources & Conservation Planning
(907) 786-3369

Hours: Mon - Thurs 9:15 am to 3:15 pm
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Online Document Database (ServCat)
Need Refuge land status info for Alaska?
FWS Region 7 Land Mapper (FWS version)
FWS Region 7 Land Mapper (Public version)
Region 7 GeoPDF Map Portal

On Wed, Nov 8, 2017 at 1:36 PM, Darnell, Joseph <joe.darnell@sol.doi.gov> wrote:

> Tracy -
>
> Very helpful. If Joanna thinks she has exhausted all possible sources then no need to go further. It there are some other possible repositories there in Fairbanks it would be great if she is able to check in case she might locate the final/signed copy of the letter back to GSI and/or any follow on correspondence from GSI on the topic.
>
> Joe
>
> *Joseph Darnell*
> *Regional Solicitor*
> *Alaska Region - Dept. of the Interior*
> *Anchorage, Alaska*
> *Direct Phone (907) 271-4118 / Main Office Phone (907) 271-4131*
> *Fax (907) 271-4143 / Mobile (907) 301-6687*
> *joe.darnell@sol.doi.gov*
>
> On Wed, Nov 8, 2017 at 1:23 PM, Fischbach, Tracy <tracy_fischbach@fws.gov> wrote:
>
> > Hi Joe,
> >
> > Joanna Fox dug through their files and found several documents of correspondence with GSI, the group of oil exploration companies that were permitted in the 1002 area. The two attached files include a letter to FWS from GSI discussing their concerns about data confidentiality and a draft of our response to that letter. Do let us know if you want us to dig further.

Cheers, Tracy

Tracyann S Fischbach
Natural Resources Planner
National Wildlife Refuge System - Region 7
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stephanie_brady@fws.gov | Branch Chief, Conservation Planning and Policy |
U.S. Fish and Wildlife Service | National Wildlife Refuge System | Alaska |
907.306.7448

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From: **Darnell, Joseph** <joe.darnell@sol.doi.gov>
Date: Tue, Nov 7, 2017 at 4:50 PM
Subject: Re: 1983 SUP For Seismic Testing in 1002
To: "Brady, Stephanie" <stephanie_brady@fws.gov>

Stephanie -

I am addressing some legal issues over use of the data. I would like to know what if anything the permittee and the participating companies were told about how the data was to be handled. If FWS doesn't have the file, then I guess it doesn't have it. Since the permit was issued by the Refuge wouldn't they have had a file? Maybe it was archived or ??? depending on what the records retention requirements are for refuges and/or the Service.

Thanks very much for the effort.

Joe

Joseph Darnell
Regional Solicitor

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joe.darnell@sol.doi.gov

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> we have all hands on trying to find information for you - I am searching our planning files - and have asked Tracy to help. When do you need this by?
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> U.S. Fish and Wildlife Service | National Wildlife Refuge System | Alaska |
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> > Joe
> >
> > *Joseph Darnell*
> > *Regional Solicitor*
> > *Alaska Region - Dept. of the Interior*
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> > >
> > > ---------- Forwarded message ----------
> > > From: **Ryan Mollnow** <ryan_mollnow@fws.gov>
> > > Date: Wed, Nov 1, 2017 at 3:11 PM
> > > Subject: Fwd: 1983 SUP For Seismic Testing in 1002
> > > To: Tracy Fischbach <tracy_fischbach@fws.gov>, Stephanie Brady

<stephanie_brady@fws.gov>, John Martin <john_w_martin@fws.gov>

For your files.

Thanks,
Ryan Mollnow
Division Natural Resources
Alaska Region
National Wildlife Refuge System

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From: Mitch Ellis <mitch_ellis@fws.gov>
Date: November 1, 2017 at 2:47:34 PM AKDT
To: Joe Darnell <joe.darnell@sol.doi.gov>, Mike Gieryic <mike.gieryic@sol.doi.gov>
Cc: Ryan Mollnow <ryan_mollnow@fws.gov>
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Sent from my iPhone

Begin forwarded message:

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Date: October 30, 2017 at 4:44:11 PM AKDT
To: Jim Kurth <jim_kurth@fws.gov>
Cc: Mitch Ellis <mitch_ellis@fws.gov>, "Lor, Socheata" <socheata_lor@fws.gov>, "Campbell, Douglas" <douglas_campbell@fws.gov>, Doug Damberg <doug_damberg@fws.gov>
Subject: 1983 SUP For Seismic Testing in 1002

Jim,

I understand that you need a copy of the subject permit. I've attached it with the 2 sets of conditions that were issued for it and cover letters. If you need more specific information that was part of that permit or related in some way, please let me know.

Steve Berendzen
Acting Manager, Arctic National Wildlife Refuge
907-456-0253

From: Karen Clark
To: Darnell, Joseph
Subject: Re: Seismic data request
Date: Wednesday, November 8, 2017 5:23:25 PM

Thanks Joe. Have you checked with BLM? Maybe they have some info?

Sent from my iPhone

On Nov 8, 2017, at 11:59 AM, Darnell, Joseph <joe.darnell@sol.doi.gov> wrote:

> Karen -
>
> I am addressing some legal issues over use of the data. I had a call from Stephanie who is looking. What I told her I would like to know is what if anything the permittee and the participating companies were told by the Service about how the data was to be handled. If FWS doesn't have any remaining file, then I guess it doesn't have it. b5 - AC [redacted]
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> *Joseph Darnell*
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>> On Nov 7, 2017, at 8:37 AM, Karen Clark <karen_clark@fws.gov> wrote:

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Karen P. Clark
Deputy Regional Director
U.S. Fish & Wildlife Service- Alaska Region
karen_clark@fws.gov
907.786.3542 office
907.786.3493 direct
907.786.3306 fax

From: Arthur, Stephen
To: Fox, Joanna
Subject: Re: Updates from LCC Visioning....
Date: Wednesday, November 8, 2017 5:39:45 PM

Yes, I'd like to continue in this role. I'll let Wendy know.

Steve

Stephen M. Arthur, Ph.D.
Supervisory Wildlife Biologist
Arctic National Wildlife Refuge
101 12th Ave., Room 236
Fairbanks, AK 99701
(907)455-1830

On Wed, Nov 8, 2017 at 11:03 AM, Fox, Joanna <joanna_fox@fws.gov> wrote:

> Hi Steve,
>
> Would you be available to represent Arctic Refuge via teleconference at this Arctic LCC meeting? Steve and I have discussed, and are thinking that for the time being, at least, it would be ideal for you to continue being our primary representative - particularly in light of the interest in identifying existing data gaps in the 1002 and prioritizing additional research. We think your input would be particularly meaningful as we move forward.
>
> It appears it will be Monday afternoon from 1-3. If you agree and are available, will you contact Wendy to let her know and to obtain an agenda and call-in information?
>
> Thank you!
> Joanna
>
> _____
> Joanna L. Fox
> Deputy Refuge Manager
> Arctic National Wildlife Refuge
> 101 12th Avenue, Room 236
> Fairbanks, AK 99701
> (907) 456-0549
>
> Follow us on Facebook!
> www.facebook.com/arcticnationalwildliferefuge
>
> *"Do what you can, with what you have, where you are." -- Theodore Roosevelt*
>
> ---------- Forwarded message ----------
> From: **Wendy Loya** <wendy_loya@fws.gov>
> Date: Tue, Nov 7, 2017 at 9:14 AM
> Subject: Re: Updates from LCC Visioning....
> To: "Berendzen, Steve" <steve_berendzen@fws.gov>

Hey Steve,
Thanks for the note. Steve Arthur has disengaged, but we do have Diane Granfors actively participating. I would welcome anyone from Arctic Refuge Staff to participate and help provide input on where we are going. I am in a meeting today and tomorrow (North Slope Science Initiative) but maybe we could chat on Thursday about how we are hoping to work across the Arctic in synthesizing climate and development impacts? If not this week then let's do that after your NCTC trip?

Thanks!
Wendy

Dr. Wendy M. Loya, Coordinator
Arctic Landscape Conservation Cooperative (LCC)
Anchorage, Alaska
907.786.3532 (office)
907.227.2942 (mobile)

On Nov 7, 2017, at 09:08, Berendzen, Steve <steve_berendzen@fws.gov> wrote:

> Wendy,
>
> I'll be at NCTC all of next week, so I won't be able to join this one either....
>
> Steve Berendzen
> Acting Manager, Arctic National Wildlife Refuge
> 907-456-0253
>
> On Fri, Nov 3, 2017 at 12:39 PM, Wendy Loya <wendy_loya@fws.gov> wrote:
>
> > Hi Everyone,
> >
> > Please fill out this doodle poll to schedule a meeting among Arctic partners. The Arctic LCC is not operating by Steering Committee at this time, so this is an open and non-advisory conversation about collaborative approaches to Arctic science needs. We'll try to convene in person in Anchorage and Fairbanks with phone connections to bring us together:
> >
> > https://doodle.com/poll/e7y4f8whbgrvm68y
> >
> > I'll send an agenda when we have a time and date chosen.
> >
> > Thanks to those of you that were able to make it to the LCC visioning workshop this week, all of the FWS Science Applications staff are grateful for your time and thoughtful participation!

I am glad that a few of us were able to have lunch together this Thursday and start to take a hard look at the Arctic LCC and where we fit in under the new administrative priorities. What I heard was strong support for a collaborative body to continue to implement research recommendations that come out of NSSI and other Arctic initiatives, including meetings that gather community concerns. We have discussed the need to take time to synthesize the existing climate-driven research, and also think about how to bring together climate and development impacts in cumulative effects analyses in ways that would be broadly useful for everyone from the North Slope Borough to the State to BLM/FWS and also relevant to our Canadian partners and fitting into Arctic Council-level interest in environmental impact assessment.

We'll carry onward with that conversation at the meeting, and invite new voices to share ideas.

Cheers!

Wendy

Dr. Wendy M. Loya, Coordinator

Arctic Landscape Conservation Cooperative (LCC)

Anchorage, Alaska

907.786.3532 (office)

907.227.2942 (mobile)

From: Arthur, Stephen
To: Bertram, Mark
Cc: Harwood, Christopher
Subject: Re: biological districting
Date: Wednesday, November 8, 2017 5:51:10 PM

It seems I have another meeting scheduled from 1-3 on Monday afternoon. Can we reschedule our discussion for either before or after that? I'm available all day.

Steve

Stephen M. Arthur, Ph.D.
Supervisory Wildlife Biologist
Arctic National Wildlife Refuge
101 12th Ave., Room 236
Fairbanks, AK 99701
(907)455-1830

On Wed, Nov 8, 2017 at 10:56 AM, Bertram, Mark <mark_bertram@fws.gov> wrote:

> Sounds good.
>
> Cheers,
> Mark
>
> Mark_Bertram@fws.gov
> Supervisory Wildlife Biologist
> US Fish and Wildlife Service
> Yukon Flats National Wildlife Refuge
> 101 12th Avenue, Room 264
> Fairbanks, Alaska 99701
> Voice: (907) 456-0446
> Cell: (907) 347-1524
> Fax: (907) 456-0447
> Toll Free: 1-800-531-0676
> http://www.fws.gov/refuge/yukon_flats/
> https://www.facebook.com/YukonFlatsNationalWildlifeRefuge/
>
> On Wed, Nov 8, 2017 at 10:18 AM, Harwood, Christopher <christopher_harwood@fws.gov> wrote:
>
> > If it's ok with you two, we're going to have Roy attend, too, as I will not be around for the larger meeting with Doug on December 7.
> >
> > On Tue, Nov 7, 2017 at 8:34 AM, Bertram, Mark <mark_bertram@fws.gov> wrote:
> >
> > > Steve,
> > >
> > > My number is 907 456-0446. We can save you a dime and call you as well if you want to pass on your number.
> > >
> > > So we will all talk on Monday November 13 at 1:30pm Alaska time.

Cheers,
Mark

Mark_Bertram@fws.gov
Supervisory Wildlife Biologist
US Fish and Wildlife Service
Yukon Flats National Wildlife Refuge
101 12th Avenue, Room 264
Fairbanks, Alaska 99701
Voice: (907) 456-0446
Cell: (907) 347-1524
Fax: (907) 456-0447
Toll Free: 1-800-531-0676
http://www.fws.gov/refuge/yukon_flats/
https://www.facebook.com/YukonFlatsNationalWildlifeRefuge/

On Tue, Nov 7, 2017 at 8:09 AM, Arthur, Stephen <stephen_arthur@fws.gov> wrote:

> Yes, I'll plan to call in then. Just let me know what phone number to call.
>
> Steve
>
> Stephen M. Arthur, Ph.D.
> *Supervisory Wildlife Biologist*
> *Arctic National Wildlife Refuge*
> *101 12th Ave., Room 236*
> *Fairbanks, AK 99701*
> *(907)455-1830*
>
> On Mon, Nov 6, 2017 at 9:02 AM, Bertram, Mark <mark_bertram@fws.gov> wrote:
>
> > Steve and Chris,
> >
> > Would you both be available for a teleconference Monday November 13 at 1:30 pm Alaska Time to discuss biological districting?
> >
> > Cheers,
> > Mark
> >
> > Mark_Bertram@fws.gov
> > Supervisory Wildlife Biologist
> > US Fish and Wildlife Service
> > Yukon Flats National Wildlife Refuge
> > 101 12th Avenue, Room 264
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> > Toll Free: 1-800-531-0676
> > http://www.fws.gov/refuge/yukon_flats/
> > https://www.facebook.com/YukonFlatsNationalWildlifeRefuge/

On Mon, Nov 6, 2017 at 8:52 AM, Harwood, Christopher <christopher_harwood@fws.gov> wrote:

> I think Nov 13 is ok, but we generally have 9:00 staff meeting on Mondays so a later time would be better.
>
> On Mon, Oct 30, 2017 at 4:35 PM, Mark Bertram <mark_bertram@fws.gov> wrote:
>
> > Thanks Steve, I will wait for Chris to weigh in and we will pick a date and time
> >
> > Sent from my iPhone
> >
> > On Oct 30, 2017, at 3:43 PM, Arthur, Stephen <stephen_arthur@fws.gov> wrote:
> >
> > > Nov 13 should work for me, and the previous week would be ok as well (assuming I can call in).
> > >
> > > Steve
> > >
> > > Stephen M. Arthur, Ph.D.
> > > *Supervisory Wildlife Biologist*
> > > *Arctic National Wildlife Refuge*
> > > *101 12th Ave., Room 236*
> > > *Fairbanks, AK 99701*
> > > *(907)455-1830*
> > >
> > > On Wed, Oct 25, 2017 at 2:42 PM, Bertram, Mark <mark_bertram@fws.gov> wrote:
> > >
> > > > Hi Chris and Steve,
> > > >
> > > > I note you are both out of town with Steve gone thru Nov 10 and Chris thru Nov 5. I propose we get together at 9am Monday Nov 13 to discuss the districting idea. Please let me know if that day/time will work for you.
> > > >
> > > > Cheers,
> > > > Mark
> > > >
> > > > Mark_Bertram@fws.gov
> > > > Supervisory Wildlife Biologist
> > > > US Fish and Wildlife Service
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> > > > Voice: (907) 456-0446
> > > > Cell: (907) 347-1524
> > > > Fax: (907) 456-0447
> > > > Toll Free: 1-800-531-0676

http://www.fws.gov/refuge/yukon_flats/
https://www.facebook.com/YukonFlatsNationalWildlifeRefuge/

On Wed, Oct 25, 2017 at 2:20 PM, Bertram, Mark <mark_bertram@fws.gov> wrote:

> Hi Chris and Steve,
>
> Nathan Hawkaluk asked me to contact you both as a first step to opening a dialogue with the Fairbanks refuge biological staff (all 11 of them) regards to identifying strategies for us to get our biological priorities done on refuges as our resources decrease. The regional office refers to this as "Districting".
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> [redacted]
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FlatsNationalWildlifeRefuge/

--
Christopher Harwood
Wildlife Biologist
U.S. Fish and Wildlife Service
Kanuti National Wildlife Refuge
101 12th Ave.; Room 206
Fairbanks, AK 99701
(907) 455-1836 (w)
(907) 456-0506 (fax)

"In my house, anyone who uses one word when they could have used ten just isn't trying hard."

- Josiah Edward Bartlet, PhD, Nobel Laureate

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From: Harwood, Christopher
To: Arthur, Stephen
Cc: Bertram, Mark; Roy Churchwell
Subject: Re: biological districting
Date: Wednesday, November 8, 2017 5:54:46 PM

I could do after 10 (our staff meeting should be over) or 3-4?

On Wed, Nov 8, 2017 at 3:50 PM, Arthur, Stephen <stephen_arthur@fws.gov> wrote:

> It seems I have another meeting scheduled from 1-3 on Monday afternoon. Can we reschedule our discussion for either before or after that? I'm available all day.
>
> Steve
>
> Stephen M. Arthur, Ph.D.
> *Supervisory Wildlife Biologist*
> *Arctic National Wildlife Refuge*
> *101 12th Ave., Room 236*
> *Fairbanks, AK 99701*
> *(907)455-1830*

On Wed, Nov 8, 2017 at 10:56 AM, Bertram, Mark <mark_bertram@fws.gov> wrote:

> Sounds good.
>
> Cheers,
> Mark
>
> Mark_Bertram@fws.gov
> Supervisory Wildlife Biologist
> US Fish and Wildlife Service
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> http://www.fws.gov/refuge/yukon_flats/
> https://www.facebook.com/YukonFlatsNationalWildlifeRefuge/

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>
> On Tue, Nov 7, 2017 at 8:34 AM, Bertram, Mark <mark_bertram@fws.gov> wrote:
>
> > Steve,
> >
> > My number is 907 456-0446. We can save you a dime and call you as well if you want to pass on your number.

So we will all talk on Monday November 13 at 1:30pm Alaska time.

Cheers,
Mark

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On Mon, Nov 6, 2017 at 8:52 AM, Harwood, Christopher <christopher_harwood@fws.gov> wrote:

> I think Nov 13 is ok, but we generally have 9:00 staff meeting on Mondays so a later time would be better.
>
> On Mon, Oct 30, 2017 at 4:35 PM, Mark Bertram <mark_bertram@fws.gov> wrote:
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> > Thanks Steve, I will wait for Chris to weigh in and we will pick a date and time
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> > Sent from my iPhone
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>
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--
Christopher Harwood
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From: Bertram, Mark
To: Arthur, Stephen; Christopher Harwood; Roy Churchwell
Subject: Re: biological districting
Date: Wednesday, November 8, 2017 6:18:13 PM

Steve,

How about we move it to 3:30pm Alaska Time?

Chris and Roy, can you make that time as well?

Cheers,
Mark

Mark_Bertram@fws.gov
Supervisory Wildlife Biologist
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> [redacted]

b5 DP [redacted]

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From: Darnell, Joseph
To: Karen Clark
Subject: Re: Seismic data request
Date: Wednesday, November 8, 2017 6:20:18 PM

No, I haven't talked to them. Good idea.

Joe

Joseph Darnell
Regional Solicitor
Alaska Region - Dept. of the Interior
Anchorage, Alaska
Direct Phone (907) 271-4118 / Main Office Phone (907) 271-4131
Fax (907) 271-4143 / Mobile (907) 301-6687
joe.darnell@sol.doi.gov

On Wed, Nov 8, 2017 at 3:23 PM, Karen Clark <karen_clark@fws.gov> wrote:

> Thanks Joe. Have you checked with BLM? Maybe they have some info?
>
> Sent from my iPhone
>
> On Nov 8, 2017, at 11:59 AM, Darnell, Joseph <joe.darnell@sol.doi.gov> wrote:
>
> > Karen -
> >
> > I am addressing some legal issues over use of the data. I had a call from Stephanie who is looking. What I told her I would like to know is what if anything the permittee and the participating companies were told by the Service about how the data was to be handled. If FWS doesn't have any remaining file, then I guess it doesn't have it. b5 - AC [redacted]
> >
> > Thanks for checking.
> >
> > Joe
> >
> > *Joseph Darnell*
> > *Regional Solicitor*
> > *Alaska Region - Dept. of the Interior*
> > *Anchorage, Alaska*
> > *Direct Phone (907) 271-4118 / Main Office Phone (907) 271-4131*
> > *Fax (907) 271-4143 / Mobile (907) 301-6687*
> > *joe.darnell@sol.doi.gov*
> >
> > On Wed, Nov 8, 2017 at 11:27 AM, Karen Clark <karen_clark@fws.gov> wrote:
> >
> > > Hey Joe- just checking back in on this one- do you have a suspense date for this request?

Thanks, Karen

Karen P. Clark
Deputy Regional Director
U.S. Fish & Wildlife Service- Alaska Region
karen_clark@fws.gov
907.786.3542 office
907.786.3493 direct
907.786.3306 fax

On Nov 7, 2017, at 8:37 AM, Karen Clark <karen_clark@fws.gov> wrote:

> Hey Joe, I am helping to track down the information you requested- just wondering what your turn around for this is?
>
> Thanks, Karen
>
> Karen P. Clark
> Deputy Regional Director
> U.S. Fish & Wildlife Service- Alaska Region
> karen_clark@fws.gov
> 907.786.3542 office
> 907.786.3493 direct
> 907.786.3306 fax

From: Darnell, Joseph
To: Fischbach, Tracy
Subject: Re: 1983 SUP For Seismic Testing in 1002
Date: Wednesday, November 8, 2017 6:20:37 PM

Thanks.

Joe

Joseph Darnell
Regional Solicitor
Alaska Region - Dept. of the Interior
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joe.darnell@sol.doi.gov

On Wed, Nov 8, 2017 at 3:18 PM, Fischbach, Tracy <tracy_fischbach@fws.gov> wrote:

> Ok. I'll let her know. I'll ask John Martin about it next week, too. He was digging through all of the boxes and may have seen something.

Tracyann S Fischbach
Natural Resources Planner
National Wildlife Refuge System - Region 7
Division of Natural Resources & Conservation Planning
(907) 786-3369

Hours: Mon - Thurs 9:15 am to 3:15 pm
"Getting right down and smelling the fresh soil is good for any one." - from the 1913 Handbook for Girl Scouts by W. J. Hoxie

Need access to Refuge Documents?
Online Document Database (ServCat)
Need Refuge land status info for Alaska?
FWS Region 7 Land Mapper (FWS version)
FWS Region 7 Land Mapper (Public version)
Region 7 GeoPDF Map Portal

On Wed, Nov 8, 2017 at 1:36 PM, Darnell, Joseph <joe.darnell@sol.doi.gov> wrote:

> Tracy -
>
> Very helpful. If Joanna thinks she has exhausted all possible sources then no need to go further. It there are some other possible repositories there in Fairbanks it would be great if she is able to check in case she might locate the final/signed copy of the letter back to GSI and/or any follow on correspondence from GSI on the topic.
>
> Joe
>
> *Joseph Darnell*
> *Regional Solicitor*

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joe.darnell@sol.doi.gov

On Wed, Nov 8, 2017 at 1:23 PM, Fischbach, Tracy <tracy_fischbach@fws.gov> wrote:

> Hi Joe,
>
> Joanna Fox dug through their files and found several documents of correspondence with GSI, the group of oil exploration companies that were permitted in the 1002 area. The two attached files include a letter to FWS from GSI discussing their concerns about data confidentiality and a draft of our response to that letter. Do let us know if you want us to dig further.
>
> Cheers, Tracy

Tracyann S Fischbach
Natural Resources Planner
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FWS Region 7 Land Mapper (Public version)
Region 7 GeoPDF Map Portal

On Wed, Nov 8, 2017 at 10:05 AM, Brady, Stephanie <stephanie_brady@fws.gov> wrote:

> stephanie_brady@fws.gov | Branch Chief, Conservation Planning and Policy | U.S. Fish and Wildlife Service | National Wildlife Refuge System | Alaska | 907.306.7448
>
> ---------- Forwarded message ----------
> From: **Darnell, Joseph** <joe.darnell@sol.doi.gov>
> Date: Tue, Nov 7, 2017 at 4:50 PM
> Subject: Re: 1983 SUP For Seismic Testing in 1002
> To: "Brady, Stephanie" <stephanie_brady@fws.gov>
>
> Stephanie -

I am addressing some legal issues over use of the data. I would like to know what if anything the permittee and the participating companies were told about how the data was to be handled. If FWS doesn't have the file, then I guess it doesn't have it. Since the permit was issued by the Refuge wouldn't they have had a file? Maybe it was archived or ??? depending on what the records retention requirements are for refuges and/or the Service.

Thanks very much for the effort.

Joe

Joseph Darnell
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joe.darnell@sol.doi.gov

On Tue, Nov 7, 2017 at 4:10 PM, Brady, Stephanie <stephanie_brady@fws.gov> wrote:

> we have all hands on trying to find information for you - I am searching our planning files - and have asked Tracy to help. When do you need this by?
>
> stephanie_brady@fws.gov | Branch Chief, Conservation Planning and Policy | U.S. Fish and Wildlife Service | National Wildlife Refuge System | Alaska | 907.306.7448
> *Did you know?*
> The **National Wildlife Refuge System** has:
> 50 million annual visitors, 850 million acres, and 566 units.
>
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>
> > Stephanie -
> >
> > Yes, this is what Mitch sent me last week. Is there anything else in Arctic's or the Region's file particular as it pertains to handling data?
> >
> > Joe
> >
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> > *Regional Solicitor*
> > *Alaska Region - Dept. of the Interior*
> > *Anchorage, Alaska*
> > *Direct Phone (907) 271-4118 / Main Office Phone (907) 271-4131*
> > *Fax (907) 271-4143 / Mobile (907) 301-6687*
> > *joe.darnell@sol.doi.gov*
> >
> > On Tue, Nov 7, 2017 at 3:51 PM, Brady, Stephanie <stephanie_brady@fws.gov> wrote:
> >
> > > Attached to this email is the special use permit that was provided by

Arctic Refuge - does the partially meet your request? Stephanie

stephanie_brady@fws.gov | Branch Chief, Conservation Planning and Policy | U.S. Fish and Wildlife Service | National Wildlife Refuge System | Alaska | 907.306.7448
Did you know?
The **National Wildlife Refuge System** has:
50 million annual visitors, 850 million acres, and 566 units.

---------- Forwarded message ----------
From: **Ryan Mollnow** <ryan_mollnow@fws.gov>
Date: Wed, Nov 1, 2017 at 3:11 PM
Subject: Fwd: 1983 SUP For Seismic Testing in 1002
To: Tracy Fischbach <tracy_fischbach@fws.gov>, Stephanie Brady <stephanie_brady@fws.gov>, John Martin <john_w_martin@fws.gov>

For your files.

Thanks,
Ryan Mollnow
Division Natural Resources
Alaska Region
National Wildlife Refuge System

Begin forwarded message:

> **From:** Mitch Ellis <mitch_ellis@fws.gov>
> **Date:** November 1, 2017 at 2:47:34 PM AKDT
> **To:** Joe Darnell <joe.darnell@sol.doi.gov>, Mike Gieryic <mike.gieryic@sol.doi.gov>
> **Cc:** Ryan Mollnow <ryan_mollnow@fws.gov>
> **Subject: Fwd: 1983 SUP For Seismic Testing in 1002**
>
> Sent from my iPhone
>
> Begin forwarded message:
>
> > **From:** "Berendzen, Steve" <steve_berendzen@fws.gov>
> > **Date:** October 30, 2017 at 4:44:11 PM AKDT
> > **To:** Jim Kurth <jim_kurth@fws.gov>
> > **Cc:** Mitch Ellis <mitch_ellis@fws.gov>, "Lor, Socheata" <socheata_lor@fws.gov>, "Campbell, Douglas" <douglas_campbell@fws.gov>, Doug

Damberg <doug_damberg@fws.gov>
Subject: 1983 SUP For Seismic Testing in 1002

Jim,

I understand that you need a copy of the subject permit. I've attached it with the 2 sets of conditions that were issued for it and cover letters. If you need more specific information that was part of that permit or related in some way, please let me know.

Steve Berendzen
Acting Manager, Arctic National Wildlife Refuge
907-456-0253

From: Ryan Mollnow
To: Brady, Stephanie
Cc: Lor, Socheata; Tracy Fischbach; Fox, Joanna; Damberg, Doug; Steve Berendzen; John Brewer; Diane Granfors
Subject: Re: Arctic NWR Vintage Seismic Data from 1980s
Date: Wednesday, November 8, 2017 6:48:04 PM

I am thinking these documents should all end up in ServCat. Stephanie what do you think? Joanna, how much of Arctic's historical data/files have been uploaded to ServCat? This might be something for us to initiate sooner than later to help with analysis.

Thanks
Ryan

Sent from my iPhone

On Nov 7, 2017, at 3:54 PM, Brady, Stephanie <stephanie_brady@fws.gov> wrote:

> I am searching through the files that we have on our planning drive - I have looped in Tracy because she has a better handle on where these documents might reside - if we have it. Stephanie
>
> stephanie_brady@fws.gov | Branch Chief, Conservation Planning and Policy |
> U.S. Fish and Wildlife Service | National Wildlife Refuge System | Alaska |
> 907.306.7448
> *Did you know?*
> The **National Wildlife Refuge System** has:
> 50 million annual visitors, 850 million acres, and 566 units.
>
> ---------- Forwarded message ----------
> From: **Lor, Socheata** <socheata_lor@fws.gov>
> Date: Tue, Nov 7, 2017 at 12:42 PM
> Subject: Re: Arctic NWR Vintage Seismic Data from 1980s
> To: "Fox, Joanna" <joanna_fox@fws.gov>
> Cc: "Damberg, Doug" <doug_damberg@fws.gov>, Ryan Mollnow <ryan_mollnow@fws.gov>, "Brady, Stephanie" <stephanie_brady@fws.gov>, Steve Berendzen <steve_berendzen@fws.gov>, John Brewer <john_brewer@fws.gov>
>
> Thanks for keeping us posted, Joanna. John Brewer is also looking and he found a couple of Records of Decision (1984 and 1985) and he's still looking.
>
> Soch
> ~~~~~~~~~~~~~~~~~
> *Socheata Lor, Ph.D.*
> *Deputy Assistant Regional Director - Region 7*
> *National Wildlife Refuge System*
> *U.S. Fish and Wildlife Service*
> *1011 E. Tudor Road*

Anchorage, AK 99503
Office: 907.786.3420
Cell: 907.891.6194
~~~~~~~~~~~~~~~~~

On Tue, Nov 7, 2017 at 12:23 PM, Fox, Joanna <joanna_fox@fws.gov> wrote:

> I'm finding some files, and still looking for more. We've scanned what we've located so far, but I'm still looking for the 1983 Exploration Plan (I located a 1985 "amended" plan).
>
> _____
> Joanna L. Fox
> Deputy Refuge Manager
> Arctic National Wildlife Refuge
> 101 12th Avenue, Room 236
> Fairbanks, AK 99701
> (907) 456-0549
>
> Follow us on Facebook!
> www.facebook.com/arcticnationalwildliferefuge
>
> *"Do what you can, with what you have, where you are." -- Theodore Roosevelt*
>
> On Tue, Nov 7, 2017 at 12:20 PM, Damberg, Doug <doug_damberg@fws.gov> wrote:
>
> > see Doug C's note below re: Planning files
> >
> > Doug Damberg
> > Refuge Supervisor, AK North Zone
> > U.S. Fish and Wildlife Service
> > 1011 E. Tudor Rd.; Anchorage, AK 99503
> > Office: (907) 786-3329
> > Cell: (907) 947-6302
> >
> > ---------- Forwarded message ----------
> > From: **Douglas Campbell** <douglas_campbell@fws.gov>
> > Date: Tue, Nov 7, 2017 at 8:56 AM
> > Subject: Re: Arctic NWR Vintage Seismic Data from 1980s
> > To: "Damberg, Doug" <doug_damberg@fws.gov>
> >
> >
> > Doug
> >
> > Steve B was able to find the SUP for the seismic. It's possible they have the results. I've not come across it in any of the realty files.
> >
> > The other possibility is that Planning may have a copy that would be in the boxes HQ sent us several years ago that have info from the EIS etc of the
~~~~~~~~~~~~~~~~~

development plan. John Martin or Pete Wikoff may know.

Sent from my iPhone

On Nov 7, 2017, at 8:51 AM, Damberg, Doug <doug_damberg@fws.gov> wrote:

> Doug C and John -
> Please see the email string below an let us know Realty has any of this information.
> Thx,
>
> Doug Damberg
> Refuge Supervisor, AK North Zone
> U.S. Fish and Wildlife Service
> 1011 E. Tudor Rd.; Anchorage, AK 99503
> Office: (907) 786-3329
> Cell: (907) 947-6302
>
> On Tue, Nov 7, 2017 at 7:29 AM, Mitch Ellis <mitch_ellis@fws.gov> wrote:
>> Joanna and Doug - see email string below. Joe Darnell is asking for some correspondence and plans that Arctic may have in the files? Maybe check with Realty as well. Thanks.
>>
>> Sent from my iPhone
>>
>> Begin forwarded message:
>>
>> **From:** Mitch Ellis <mitch_ellis@fws.gov>
>> **Date:** November 7, 2017 at 7:26:16 AM AKST
>> **To:** Karen Clark <karen_clark@fws.gov>
>> **Subject: Re: Arctic NWR Vintage Seismic Data from 1980s**
>>
>> We'll see if we can track it down.
>>
>> Sent from my iPhone
>>
>> On Nov 7, 2017, at 6:12 AM, Karen Clark <karen_clark@fws.gov> wrote:
>>
>>> Hey Mitch,
>>> Any thoughts about where a copy of this plan could be obtained? Do you think it could be in Arctic Refuge files? Let me know what you think so

we can track this down.

Thanks, Karen

Sent from my iPhone

Begin forwarded message:

> **From:** Greg Siekaniec <greg_siekaniec@fws.gov>
> **Date:** November 6, 2017 at 7:02:38 PM AKST
> **To:** karen_clark@fws.gov
> **Subject: Fwd: Arctic NWR Vintage Seismic Data from 1980s**
>
> Karen,
>
> Please see Joe Darnell's request for old seismic data correspondence and information. Can you begin to investigate this question? BLM May hold some of the information but we should have the correspondence in our files. Perhaps at Arctic NWR?
>
> Thank you,
>
> Greg
>
> Sent from my iPhone
>
> Begin forwarded message:
>
> > **From:** "Darnell, Joseph" <joe.darnell@sol.doi.gov>
> > **Date:** November 6,

2017 at 7:31:46 PM CST
To: Greg Siekaniec <greg_siekaniec@fws.gov>
Subject: **Arctic NWR Vintage Seismic Data from 1980s**

Greg -

Some legal question have come up over the status of the seismic data collected during the 1980s. I need to know where to secure a copy of the exploration plan submitted to the Service to secure the permit and any correspondence between the Service and the permittee over the terms of the permit and handling of data from the exploration work.

Thanks.

Joe

Joseph Darnell Regional Solicitor Alaska Region - Dept. of the Interior Anchorage,

Alaska
Direct Phone (907) 271-4118 / Main Office Phone (907) 271-4131
Fax (907) 271-4143 /
Mobile (907) 301-6687
joe.darnell@sol.doi.gov

From:	John Martin
To:	john_w_martin@fws.gov
Subject:	The Washington Post: Murkowski bill directs at least 2 major lease sales in Arctic National Wildlife Refuge
Date:	Wednesday, November 8, 2017 10:25:21 PM

Murkowski bill directs at least 2 major lease sales in Arctic National Wildlife Refuge
The Washington Post

The measure would open the refuge to oil and gas drilling for the first time in a generation.
Read the full story

Shared from Apple News

Sent from my iPhone

From: E&E News
To: roger_kaye@fws.gov
Subject: November 9 -- E&E Daily is ready
Date: Thursday, November 9, 2017 5:32:03 AM

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1. ANWR:
Murkowski unveils legislation to allow drilling in refuge

Senate legislation unveiled last night to allow oil and gas drilling in part of the 19-million-acre Arctic National Wildlife Refuge would allocate a 50 percent revenue-sharing split between the state of Alaska and the federal government.

TOP STORIES

2. CAMPAIGN 2017:
Greens, Dems see policy opportunities after big wins

3. ENERGY POLICY:
DOE overhaul, other E&C priorities may have to wait

4. NOMINATIONS:
Vote on Trump's EPA air office pick set for today

IN THE HOUSE

5. TAX POLICY:
Fate of renewables credits up in the air

6. CLIMATE:
Lawmakers set partisan brawls aside to discuss geoengineering

7. ENERGY POLICY:
Bill to reform hydro permitting passes

8. AGRICULTURE:

Farm bill to reach floor next year

IN THE SENATE

9. INTERIOR:

Durbin puts hold on nominees

10. PUBLIC HEALTH:

CPSC nominee reveals she worked in modeling, not much else

11. PIPELINES:

Lawmakers push FERC to measure climate costs

12. PUBLIC LANDS:

Committee to vote on management bill

UPCOMING HEARINGS AND MARKUPS

13. CALENDAR:

Activity for November 6 - November 12, 2017

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From: E&E News
To: karen_clark@fws.gov
Subject: November 9 -- Energywire is ready
Date: Thursday, November 9, 2017 6:11:52 AM

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ENERGYWIRE — Thu., November 9, 2017

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1. POLITICS:

With Murphy win, N.J. signals left turn on energy

With his victory in New Jersey's gubernatorial election, and with Democrats holding firm majorities in the Legislature, Democrat Phil Murphy arrives with the means and will to deliver what greens have wanted for years: to make the state a clean energy leader, in league with California, Massachusetts and New York.

TOP STORIES

2. FERC:

FirstEnergy, Murray keep the heat on for DOE grid reform

3. ARCTIC:

Trump lawyers, enviros square off over drilling expansion

4. PIPELINES:

Court greenlights Atlantic Sunrise after 2-day freeze

CONGRESS

5. PIPELINES:

Lawmakers push FERC to measure climate costs

6. RISK:

Trump nominee pledges to 'review the science'

ELECTRICITY

7. NUCLEAR:

The steps that saved Vogtle expansion

8. WILDFIRES:

Calif. to consider consumer protections for fire victims

9. TRANSMISSION:

BLM releases analysis of Gateway West lines

OIL AND GAS

10. EFFICIENCY:

Energy Star fate threatens Canada's carbon goals

11. ELECTIONS:

Colo. city votes yes on local oil and gas oversight

12. OIL:

Kan. commission clears path for contested wells

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From: E&E News
To: steve_berendzen@fws.gov
Subject: November 9 -- Energywire is ready
Date: Thursday, November 9, 2017 6:14:26 AM

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From: kevinp
To: gnickas@wildernesswatch.org; dserra@wildernesswatch.org; jsmith@wildernesswatch.org; gary@wildrockies.org; danajohnson@wildernesswatch.org; b6 @gmail.com; b6 @gmail.com; fmauer@mosquitonet.com; roger_kaye@fws.gov; howie@bigwildadventures.c
Subject: From E&E Daily -- ANWR: Murkowski unveils legislation to allow drilling in refuge
Date: Thursday, November 9, 2017 6:20:42 AM

This E&E Daily story was sent to you by: kevinp@wildernesswatch.org

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ANWR

Murkowski unveils legislation to allow drilling in refuge

Kellie Lunney, E&E News reporter

Published: Thursday, November 9, 2017

Senate Energy and Natural Resources Chairwoman Lisa Murkowski (R-Alaska) released legislation last night to make way for drilling in the Arctic National Wildlife Refuge. Energy and Natural Resources Committee/Facebook

Senate legislation unveiled last night to allow oil and gas drilling in part of the 19-million-acre Arctic National Wildlife Refuge would allocate a 50 percent revenue-sharing split between the state of Alaska and the federal government.

Calling it a "tremendous opportunity" for both Alaska and the country, Energy and Natural Resources Chairwoman Lisa Murkowski released her much-anticipated **language** in advance of a markup scheduled for Wednesday.

The Alaska Republican's proposal would require the Interior Department to conduct two lease sales within ANWR's coastal plain within the 10-year budget window.

It also calls for the secretary to "issue any necessary rights-of-way or easements across the coastal

plain for the exploration, development, production, or transportation associated with the oil and gas program," according to a **summary**.

The fiscal 2018 budget resolution, which Congress passed last month, tasked Murkowski's panel with finding $1 billion in new revenues during the next decade as part of a larger GOP effort to accelerate tax cuts through the reconciliation process.

Those instructions gave Murkowski the opportunity to write legislation paving the way for drilling in the refuge's 1.5-million-acre coastal plain, a longtime priority of the Alaska delegation and other Republicans.

Attaching ANWR language to the larger tax package through reconciliation allows it to move by a simple majority vote without the threat of a filibuster. That means it won't need any Democratic support in the Senate.

It's the best shot the Alaska delegation has had in decades to realize its goal of allowing energy development in the refuge's coastal plain, also known as the **1002 area**.

"For over 40 years, Alaskans have led the fight to safely and responsibly unlock the 1002's vast energy resources," Rep. Don Young (R-Alaska) said in a statement. Young, a 23-term lawmaker, has shepherded such legislation successfully through the House more than a dozen times.

"Today is an important step in that process, one that ultimately works to create new jobs and opportunities for our people, generate new revenue and wealth, and strengthen the economic outlook of Alaska and the nation," he added.

In addition to the 50-50 revenue-sharing split between Alaska and Uncle Sam, Murkowski's legislation would impose a 16.67 percent royalty rate for leases.

"The legislation I released tonight will put Alaska and the entire nation on a path toward greater prosperity by creating jobs, keeping energy affordable for families and businesses, generating new wealth, and strengthening our security — while reducing the federal deficit not just by $1 billion over ten years, but tens or even hundreds of billions of dollars over the decades to come," Murkowski said in a statement.

But opponents of drilling in ANWR have argued that the math behind the Republican tax plan and the estimated revenue from drilling in ANWR's 1002 area is fuzzy at best.

The left-leaning Center for American Progress analyzed data based on recent lease sales in the state, which found the federal government could expect closer to $37.5 million in earnings. That is well short of $1 billion.

Michael LaRosa, communications director for the Environment and Natural Resources Committee's top Democrat, Maria Cantwell of Washington, took to Twitter shortly after Murkowski made her announcement criticizing the plan.

"This revenue source will pay for 0.067% (less than one-tenth of one percent) of the cost of tax cuts for the wealthy," he wrote.

Cantwell is a fierce opponent of oil and gas drilling in ANWR and successfully led the last major effort to defeat a Senate measure to allow energy development in the region. That was in 2005.

The Alaska Wilderness League, which has long opposed drilling in the refuge, criticized Murkowski's legislation and blasted Republicans' use of the reconciliation process to try to advance energy development in ANWR.

"It's deplorable that a backdoor budget maneuver is being used to ram Arctic drilling through without a full, fair and open debate," Adam Kolton, the group's executive director, said in a statement. "This bill would allow roads, pipelines, gravel mines and well pads to be erected across the entire birthing grounds of the Coastal Plain, where caribou calve and where polar bear mothers den."

The Wilderness Society also lambasted the bill and its insertion into the budget process.

"Most Americans oppose drilling in the refuge, and the backers of this bill are keenly aware that if it were subject to a full debate and vote, the scheme would lose on the merits," said Nicole Whittington-Evans, the group's Alaska regional director. "With millions of acres already open for oil leasing in the Arctic, industrializing and destroying this refuge makes absolutely no sense."

If Congress ends up approving drilling in ANWR, the process would unfold over several years. Murkowski's legislation stipulates that the Interior Department must conduct the first lease sale within four years of enactment and the second lease sale within seven years of the legislation becoming law.

"Each lease sale must contain at least 400,000 acres and be comprised of those areas that have the highest potential for the discovery of hydrocarbons," the legislative summary said.

Drilling supporters say it not only would boost the economy, but also would strengthen national security because it would make the United States less reliant on foreign oil.

"I have no doubt that this legislation, which would lead to producing more energy responsibly by opening up the small section of the 1002 area in ANWR, will help make the United States the world's energy super power again, will dramatically increase our country's national security and lead to American jobs and productive diplomacy around the globe," Alaska Republican Sen. Dan Sullivan said in a statement.

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From: Philip Liwei
To: Latty, Christopher
Subject: Volunteer update
Date: Thursday, November 9, 2017 7:57:12 AM

Good day Chris,

How do you do?

I am checking in since our last email exchange about volunteering with the Refuge.
In my last email, I noted areas of research and conservation that I'd like to practice/help out with - namely coastal plain migratory birds / remote wilderness field research skills and if possible, I'd be keen to assist with also in the current fight to protect the Refuge from further oil development.

May be easier to talk on the phone eh. b6 [redacted]

Thank you.

--
PHILIP LIWEI 陳立偉

From: Cribley, Bud
To: Gregory Siekaniec; Cynthia Martinez
Cc: Jim Kurth; Greg Sheehan; Barbara Wainman
Subject: Fwd: From E&E Daily -- ANWR: Murkowski unveils legislation to allow drilling in refuge
Date: Thursday, November 9, 2017 7:58:05 AM

I'm sure your all are already aware of the language in the bill, but it is and interesting twist. Would you like to have a discussion or is that premature?

Bud

---------- Forwarded message ----------
From: **bud_cribley** <email_this@eenews.net>
Date: Thu, Nov 9, 2017 at 9:17 AM
Subject: From E&E Daily -- ANWR: Murkowski unveils legislation to allow drilling in refuge
To: bud_cribley@fws.gov

This E&E Daily story was sent to you by: bud_cribley@fws.gov

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ANWR

Murkowski unveils legislation to allow drilling in refuge

Kellie Lunney, E&E News reporter

Published: Thursday, November 9, 2017

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"Today is an important step in that process, one that ultimately works to create new jobs and opportunities for our people, generate new revenue and wealth, and strengthen the economic outlook of Alaska and the nation," he added.

In addition to the 50-50 revenue-sharing split between Alaska and Uncle Sam, Murkowski's legislation would impose a 16.67 percent royalty rate for leases.

"The legislation I released tonight will put Alaska and the entire nation on a path toward greater prosperity by creating jobs, keeping energy affordable for families and businesses, generating new wealth, and strengthening our security — while reducing the federal deficit not just by $1 billion over ten years, but tens or even hundreds of billions of dollars over the

decades to come," Murkowski said in a statement.

But opponents of drilling in ANWR have argued that the math behind the Republican tax plan and the estimated revenue from drilling in ANWR's 1002 area is fuzzy at best.

The left-leaning Center for American Progress analyzed data based on recent lease sales in the state, which found the federal government could expect closer to $37.5 million in earnings. That is well short of $1 billion.

Michael LaRosa, communications director for the Environment and Natural Resources Committee's top Democrat, Maria Cantwell of Washington, took to Twitter shortly after Murkowski made her announcement criticizing the plan.

"This revenue source will pay for 0.067% (less than one-tenth of one percent) of the cost of tax cuts for the wealthy," he wrote.

Cantwell is a fierce opponent of oil and gas drilling in ANWR and successfully led the last major effort to defeat a Senate measure to allow energy development in the region. That was in 2005.

The Alaska Wilderness League, which has long opposed drilling in the refuge, criticized Murkowski's legislation and blasted Republicans' use of the reconciliation process to try to advance energy development in ANWR.

"It's deplorable that a backdoor budget maneuver is being used to ram Arctic drilling through without a full, fair and open debate," Adam Kolton, the group's executive director, said in a statement. "This bill would allow roads, pipelines, gravel mines and well pads to be erected across the entire birthing grounds of the Coastal Plain, where caribou calve and where polar bear mothers den."

The Wilderness Society also lambasted the bill and its insertion into the budget process.

"Most Americans oppose drilling in the refuge, and the backers of this bill are keenly aware that if it were subject to a full debate and vote, the scheme would lose on the merits," said Nicole Whittington-Evans, the group's Alaska regional director. "With millions of acres already open for oil leasing in the Arctic, industrializing and destroying this refuge makes absolutely no sense."

If Congress ends up approving drilling in ANWR, the process would unfold over several years. Murkowski's legislation stipulates that the Interior Department must conduct the first lease sale within four years of enactment and the second lease sale within seven years of the legislation becoming law.

"Each lease sale must contain at least 400,000 acres and be comprised of those areas that have the highest potential for the discovery of hydrocarbons," the legislative summary said.

Drilling supporters say it not only would boost the economy, but also would strengthen national security because it would make the United States less reliant on foreign oil.

"I have no doubt that this legislation, which would lead to producing more energy responsibly by opening up the small section of the 1002 area in ANWR, will help make the United States the world's energy super power again, will dramatically increase our country's national security and lead to American jobs and productive diplomacy around the globe," Alaska Republican Sen. Dan Sullivan said in a statement.

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--
Bud C Cribley
Senior Advisor for Energy with the U.S. Fish & Wildlife Service
Office # 202-208-4331
Cell # 907-717-5141
Office # MIB 3341
email: bud_cribley@fws.gov

From:	Cribley, Bud
To:	Karen Mouritsen; Ted Murphy
Cc:	Steven Cohn; Wayne Svejnoha; Robert Brumbaugh; Serena Sweet; Timothy Spisak; Kathleen Clark; Mitch Ellis
Subject:	Fwd: FYI
Date:	Thursday, November 9, 2017 8:27:58 AM
Attachments:	Map.pdf Proposal.pdf

Here are the maps for the legislation.

Karen/Ted, would one of you give me a call when you get in this morning.

Thanks,

Bud

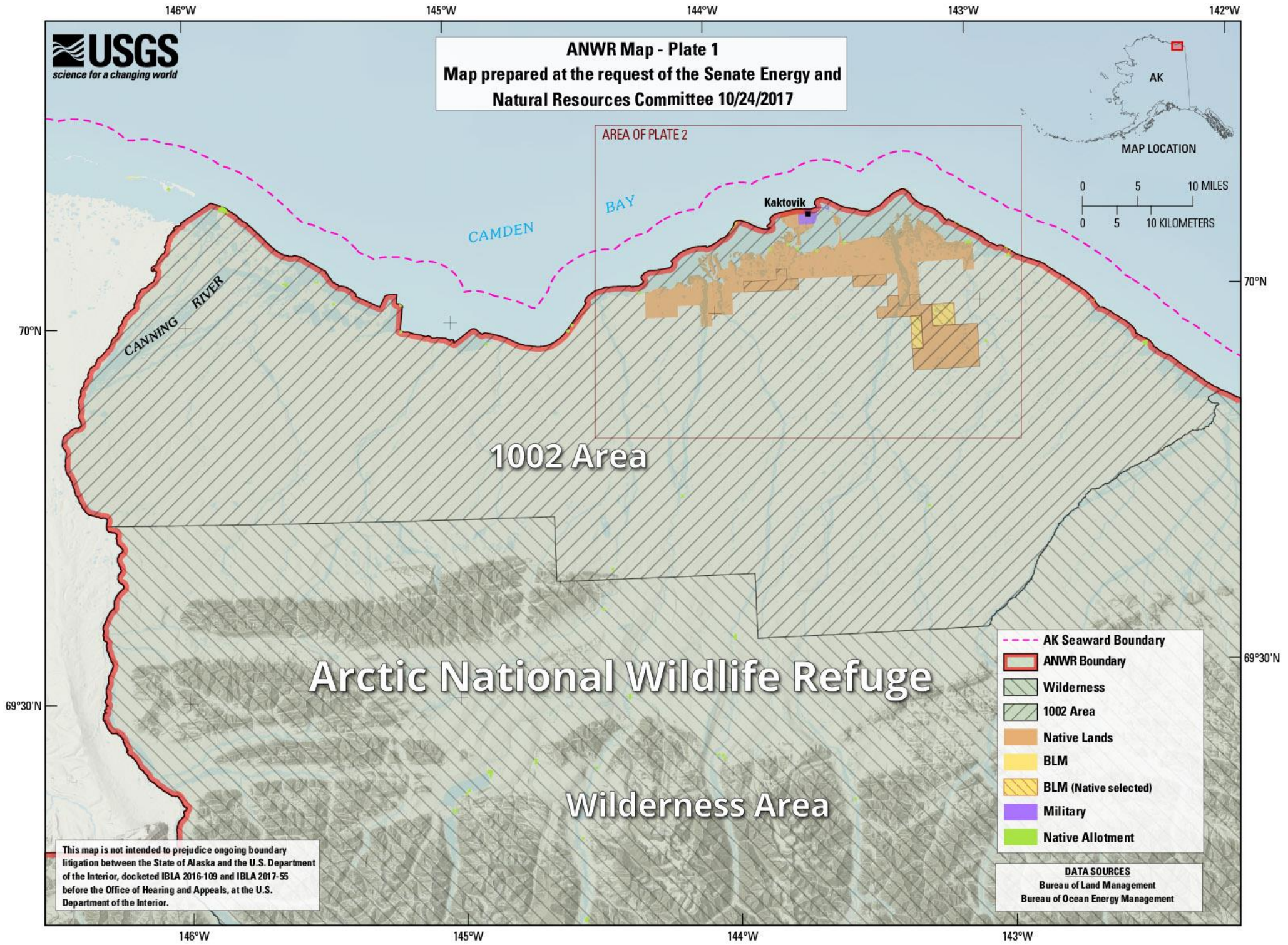
---------- Forwarded message ----------
From: **Covington, Scott** <scott_covington@fws.gov>
Date: Thu, Nov 9, 2017 at 9:32 AM
Subject: FYI
To: Cynthia Martinez <cynthia_martinez@fws.gov>, Shaun Sanchez <shaun_sanchez@fws.gov>, "Ellis, Mitch" <mitch_ellis@fws.gov>, Shannon Smith <shannon_smith@fws.gov>, Bud Cribley <bud_cribley@fws.gov>

Proposed mark up

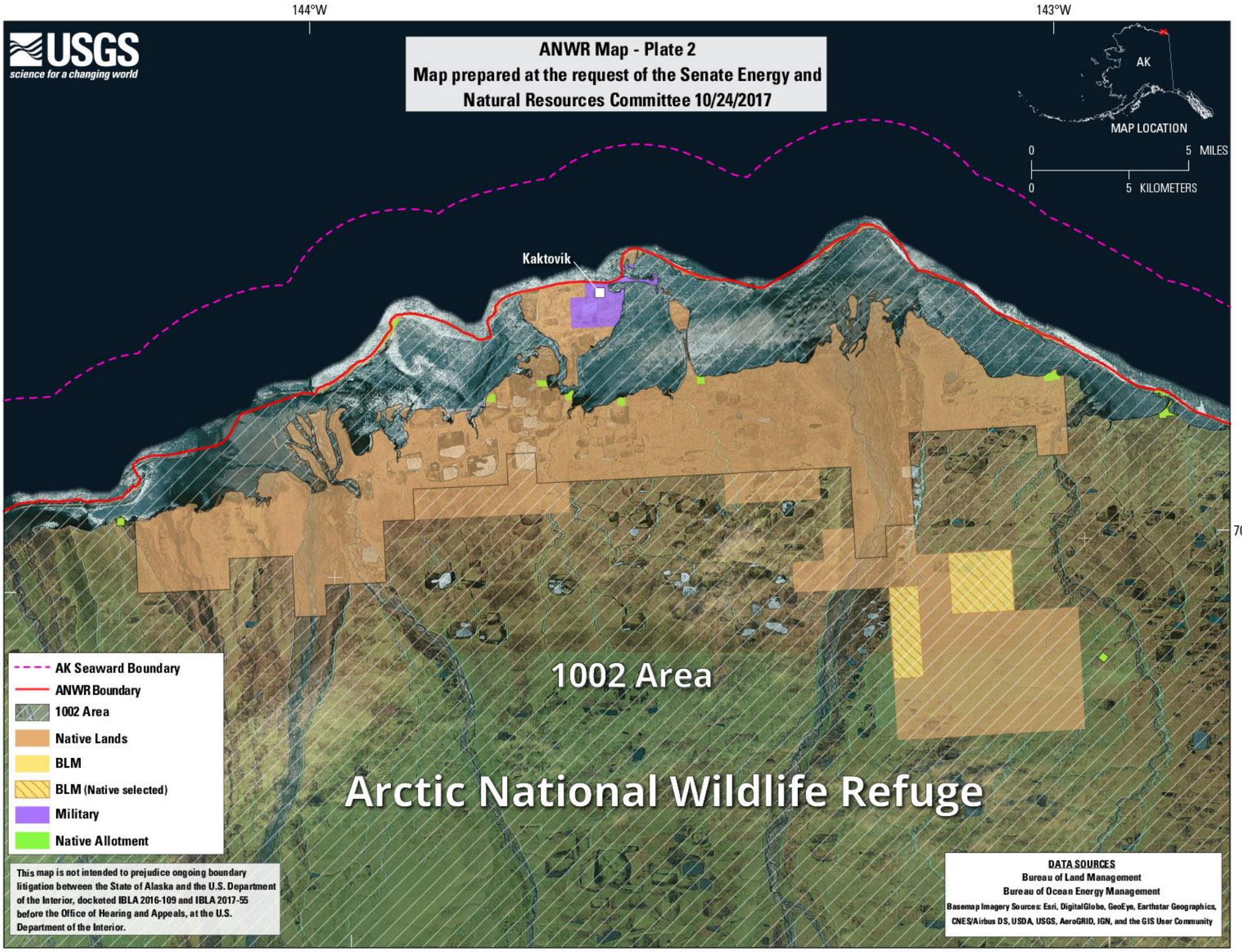
--
--
Scott Covington
US Fish & Wildlife Service, Headquarters
NWRS Senior Ecologist
5275 Leesburg Pike
Falls Church, VA 22041

703-358-2427 (Office)
571-289-5689 (Cell)
scott_covington@fws.gov
www.fws.gov/refuges

--
Bud C Cribley
Senior Advisor for Energy with the U.S. Fish & Wildlife Service
Office # 202-208-4331
Cell # 907-717-5141
Office # MIB 3341
email: bud_cribley@fws.gov


USGS
science for a changing world
ANWR Map - Plate 1
Map prepared at the request of the Senate Energy and Natural Resources Committee 10/24/2017
AREA OF PLATE 2
AK
MAP LOCATION
0 5 10 MILES
0 5 10 KILOMETERS
Kaktovik
BAY
CAMDEN
CANNING RIVER
1002 Area
Arctic National Wildlife Refuge
Wilderness Area
146°W
145°W
144°W
143°W
142°W
70°N
69°30'N
AK Seaward Boundary
ANWR Boundary
Wilderness
1002 Area
Native Lands
BLM
BLM (Native selected)
Military
Native Allotment
DATA SOURCES
Bureau of Land Management
Bureau of Ocean Energy Management
This map is not intended to prejudice ongoing boundary litigation between the State of Alaska and the U.S. Department of the Interior, docketed IBLA 2016-109 and IBLA 2017-55 before the Office of Hearing and Appeals, at the U.S. Department of the Interior.

0000001358


USGS
science for a changing world
ANWR Map - Plate 2
Map prepared at the request of the Senate Energy and Natural Resources Committee 10/24/2017
144°W
143°W
AK
MAP LOCATION
0
5 MILES
0
5 KILOMETERS
Kaktovik
70°N
70°N
1002 Area
Arctic National Wildlife Refuge
AK Seaward Boundary
ANWR Boundary
1002 Area
Native Lands
BLM
BLM (Native selected)
Military
Native Allotment
This map is not intended to prejudice ongoing boundary litigation between the State of Alaska and the U.S. Department of the Interior, docketed IBLA 2016-109 and IBLA 2017-55 before the Office of Hearing and Appeals, at the U.S. Department of the Interior.
DATA SOURCES
Bureau of Land Management
Bureau of Ocean Energy Management
Basemap Imagery Sources: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
144°W
143°W

0000001359

SEC. ___. OIL AND GAS PROGRAM.

(a) DEFINITIONS.—In this section:

(1) COASTAL PLAIN.—The term "Coastal Plain" means the area identified as the 1002 Area on the plates prepared by the United States Geological Survey entitled "ANWR Map – Plate 1" and "ANWR Map – Plate 2", dated October 24, 2017, and on file with the United States Geological Survey and the Office of the Solicitor of the Department of the Interior.

(2) SECRETARY.—The term "Secretary" means the Secretary of the Interior, acting through the Bureau of Land Management.

(b) OIL AND GAS PROGRAM.—

(1) IN GENERAL.—Section 1003 of the Alaska National Interest Lands Conservation Act (16 U.S.C. 3143) is repealed.

(2) ESTABLISHMENT.—

(A) IN GENERAL.—The Secretary shall establish and administer a competitive oil and gas program for the leasing, development, production, and transportation of oil and gas in and from the Coastal Plain.

(B) PURPOSES.—Section 303(2)(B) of the Alaska National Interest Lands Conservation Act (Public Law 96–487; 94 Stat. 2390) is amended—

(i) in clause (iii), by striking "and" at the end;

(ii) in clause (iv), by striking the period at the end and inserting "; and"; and

(iii) by adding at the end the following:

"(v) to provide for an oil and gas program on the Coastal Plain.".

(3) MANAGEMENT.—Except as otherwise provided in this section, the Secretary shall manage the oil and gas program on the Coastal Plain in accordance with the Naval Petroleum Reserves Production Act of 1976 (42 U.S.C. 6501 et seq.) (including regulations).

(4) ROYALTIES.—Notwithstanding the Mineral Leasing Act (30 U.S.C. 181 et seq.), the royalty rate for leases issued pursuant to this section shall be 16.67 percent.

(5) RECEIPTS.—Notwithstanding the Mineral Leasing Act (30 U.S.C. 181 et seq.), of the amount of adjusted bonus, rental, and royalty receipts de-

rived from the oil and gas program and operations on Federal land authorized under this section—

(A) 50 percent shall be paid to the State of Alaska; and

(B) the balance shall be deposited into the Treasury as miscellaneous receipts.

(c) 2 LEASE SALES WITHIN 10 YEARS.—

(1) REQUIREMENT.—

(A) IN GENERAL.—Subject to subparagraph (B), the Secretary shall conduct not fewer than 2 lease sales area-wide under the oil and gas program under this section by not later than 10 years after the date of enactment of this Act.

(B) SALE ACREAGES; SCHEDULE.—

(i) ACREAGES.—The Secretary shall offer for lease under the oil and gas program under this section—

(I) not fewer than 400,000 acres area-wide in each lease sale; and

(II) those areas that have the highest potential for the discovery of hydrocarbons.

(ii) SCHEDULE.—The Secretary shall offer—

(I) the initial lease sale under the oil and gas program under this section not later than 4 years after the date of enactment of this Act; and

(II) a second lease sale under the oil and gas program under this section not later than 7 years after the date of enactment of this Act.

(2) RIGHTS-OF-WAY.—The Secretary shall issue any rights-of-way or easements across the Coastal Plain for the exploration, development, production, or transportation necessary to carry out this section.

(3) SURFACE DEVELOPMENT.—In administering this section, the Secretary shall authorize up to 2,000 surface acres of Federal land on the Coastal Plain to be covered by production and support facilities (including airstrips and any area covered by gravel berms or piers for support of pipelines) during the term of the leases under the oil and gas program under this section.

From: Joanna Fox
To: Berendzen, Steve
Subject: Re: Updates from LCC Visioning....
Date: Thursday, November 9, 2017 8:53:21 AM

Hi Steve,

Steve A will continue working with the Arctic LCC, and plans to participate in this meeting via teleconference next week. Back before we knew whether or not he could remain in his position in an intermittent status, he had given Wendy a heads-up that he would likely be retiring or might be retained specifically to address 1002 issues. He also wasn't available to attend the 2 day meeting they had last week.

Steve will let Wendy know he plans to attend and continue representing us.

Thanks,
Joanna

Sent from my iPad

On Nov 7, 2017, at 9:26 AM, Berendzen, Steve <steve_berendzen@fws.gov> wrote:

> Joanna, I'm thinking this might be a good group for Steve A to stay engaged with. I really think we should keep them apprised of activities and get their combined support through their broader network when needed. Did Steve say anything to you about pulling out of this group?
>
> Steve Berendzen
> Acting Manager, Arctic National Wildlife Refuge
> 907-456-0253
>
> ---------- Forwarded message ----------
> From: **Wendy Loya** <wendy_loya@fws.gov>
> Date: Tue, Nov 7, 2017 at 9:14 AM
> Subject: Re: Updates from LCC Visioning....
> To: "Berendzen, Steve" <steve_berendzen@fws.gov>
>
> Hey Steve,
> Thanks for the note. Steve Arthur has disengaged, but we do have Diane Granfors actively participating. I would welcome anyone from Arctic Refuge Staff to participate and help provide input on where we are going. I am in a meeting today and tomorrow (North Slope Science Initiative) but maybe we could chat on Thursday about how we are hoping to work across the Arctic in synthesizing climate and development impacts? If not this week then let's do that after your NCTC trip?
>
> Thanks!
> Wendy

Dr. Wendy M. Loya, Coordinator
Arctic Landscape Conservation Cooperative (LCC)
Anchorage, Alaska
907.786.3532 (office)
907.227.2942 (mobile)

On Nov 7, 2017, at 09:08, Berendzen, Steve <steve_berendzen@fws.gov> wrote:

> Wendy,
>
> I'll be at NCTC all of next week, so I won't be able to join this one either....
>
> Steve Berendzen
> Acting Manager, Arctic National Wildlife Refuge
> 907-456-0253
>
> On Fri, Nov 3, 2017 at 12:39 PM, Wendy Loya <wendy_loya@fws.gov> wrote:
>
> > Hi Everyone,
> >
> > Please fill out this doodle poll to schedule a meeting among Arctic partners. The Arctic LCC is not operating by Steering Committee at this time, so this is an open and non-advisory conversation about collaborative approaches to Arctic science needs. We'll try to convene in person in Anchorage and Fairbanks with phone connections to bring us together:
> >
> > https://doodle.com/poll/e7y4f8whbgrvm68y
> >
> > I'll send an agenda when we have a time and date chosen.
> >
> > Thanks to those of you that were able to make it to the LCC visioning workshop this week, all of the FWS Science Applications staff are grateful for your time and thoughtful participation!
> >
> > I am glad that a few of us were able to have lunch together this Thursday and start to take a hard look at the Arctic LCC and where we fit in under the new administrative priorities. What I heard was strong support for a collaborative body to continue to implement research recommendations that come out of NSSI and other Arctic

initiatives, including meetings that gather community concerns. We have discussed the need to take time to synthesize the existing climate-driven research, and also think about how to bring together climate and development impacts in cumulative effects analyses in ways that would be broadly useful for everyone from the North Slope Borough to the State to BLM/FWS and also relevant to our Canadian partners and fitting into Arctic Council-level interest in environmental impact assessment.

We'll carry onward with that conversation at the meeting, and invite new voices to share ideas.

Cheers!

Wendy

Dr. Wendy M. Loya, Coordinator

Arctic Landscape Conservation Cooperative (LCC)

Anchorage, Alaska

907.786.3532 (office)

907.227.2942 (mobile)

From: Arthur, Stephen
To: Bertram, Mark
Cc: Christopher Harwood; Roy Churchwell
Subject: Re: biological districting
Date: Thursday, November 9, 2017 9:07:31 AM

That works for me.

Steve

Stephen M. Arthur, Ph.D.
Supervisory Wildlife Biologist
Arctic National Wildlife Refuge
101 12th Ave., Room 236
Fairbanks, AK 99701
(907)455-1830

On Wed, Nov 8, 2017 at 4:18 PM, Bertram, Mark <mark_bertram@fws.gov> wrote:

> Steve,
>
> How about we move it to 3:30pm Alaska Time?
>
> Chris and Roy, can you make that time as well?
>
> Cheers,
> Mark
>
> Mark_Bertram@fws.gov
> Supervisory Wildlife Biologist
> US Fish and Wildlife Service
> Yukon Flats National Wildlife Refuge
> 101 12th Avenue, Room 264
> Fairbanks, Alaska 99701
> Voice: (907) 456-0446
> Cell: (907) 347-1524
> Fax: (907) 456-0447
> Toll Free: 1-800-531-0676
> http://www.fws.gov/refuge/yukon_flats/
> https://www.facebook.com/YukonFlatsNationalWildlifeRefuge/
>
> On Wed, Nov 8, 2017 at 3:50 PM, Arthur, Stephen <stephen_arthur@fws.gov> wrote:
>
> > It seems I have another meeting scheduled from 1-3 on Monday afternoon. Can we reschedule our discussion for either before or after that? I'm available all day.
> >
> > Steve
> >
> > Stephen M. Arthur, Ph.D.
> > *Supervisory Wildlife Biologist*
> > *Arctic National Wildlife Refuge*
> > *101 12th Ave., Room 236*
> > *Fairbanks, AK 99701*
> > *(907)455-1830*

On Wed, Nov 8, 2017 at 10:56 AM, Bertram, Mark <mark_bertram@fws.gov> wrote:

> Sounds good.
>
> Cheers,
> Mark
>
> Mark_Bertram@fws.gov
> Supervisory Wildlife Biologist
> US Fish and Wildlife Service
> Yukon Flats National Wildlife Refuge
> 101 12th Avenue, Room 264
> Fairbanks, Alaska 99701
> Voice: (907) 456-0446
> Cell: (907) 347-1524
> Fax: (907) 456-0447
> Toll Free: 1-800-531-0676
> http://www.fws.gov/refuge/yukon_flats/
> https://www.facebook.com/YukonFlatsNationalWildlifeRefuge/
>
> On Wed, Nov 8, 2017 at 10:18 AM, Harwood, Christopher <christopher_harwood@fws.gov> wrote:
>
> > If it's ok with you two, we're going to have Roy attend, too, as I will not be around for the larger meeting with Doug on December 7.
> >
> > On Tue, Nov 7, 2017 at 8:34 AM, Bertram, Mark <mark_bertram@fws.gov> wrote:
> >
> > > Steve,
> > >
> > > My number is 907 456-0446. We can save you a dime and call you as well if you want to pass on your number.
> > >
> > > So we will all talk on Monday November 13 at 1:30pm Alaska time.
> > >
> > > Cheers,
> > > Mark
> > >
> > > Mark_Bertram@fws.gov
> > > Supervisory Wildlife Biologist
> > > US Fish and Wildlife Service
> > > Yukon Flats National Wildlife Refuge
> > > 101 12th Avenue, Room 264
> > > Fairbanks, Alaska 99701
> > > Voice: (907) 456-0446
> > > Cell: (907) 347-1524
> > > Fax: (907) 456-0447
> > > Toll Free: 1-800-531-0676
> > > http://www.fws.gov/refuge/yukon_flats/

https://www.facebook.com/YukonFlatsNationalWildlifeRefuge/

On Tue, Nov 7, 2017 at 8:09 AM, Arthur, Stephen <stephen_arthur@fws.gov> wrote:

> Yes, I'll plan to call in then. Just let me know what phone number to call.
>
> Steve
>
> Stephen M. Arthur, Ph.D.
> *Supervisory Wildlife Biologist*
> *Arctic National Wildlife Refuge*
> *101 12th Ave., Room 236*
> *Fairbanks, AK 99701*
> *(907)455-1830*

On Mon, Nov 6, 2017 at 9:02 AM, Bertram, Mark <mark_bertram@fws.gov> wrote:

> Steve and Chris,
>
> Would you both be available for a teleconference Monday November 13 at 1:30 pm Alaska Time to discuss biological districting?
>
> Cheers,
> Mark
>
> Mark_Bertram@fws.gov
> Supervisory Wildlife Biologist
> US Fish and Wildlife Service
> Yukon Flats National Wildlife Refuge
> 101 12th Avenue, Room 264
> Fairbanks, Alaska 99701
> Voice: (907) 456-0446
> Cell: (907) 347-1524
> Fax: (907) 456-0447
> Toll Free: 1-800-531-0676
> http://www.fws.gov/refuge/yukon_flats/
> https://www.facebook.com/YukonFlatsNationalWildlifeRefuge/

On Mon, Nov 6, 2017 at 8:52 AM, Harwood, Christopher <christopher_harwood@fws.gov> wrote:

> I think Nov 13 is ok, but we generally have 9:00 staff meeting on Mondays so a later time would be better.
>
> On Mon, Oct 30, 2017 at 4:35 PM, Mark Bertram <mark_bertram@fws.gov> wrote:
>
> > Thanks Steve, I will wait for Chris to weigh in and we will pick a date and time

Sent from my iPhone

On Oct 30, 2017, at 3:43 PM, Arthur, Stephen <stephen_arthur@fws.gov> wrote:

> Nov 13 should work for me, and the previous week would be ok as well (assuming I can call in).
>
> Steve
>
> Stephen M. Arthur, Ph.D.
> *Supervisory Wildlife Biologist*
> *Arctic National Wildlife Refuge*
> *101 12th Ave., Room 236*
> *Fairbanks, AK 99701*
> *(907)455-1830*
>
> On Wed, Oct 25, 2017 at 2:42 PM, Bertram, Mark <mark_bertram@fws.gov> wrote:
>> Hi Chris and Steve,
>>
>> I note you are both out of town with Steve gone thru Nov 10 and Chris thru Nov 5. I propose we get together at 9am Monday Nov 13 to discuss the districting idea. Please let me know if that day/time will work for you.
>>
>> Cheers,
>> Mark
>>
>> Mark_Bertram@fws.gov
>> Supervisory Wildlife Biologist
>> US Fish and Wildlife Service
>> Yukon Flats National Wildlife Refuge
>> 101 12th Avenue, Room 264
>> Fairbanks, Alaska 99701
>> Voice: (907) 456-0446
>> Cell: (907) 347-1524
>> Fax: (907) 456-0447
>> Toll Free: 1-800-531-0676
>> http://www.fws.gov/refuge/yukon_flats/
>> https://www.facebook.com/YukonFlatsNationalWildlifeRefuge/
>>
>> On Wed, Oct 25, 2017 at 2:20 PM, Bertram, Mark <mark_bertram@fws.gov> wrote:
>>> Hi Chris and Steve,
>>>
>>> Nathan Hawkaluk asked me to contact you both as a first

step to opening a dialogue with the Fairbanks refuge biological staff (all 11 of them) regards to identifying strategies for us to get our biological priorities done on refuges as our resources decrease. The regional office refers to this as "Districting".

As is often the case we are given very little information or direction to have this discussion so I am looking at this as a possible scenario building exercise. b5 - DP

So after we talk then we could put together a more organized agenda to have a broader discussion among the full Fairbanks refuge biological staff.

Would you both be available to talk Friday Nov 10 at 9am? Steve, I know you are in the process of moving; so please suggest an alternate date/time if this one is too soon for you.

Cheers,
Mark

Mark_Bertram@fws.gov
Supervisory Wildlife Biologist
US Fish and Wildlife Service
Yukon Flats National Wildlife Refuge
101 12th Avenue, Room 264
Fairbanks, Alaska 99701
Voice: (907) 456-0446
Cell: (907) 347-1524
Fax: (907) 456-0447
Toll Free: 1-800-531-0676
http://www.fws.gov/refuge/yukon_flats/
https://www.facebook.com/YukonFlatsNationalWildlifeRefuge/

--
Christopher Harwood
Wildlife Biologist
U.S. Fish and Wildlife Service
Kanuti National Wildlife Refuge
101 12th Ave.; Room 206
Fairbanks, AK 99701
(907) 455-1836 (w)
(907) 456-0506 (fax)

"In my house, anyone who uses one word when they could have used ten just isn't trying hard."

- Josiah Edward Bartlet, PhD, Nobel Laureate

--
Christopher Harwood
Wildlife Biologist
U.S. Fish and Wildlife Service
Kanuti National Wildlife Refuge
101 12th Ave.; Room 206
Fairbanks, AK 99701
(907) 455-1836 (w)
(907) 456-0506 (fax)

"In my house, anyone who uses one word when they could have used ten just isn't trying hard."

- Josiah Edward Bartlet, PhD, Nobel Laureate

From:	Damberg, Doug
To:	Sarena Selbo
Subject:	Fwd: Murkowski Releases Chairman's Mark to Meet FY2018 Budget Instruction
Date:	Thursday, November 9, 2017 9:43:20 AM
Attachments:	Chairman"s Mark FLO17783 11-15-17 Bus Mtg.pdf Summary of Chairman"s Mark 11-15-17 SENR Cmte Business Meeting.pdf ANWR Map Plate 1 and Plate 2 11-15-17 Bus Mtg.pdf

---

Doug Damberg
Refuge Supervisor, AK North Zone
U.S. Fish and Wildlife Service
1011 E. Tudor Rd.; Anchorage, AK 99503
Office: (907) 786-3329
Cell: (907) 947-6302

---------- Forwarded message ----------
From: **Helfrich, Devin** <devin_helfrich@fws.gov>
Date: Wed, Nov 8, 2017 at 4:48 PM
Subject: Murkowski Releases Chairman's Mark to Meet FY2018 Budget Instruction
To: Amee Howard <amee_howard@fws.gov>, Mitch Ellis <mitch_ellis@fws.gov>, Gregory Siekaniec <gregory_siekaniec@fws.gov>, Karen Clark <karen_clark@fws.gov>, Sara Boario <sara_boario@fws.gov>, Socheata Lor <socheata_lor@fws.gov>, "Damberg, Doug" <doug_damberg@fws.gov>, "Fox, Joanna" <joanna_fox@fws.gov>
Cc: "Martin Kodis (Marty)" <martin_kodis@fws.gov>, Angela Gustavson <angela_gustavson@fws.gov>, Barbara Wainman <barbara_wainman@fws.gov>, Matthew Huggler <matthew_huggler@fws.gov>, Cynthia Martinez <cynthia_martinez@fws.gov>, Shaun Sanchez <shaun_sanchez@fws.gov>

Nov 08 2017

Murkowski Releases Chairman's Mark to Meet FY2018 Budget Instruction

Generates Over $1 Billion in Revenues Over First 10 Years to Reduce Federal Deficit

U.S. Sen. Lisa Murkowski, R-Alaska, today released reconciliation legislation pursuant to the Senate Energy and Natural Resources Committee's instruction to raise $1 billion in federal revenues in H. Con. Res. 71, the Concurrent Resolution on the Budget for Fiscal Year 2018.

"Our instruction is a tremendous opportunity both for our committee and our country," Murkowski said. "The legislation I released tonight will put Alaska and the entire nation on a path toward greater prosperity by creating jobs, keeping energy affordable for families and businesses, generating new wealth, and strengthening our security—while reducing the federal deficit not just by $1 billion over ten years, but tens or even hundreds of billions of dollars over the decades to come."

The reconciliation legislation would authorize limited and responsible energy development in a small part of the non-wilderness portion of the Arctic National Wildlife Refuge in Alaska, known as the "1002 Area" or Coastal Plain.

The Congressional Budget Office estimates the legislation will raise $1.092 billion over the 10-year budget window. Between royalties and federal income taxes, it will raise substantially greater revenues once production from the 1002 Area begins.

View the text of the Chairman's Mark here.

View a summary of the Chairman's Mark here.

View the map referenced in the Chairman's Mark here.

Murkowski is chairman of the Senate Committee on Energy and Natural Resources.

The committee will hold a markup on the legislation a full week from today, on the morning of Wednesday, November 15.

Permalink: https://www.energy.senate.gov/public/index.cfm/2017/11/murkowski-releases-chairman-s-mark-to-meet-fy2018-budget-instruction

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SEC. ___. OIL AND GAS PROGRAM.

(a) DEFINITIONS.—In this section:

(1) COASTAL PLAIN.—The term "Coastal Plain" means the area identified as the 1002 Area on the plates prepared by the United States Geological Survey entitled "ANWR Map – Plate 1" and "ANWR Map – Plate 2", dated October 24, 2017, and on file with the United States Geological Survey and the Office of the Solicitor of the Department of the Interior.

(2) SECRETARY.—The term "Secretary" means the Secretary of the Interior, acting through the Bureau of Land Management.

(b) OIL AND GAS PROGRAM.—

(1) IN GENERAL.—Section 1003 of the Alaska National Interest Lands Conservation Act (16 U.S.C. 3143) is repealed.

(2) ESTABLISHMENT.—

(A) IN GENERAL.—The Secretary shall establish and administer a competitive oil and gas program for the leasing, development, production, and transportation of oil and gas in and from the Coastal Plain.

(B) PURPOSES.—Section 303(2)(B) of the Alaska National Interest Lands Conservation Act (Public Law 96–487; 94 Stat. 2390) is amended—

(i) in clause (iii), by striking "and" at the end;

(ii) in clause (iv), by striking the period at the end and inserting "; and"; and

(iii) by adding at the end the following:

"(v) to provide for an oil and gas program on the Coastal Plain.".

(3) MANAGEMENT.—Except as otherwise provided in this section, the Secretary shall manage the oil and gas program on the Coastal Plain in accordance with the Naval Petroleum Reserves Production Act of 1976 (42 U.S.C. 6501 et seq.) (including regulations).

(4) ROYALTIES.—Notwithstanding the Mineral Leasing Act (30 U.S.C. 181 et seq.), the royalty rate for leases issued pursuant to this section shall be 16.67 percent.

(5) RECEIPTS.—Notwithstanding the Mineral Leasing Act (30 U.S.C. 181 et seq.), of the amount of adjusted bonus, rental, and royalty receipts de-

rived from the oil and gas program and operations on Federal land authorized under this section—

(A) 50 percent shall be paid to the State of Alaska; and

(B) the balance shall be deposited into the Treasury as miscellaneous receipts.

(c) 2 LEASE SALES WITHIN 10 YEARS.—

(1) REQUIREMENT.—

(A) IN GENERAL.—Subject to subparagraph (B), the Secretary shall conduct not fewer than 2 lease sales area-wide under the oil and gas program under this section by not later than 10 years after the date of enactment of this Act.

(B) SALE ACREAGES; SCHEDULE.—

(i) ACREAGES.—The Secretary shall offer for lease under the oil and gas program under this section—

(I) not fewer than 400,000 acres area-wide in each lease sale; and

(II) those areas that have the highest potential for the discovery of hydrocarbons.

(ii) SCHEDULE.—The Secretary shall offer—

(I) the initial lease sale under the oil and gas program under this section not later than 4 years after the date of enactment of this Act; and

(II) a second lease sale under the oil and gas program under this section not later than 7 years after the date of enactment of this Act.

(2) RIGHTS-OF-WAY.—The Secretary shall issue any rights-of-way or easements across the Coastal Plain for the exploration, development, production, or transportation necessary to carry out this section.

(3) SURFACE DEVELOPMENT.—In administering this section, the Secretary shall authorize up to 2,000 surface acres of Federal land on the Coastal Plain to be covered by production and support facilities (including airstrips and any area covered by gravel berms or piers for support of pipelines) during the term of the leases under the oil and gas program under this section.

Summary of Chairman's Mark
Reconciliation Legislation

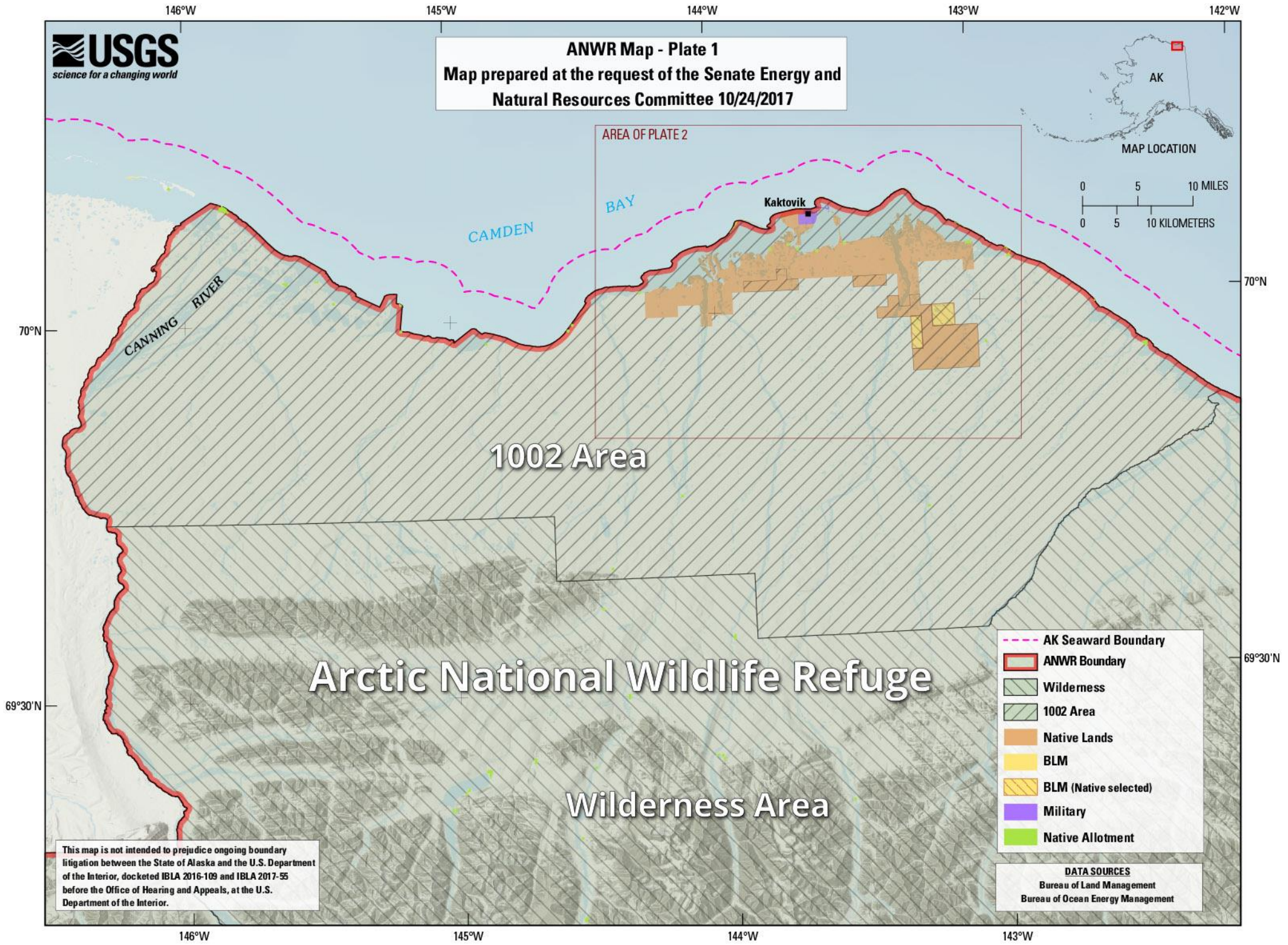
Pursuant to H. Con. Res. 71, the Concurrent Resolution on the Budget for Fiscal Year 2018, the reconciliation legislation contained in the Chairman's Mark directs the Secretary of the Interior to establish and administer a competitive oil and gas program in the non-wilderness portion of the Arctic National Wildlife Refuge, known as the "1002 Area" or Coastal Plain. The legislation defines the term "Coastal Plain" by referencing Plate 1 and Plate 2 of the October 24, 2017 Map prepared by the United States Geological Survey.

The legislation repeals the prohibition on development from the Coastal Plain contained in section 1003 of the Alaska National Interest Lands Conservation Act (16 U.S.C. 3143), and directs the Secretary to manage the oil and gas program on the Coastal Plain in accordance with the Naval Petroleum Reserves Production Act of 1976 (42 U.S.C. 6501 et seq.), except as otherwise provided. The text imposes a royalty rate for leases at 16.67 percent and allocates 50 percent of the revenue derived from the program to the State of Alaska, with the remainder going to the federal Treasury.

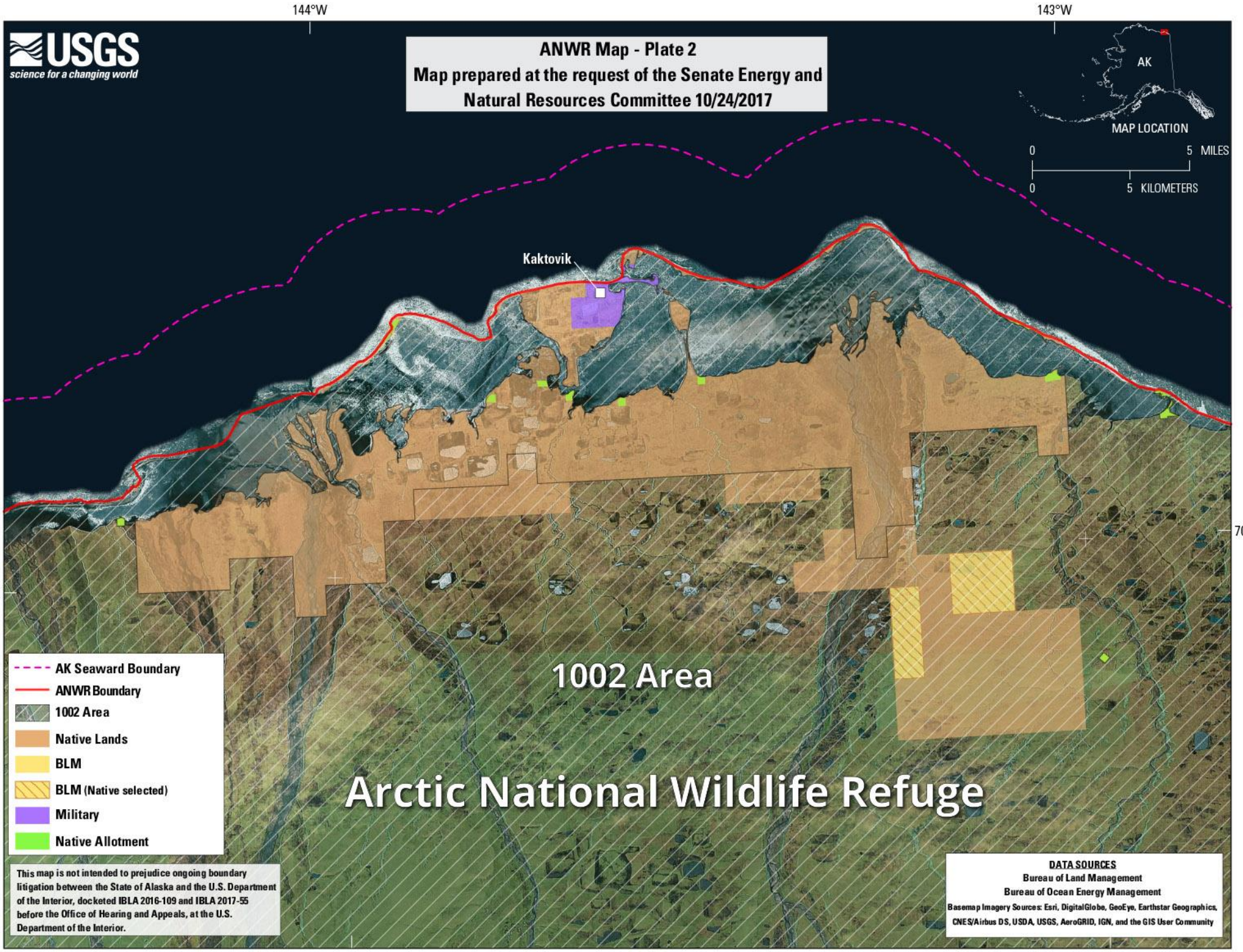
The legislation requires the Secretary to conduct at least two area-wide lease sales within the 10-year budget window. The first lease sale is to be held within four years of the Act's enactment and the second lease sale within seven years of enactment. Each lease sale must contain at least 400,000 acres and be comprised of those areas that have the highest potential for the discovery of hydrocarbons.

The legislation further directs the Secretary to issue any necessary rights-of-way or easements across the Coastal Plain for the exploration, development, production, or transportation associated with the oil and gas program. Additionally, the text limits surface development on federal land on the Coastal Plain to 2,000 acres.

The Congressional Budget Office estimates this reconciliation legislation will raise $1.092 billion over the 10-year budget window.


USGS
science for a changing world
ANWR Map - Plate 1
Map prepared at the request of the Senate Energy and Natural Resources Committee 10/24/2017
AREA OF PLATE 2
AK
MAP LOCATION
0 5 10 MILES
0 5 10 KILOMETERS
Kaktovik
CAMDEN BAY
CANNING RIVER
1002 Area
Arctic National Wildlife Refuge
Wilderness Area
146°W
145°W
144°W
143°W
142°W
70°N
69°30'N
AK Seaward Boundary
ANWR Boundary
Wilderness
1002 Area
Native Lands
BLM
BLM (Native selected)
Military
Native Allotment
DATA SOURCES
Bureau of Land Management
Bureau of Ocean Energy Management
This map is not intended to prejudice ongoing boundary litigation between the State of Alaska and the U.S. Department of the Interior, docketed IBLA 2016-109 and IBLA 2017-55 before the Office of Hearing and Appeals, at the U.S. Department of the Interior.

0000001380


USGS
science for a changing world
ANWR Map - Plate 2
Map prepared at the request of the Senate Energy and Natural Resources Committee 10/24/2017
144°W
143°W
AK
MAP LOCATION
0
5 MILES
0
5 KILOMETERS
Kaktovik
70°N
70°N
1002 Area
Arctic National Wildlife Refuge
AK Seaward Boundary
ANWR Boundary
1002 Area
Native Lands
BLM
BLM (Native selected)
Military
Native Allotment
This map is not intended to prejudice ongoing boundary litigation between the State of Alaska and the U.S. Department of the Interior, docketed IBLA 2016-109 and IBLA 2017-55 before the Office of Hearing and Appeals, at the U.S. Department of the Interior.
DATA SOURCES
Bureau of Land Management
Bureau of Ocean Energy Management
Basemap Imagery Sources: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
144°W
143°W

0000001381

From: Harwood, Christopher
To: Bertram, Mark
Cc: Arthur, Stephen; Roy Churchwell
Subject: Re: biological districting
Date: Thursday, November 9, 2017 9:55:33 AM

Roy and I typically leave at 4. Is 30 minutes enough or should we plan on staying later (4:30?)?

We could likely do first thing (start no later than 8) and go to 9-9:30. I'd ask Tina to delay our staff meeting to 9:30.

On Wed, Nov 8, 2017 at 4:18 PM, Bertram, Mark <mark_bertram@fws.gov> wrote:

> Steve,
>
> How about we move it to 3:30pm Alaska Time?
>
> Chris and Roy, can you make that time as well?
>
> Cheers,
> Mark
>
> Mark_Bertram@fws.gov
> Supervisory Wildlife Biologist
> US Fish and Wildlife Service
> Yukon Flats National Wildlife Refuge
> 101 12th Avenue, Room 264
> Fairbanks, Alaska 99701
> Voice: (907) 456-0446
> Cell: (907) 347-1524
> Fax: (907) 456-0447
> Toll Free: 1-800-531-0676
> http://www.fws.gov/refuge/yukon_flats/
> https://www.facebook.com/YukonFlatsNationalWildlifeRefuge/
>
> On Wed, Nov 8, 2017 at 3:50 PM, Arthur, Stephen <stephen_arthur@fws.gov> wrote:
>
> > It seems I have another meeting scheduled from 1-3 on Monday afternoon. Can we reschedule our discussion for either before or after that? I'm available all day.
> >
> > Steve
> >
> > Stephen M. Arthur, Ph.D.
> > *Supervisory Wildlife Biologist*
> > *Arctic National Wildlife Refuge*
> > *101 12th Ave., Room 236*
> > *Fairbanks, AK 99701*
> > *(907)455-1830*
> >
> > On Wed, Nov 8, 2017 at 10:56 AM, Bertram, Mark <mark_bertram@fws.gov> wrote:
> >
> > > Sounds good.
> > >
> > > Cheers,

Mark

Mark_Bertram@fws.gov
Supervisory Wildlife Biologist
US Fish and Wildlife Service
Yukon Flats National Wildlife Refuge
101 12th Avenue, Room 264
Fairbanks, Alaska 99701
Voice: (907) 456-0446
Cell: (907) 347-1524
Fax: (907) 456-0447
Toll Free: 1-800-531-0676
http://www.fws.gov/refuge/yukon_flats/
https://www.facebook.com/YukonFlatsNationalWildlifeRefuge/

On Wed, Nov 8, 2017 at 10:18 AM, Harwood, Christopher <christopher_harwood@fws.gov> wrote:

> If it's ok with you two, we're going to have Roy attend, too, as I will not be around for the larger meeting with Doug on December 7.
>
> On Tue, Nov 7, 2017 at 8:34 AM, Bertram, Mark <mark_bertram@fws.gov> wrote:
>
> > Steve,
> >
> > My number is 907 456-0446. We can save you a dime and call you as well if you want to pass on your number.
> >
> > So we will all talk on Monday November 13 at 1:30pm Alaska time.
> >
> > Cheers,
> > Mark
> >
> > Mark_Bertram@fws.gov
> > Supervisory Wildlife Biologist
> > US Fish and Wildlife Service
> > Yukon Flats National Wildlife Refuge
> > 101 12th Avenue, Room 264
> > Fairbanks, Alaska 99701
> > Voice: (907) 456-0446
> > Cell: (907) 347-1524
> > Fax: (907) 456-0447
> > Toll Free: 1-800-531-0676
> > http://www.fws.gov/refuge/yukon_flats/
> > https://www.facebook.com/YukonFlatsNationalWildlifeRefuge/
> >
> > On Tue, Nov 7, 2017 at 8:09 AM, Arthur, Stephen <stephen_arthur@fws.gov> wrote:

Yes, I'll plan to call in then. Just let me know what phone number to call.

Steve

Stephen M. Arthur, Ph.D.
Supervisory Wildlife Biologist
Arctic National Wildlife Refuge
101 12th Ave., Room 236
Fairbanks, AK 99701
(907)455-1830

On Mon, Nov 6, 2017 at 9:02 AM, Bertram, Mark <mark_bertram@fws.gov> wrote:

> Steve and Chris,
>
> Would you both be available for a teleconference Monday November 13 at 1:30 pm Alaska Time to discuss biological districting?
>
> Cheers,
> Mark
>
> Mark_Bertram@fws.gov
> Supervisory Wildlife Biologist
> US Fish and Wildlife Service
> Yukon Flats National Wildlife Refuge
> 101 12th Avenue, Room 264
> Fairbanks, Alaska 99701
> Voice: (907) 456-0446
> Cell: (907) 347-1524
> Fax: (907) 456-0447
> Toll Free: 1-800-531-0676
> http://www.fws.gov/refuge/yukon_flats/
> https://www.facebook.com/YukonFlatsNationalWildlifeRefuge/
>
> On Mon, Nov 6, 2017 at 8:52 AM, Harwood, Christopher <christopher_harwood@fws.gov> wrote:
>
> > I think Nov 13 is ok, but we generally have 9:00 staff meeting on Mondays so a later time would be better.
> >
> > On Mon, Oct 30, 2017 at 4:35 PM, Mark Bertram <mark_bertram@fws.gov> wrote:
> >
> > > Thanks Steve, I will wait for Chris to weigh in and we will pick a date and time
> > >
> > > Sent from my iPhone
> > >
> > > On Oct 30, 2017, at 3:43 PM, Arthur, Stephen <stephen_arthur@fws.gov> wrote:

Nov 13 should work for me, and the previous week would be ok as well (assuming I can call in).

Steve

Stephen M. Arthur, Ph.D.
Supervisory Wildlife Biologist
Arctic National Wildlife Refuge
101 12th Ave., Room 236
Fairbanks, AK 99701
(907)455-1830

On Wed, Oct 25, 2017 at 2:42 PM, Bertram, Mark <mark_bertram@fws.gov> wrote:

> Hi Chris and Steve,
>
> I note you are both out of town with Steve gone thru Nov 10 and Chris thru Nov 5. I propose we get together at 9am Monday Nov 13 to discuss the districting idea. Please let me know if that day/time will work for you.
>
> Cheers,
> Mark
>
> Mark_Bertram@fws.gov
> Supervisory Wildlife Biologist
> US Fish and Wildlife Service
> Yukon Flats National Wildlife Refuge
> 101 12th Avenue, Room 264
> Fairbanks, Alaska 99701
> Voice: (907) 456-0446
> Cell: (907) 347-1524
> Fax: (907) 456-0447
> Toll Free: 1-800-531-0676
> http://www.fws.gov/refuge/yukon_flats/
> https://www.facebook.com/YukonFlatsNationalWildlifeRefuge/

On Wed, Oct 25, 2017 at 2:20 PM, Bertram, Mark <mark_bertram@fws.gov> wrote:

> Hi Chris and Steve,
>
> Nathan Hawkaluk asked me to contact you both as a first step to opening a dialogue with the Fairbanks refuge biological staff (all 11 of them) regards to identifying strategies for us to get our biological priorities done on refuges as our resources decrease. The regional office refers to this as "Districting".

As is often the case we are given very little information or direction to have this discussion so I am looking at this as a possible scenario building exercise. b5 - DP

[redacted]

So after we talk then we could put together a more organized agenda to have a broader discussion among the full Fairbanks refuge biological staff.

Would you both be available to talk Friday Nov 10 at 9am? Steve, I know you are in the process of moving; so please suggest an alternate date/time if this one is too soon for you.

Cheers,
Mark

Mark_Bertram@fws.gov
Supervisory Wildlife Biologist
US Fish and Wildlife Service
Yukon Flats National Wildlife Refuge
101 12th Avenue, Room 264
Fairbanks, Alaska 99701
Voice: (907) 456-0446
Cell: (907) 347-1524
Fax: (907) 456-0447
Toll Free: 1-800-531-0676
http://www.fws.gov/refuge/yukon_flats/
https://www.facebook.com/YukonFlatsNationalWildlifeRefuge/

--
Christopher Harwood
Wildlife Biologist
U.S. Fish and Wildlife Service
Kanuti National Wildlife Refuge

101 12th Ave.; Room 206
Fairbanks, AK 99701
(907) 455-1836 (w)
(907) 456-0506 (fax)

"In my house, anyone who uses one word when they could have used ten just isn't trying hard."

- Josiah Edward Bartlet, PhD, Nobel Laureate

--
Christopher Harwood
Wildlife Biologist
U.S. Fish and Wildlife Service
Kanuti National Wildlife Refuge
101 12th Ave.; Room 206
Fairbanks, AK 99701
(907) 455-1836 (w)
(907) 456-0506 (fax)

"In my house, anyone who uses one word when they could have used ten just isn't trying hard."

- Josiah Edward Bartlet, PhD, Nobel Laureate

From: Google Alerts
To: sara_boario@fws.gov
Subject: Google Alert - Arctic National Wildlife Refuge
Date: Thursday, November 9, 2017 10:00:58 AM

Google Alerts

Arctic National Wildlife Refuge

Daily update · November 9, 2017

NEWS

Governor wrong on **ANWR**

Fairbanks Daily News-Miner

Walker with the words “delivering **ANWR**” in the headline. I take issue with our governor “delivering” something he does not own. The Arctic National ...

Murphy: Do we really need **arctic** drilling for energy security? - Greeley Tribune

Full Coverage

Flag as irrelevant

Woolston: America's security and economy depend on **ANWR**

The Durango Herald

The **Arctic National Wildlife Refuge** (**ANWR**) is a refuge on the northeast tip of Alaska's Arctic Slope. The 1002 area of **ANWR**, a 1.5-million acre ...

Flag as irrelevant

Alaskans differ as Senate debates drilling in **Arctic refuge**

WPXI Pittsburgh

WASHINGTON (AP) - Oil drilling in the **Arctic National Wildlife Refuge** would create jobs and enhance energy security, while maintaining important ...

Flag as irrelevant

Canary in the Climate Mine: **Arctic** Seabird's Future Is on Thin Ice

News Deeply

Canary in the Climate Mine: Arctic Seabird's Future Is on Thin Ice .... Even though this area abuts the **Arctic National Wildlife Refuge**, Dunton said ...

Flag as irrelevant

Groups push for energy incentives in upcoming Senate bill

E&E News

... **Arctic National Wildlife Refuge**. The Senate GOP budget, adopted last month, called for drilling in **ANWR** to help cover the cost of the tax package.

Flag as irrelevant

AJOC EDITORIAL: Trump administration breathes life into Alaska

Alaskajournal.com

This December, the entire available area of the National Petroleum ... open the coastal plain of the **Arctic National Wildlife Refuge** to development as ...

Flag as irrelevant

Honor Andrus

Idaho Mountain Express and Guide

As secretary of the interior, Andrus also drove creation of the **Arctic National Wildlife Refuge** as part of 100 million acres that received federal ...

Flag as irrelevant

Optimism abounds in advance of annual RDC gathering

Alaskajournal.com

... late and Congress, led by the Alaska delegation, appears as close as ever to opening the **Arctic National Wildlife Refuge** to oil and gas exploration.

Flag as irrelevant

In praise of parks, in fear of frats

The Observer Online (press release) (blog)

There are prospects for Congress lifting the current ban on uranium mining near the Grand Canyon and opening up the **Arctic National Wildlife Refuge** ...

Flag as irrelevant

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Unsubscribe | View all your alerts

Receive this alert as RSS feed

Send Feedback

From: Granfors, Diane
To: Ryan Mollnow
Cc: Brady, Stephanie; Lor, Socheata; Tracy Fischbach; Fox, Joanna; Damberg, Doug; Steve Berendzen; John Brewer
Subject: Re: Arctic NWR Vintage Seismic Data from 1980s
Date: Thursday, November 9, 2017 10:05:14 AM

Perhaps to be added to the documents Realty is already having entered by ARLIS? If not that many, we could just do ourselves.

On Wed, Nov 8, 2017 at 4:47 PM, Ryan Mollnow <ryan_mollnow@fws.gov> wrote:

> I am thinking these documents should all end up in ServCat. Stephanie what do you think? Joanna, how much of Arctic's historical data/files have been uploaded to ServCat? This might be something for us to initiate sooner than later to help with analysis.
>
> Thanks
> Ryan
>
> Sent from my iPhone
>
> On Nov 7, 2017, at 3:54 PM, Brady, Stephanie <stephanie_brady@fws.gov> wrote:
>
> > I am searching through the files that we have on our planning drive - I have looped in Tracy because she has a better handle on where these documents might reside - if we have it. Stephanie
> >
> > stephanie_brady@fws.gov | Branch Chief, Conservation Planning and Policy |
> > U.S. Fish and Wildlife Service | National Wildlife Refuge System | Alaska |
> > 907.306.7448
> > *Did you know?*
> > The **National Wildlife Refuge System** has:
> > 50 million annual visitors, 850 million acres, and 566 units.
> >
> > ---------- Forwarded message ----------
> > From: **Lor, Socheata** <socheata_lor@fws.gov>
> > Date: Tue, Nov 7, 2017 at 12:42 PM
> > Subject: Re: Arctic NWR Vintage Seismic Data from 1980s
> > To: "Fox, Joanna" <joanna_fox@fws.gov>
> > Cc: "Damberg, Doug" <doug_damberg@fws.gov>, Ryan Mollnow <ryan_mollnow@fws.gov>, "Brady, Stephanie" <stephanie_brady@fws.gov>, Steve Berendzen <steve_berendzen@fws.gov>, John Brewer <john_brewer@fws.gov>
> >
> > Thanks for keeping us posted, Joanna. John Brewer is also looking and he found a couple of Records of Decision (1984 and 1985) and he's still looking.
> >
> > Soch
> > ~~~~~~~~~~~~~~~~~

Socheata Lor, Ph.D.
Deputy Assistant Regional Director - Region 7
National Wildlife Refuge System
U.S. Fish and Wildlife Service
1011 E. Tudor Road
Anchorage, AK 99503
Office: 907.786.3420
Cell: 907.891.6194
~~~~~~~~~~~~~~~~~

On Tue, Nov 7, 2017 at 12:23 PM, Fox, Joanna <joanna_fox@fws.gov> wrote:

> I'm finding some files, and still looking for more. We've scanned what we've located so far, but I'm still looking for the 1983 Exploration Plan (I located a 1985 "amended" plan).
>
> _____
> Joanna L. Fox
> Deputy Refuge Manager
> Arctic National Wildlife Refuge
> 101 12th Avenue, Room 236
> Fairbanks, AK 99701
> (907) 456-0549
>
> Follow us on Facebook!
> www.facebook.com/arcticnationalwildliferefuge
>
> *"Do what you can, with what you have, where you are." -- Theodore Roosevelt*
>
> On Tue, Nov 7, 2017 at 12:20 PM, Damberg, Doug <doug_damberg@fws.gov> wrote:
>
> > see Doug C's note below re: Planning files
> >
> > Doug Damberg
> > Refuge Supervisor, AK North Zone
> > U.S. Fish and Wildlife Service
> > 1011 E. Tudor Rd.; Anchorage, AK 99503
> > Office: (907) 786-3329
> > Cell: (907) 947-6302
> >
> > ---------- Forwarded message ----------
> > From: **Douglas Campbell** <douglas_campbell@fws.gov>
> > Date: Tue, Nov 7, 2017 at 8:56 AM
> > Subject: Re: Arctic NWR Vintage Seismic Data from 1980s
> > To: "Damberg, Doug" <doug_damberg@fws.gov>
> >
> >
> > Doug
> >
> > Steve B was able to find the SUP for the seismic. It's possible they have the
~~~~~~~~~~~~~~~~~

results. I've not come across it in any of the realty files.

The other possibility is that Planning may have a copy that would be in the boxes HQ sent us several years ago that have info from the EIS etc of the development plan. John Martin or Pete Wikoff may know.

Sent from my iPhone

On Nov 7, 2017, at 8:51 AM, Damberg, Doug <doug_damberg@fws.gov> wrote:

> Doug C and John -
> Please see the email string below an let us know Realty has any of this information.
> Thx,
>
> Doug Damberg
> Refuge Supervisor, AK North Zone
> U.S. Fish and Wildlife Service
> 1011 E. Tudor Rd.; Anchorage, AK 99503
> Office: (907) 786-3329
> Cell: (907) 947-6302
>
> On Tue, Nov 7, 2017 at 7:29 AM, Mitch Ellis <mitch_ellis@fws.gov> wrote:
>> Joanna and Doug - see email string below. Joe Darnell is asking for some correspondence and plans that Arctic may have in the files? Maybe check with Realty as well. Thanks.
>>
>> Sent from my iPhone
>>
>> Begin forwarded message:
>>
>> **From:** Mitch Ellis <mitch_ellis@fws.gov>
>> **Date:** November 7, 2017 at 7:26:16 AM AKST
>> **To:** Karen Clark <karen_clark@fws.gov>
>> **Subject: Re: Arctic NWR Vintage Seismic Data from 1980s**
>>
>> We'll see if we can track it down.
>>
>> Sent from my iPhone
>>
>> On Nov 7, 2017, at 6:12 AM, Karen Clark <karen_clark@fws.gov> wrote:
>>
>> Hey Mitch,

Any thoughts about where a copy of this plan could be obtained? Do you think it could be in Arctic Refuge files? Let me know what you think so we can track this down.

Thanks, Karen

Sent from my iPhone

Begin forwarded message:

> **From:** Greg Siekaniec <greg_siekaniec@fws.gov>
> **Date:** November 6, 2017 at 7:02:38 PM AKST
> **To:** karen_clark@fws.gov
> **Subject: Fwd: Arctic NWR Vintage Seismic Data from 1980s**
>
> Karen,
>
> Please see Joe Darnell's request for old seismic data correspondence and information. Can you begin to investigate this question? BLM May hold some of the information but we should have the correspondence in our files. Perhaps at Arctic NWR?
>
> Thank you,
>
> Greg
>
> Sent from my iPhone
>
> Begin forwarded message:
>
> **From:**

"Darnell, Joseph" <joe.darnell@sol.doi.gov>
Date: November 6, 2017 at 7:31:46 PM CST
To: Greg Siekaniec <greg_siekaniec@fws.gov>
Subject: **Arctic NWR Vintage Seismic Data from 1980s**

Greg -

Some legal question have come up over the status of the seismic data collected during the 1980s. I need to know where to secure a copy of the exploration plan submitted to the Service to secure the permit and any correspondence between the Service and the permittee over the terms of the permit and handling of data from the exploration work.

Thanks.

Joe

Joseph Darnell
Regional Solicitor
Alaska Region - Dept. of the Interior
Anchorage, Alaska
Direct Phone (907) 271-4118 /
Main Office Phone (907) 271-4131
Fax (907) 271-4143 /
Mobile (907) 301-6687
joe.darnell@sol.doi.gov

--

Diane Granfors, PhD
Alaska Region Inventory and Monitoring Coordinator
National Wildlife Refuge System
U.S. Fish and Wildlife Service
1011 East Tudor Road, MS 235
Anchorage, AK 99503
diane_granfors@fws.gov
907-786-3429

Collaborative ecosystem science to inform National Wildlife Refuge System conservation decisions in Alaska.

From:	Howard, Amee
To:	Mary Colligan; Jenifer Kohout; Patrick Lemons; Leonetti, Crystal; Andrea Medeiros; Eric Taylor
Subject:	Fwd: Murkowski Releases Chairman's Mark to Meet FY2018 Budget Instruction
Date:	Thursday, November 9, 2017 10:37:50 AM
Attachments:	Chairman"s Mark FLO17783 11-15-17 Bus Mtg.pdf Summary of Chairman"s Mark 11-15-17 SENR Cmte Business Meeting.pdf ANWR Map Plate 1 and Plate 2 11-15-17 Bus Mtg.pdf

---

Hi All,

FYI - Updated information on oil and gas efforts by Congress for Arctic.

Let me know if you have any questions.
Thanks so much!
Amee

---------- Forwarded message ----------
From: **Helfrich, Devin** <devin_helfrich@fws.gov>
Date: Wed, Nov 8, 2017 at 4:48 PM
Subject: Murkowski Releases Chairman's Mark to Meet FY2018 Budget Instruction
To: Amee Howard <amee_howard@fws.gov>, Mitch Ellis <mitch_ellis@fws.gov>, Gregory Siekaniec <gregory_siekaniec@fws.gov>, Karen Clark <karen_clark@fws.gov>, Sara Boario <sara_boario@fws.gov>, Socheata Lor <socheata_lor@fws.gov>, "Damberg, Doug" <doug_damberg@fws.gov>, "Fox, Joanna" <joanna_fox@fws.gov>
Cc: "Martin Kodis (Marty)" <martin_kodis@fws.gov>, Angela Gustavson <angela_gustavson@fws.gov>, Barbara Wainman <barbara_wainman@fws.gov>, Matthew Huggler <matthew_huggler@fws.gov>, Cynthia Martinez <cynthia_martinez@fws.gov>, Shaun Sanchez <shaun_sanchez@fws.gov>

Nov 08 2017

Murkowski Releases Chairman's Mark to Meet FY2018 Budget Instruction

Generates Over $1 Billion in Revenues Over First 10 Years to Reduce Federal Deficit

U.S. Sen. Lisa Murkowski, R-Alaska, today released reconciliation legislation pursuant to the Senate Energy and Natural Resources Committee's instruction to raise $1 billion in federal revenues in H. Con. Res. 71, the Concurrent Resolution on the Budget for Fiscal Year 2018.

"Our instruction is a tremendous opportunity both for our committee and our country," Murkowski said. "The legislation I released tonight will put Alaska and the entire nation on a path toward greater prosperity by creating jobs, keeping energy affordable for families and businesses, generating new wealth, and strengthening our security—while reducing the federal deficit not just by $1 billion over ten years, but tens or even hundreds of billions of dollars over the decades to come."

The reconciliation legislation would authorize limited and responsible energy development in a small part of the non-wilderness portion of the Arctic National Wildlife Refuge in Alaska, known as the "1002 Area" or Coastal Plain.

The Congressional Budget Office estimates the legislation will raise $1.092 billion over the 10-year budget window. Between royalties and federal income taxes, it will raise substantially greater revenues once production from the 1002 Area begins.

View the text of the Chairman's Mark here.

View a summary of the Chairman's Mark here.

View the map referenced in the Chairman's Mark here.

Murkowski is chairman of the Senate Committee on Energy and Natural Resources.

The committee will hold a markup on the legislation a full week from today, on the morning of Wednesday, November 15.

Permalink: https://www.energy.senate.gov/public/index.cfm/2017/11/murkowski-releases-chairman-s-mark-to-meet-fy2018-budget-instruction

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Amee Howard
Congressional and Legislative Affairs
U.S. Fish & Wildlife Service
Anchorage, Alaska
Office: (907)786-3509
Mobile: (907)229-8575
https://www.fws.gov/alaska/
"Conservation Begins with Hello"

SEC. ___. OIL AND GAS PROGRAM.

(a) DEFINITIONS.—In this section:

(1) COASTAL PLAIN.—The term "Coastal Plain" means the area identified as the 1002 Area on the plates prepared by the United States Geological Survey entitled "ANWR Map – Plate 1" and "ANWR Map – Plate 2", dated October 24, 2017, and on file with the United States Geological Survey and the Office of the Solicitor of the Department of the Interior.

(2) SECRETARY.—The term "Secretary" means the Secretary of the Interior, acting through the Bureau of Land Management.

(b) OIL AND GAS PROGRAM.—

(1) IN GENERAL.—Section 1003 of the Alaska National Interest Lands Conservation Act (16 U.S.C. 3143) is repealed.

(2) ESTABLISHMENT.—

(A) IN GENERAL.—The Secretary shall establish and administer a competitive oil and gas program for the leasing, development, production, and transportation of oil and gas in and from the Coastal Plain.

(B) PURPOSES.—Section 303(2)(B) of the Alaska National Interest Lands Conservation Act (Public Law 96–487; 94 Stat. 2390) is amended—

(i) in clause (iii), by striking "and" at the end;

(ii) in clause (iv), by striking the period at the end and inserting "; and"; and

(iii) by adding at the end the following:

"(v) to provide for an oil and gas program on the Coastal Plain.".

(3) MANAGEMENT.—Except as otherwise provided in this section, the Secretary shall manage the oil and gas program on the Coastal Plain in accordance with the Naval Petroleum Reserves Production Act of 1976 (42 U.S.C. 6501 et seq.) (including regulations).

(4) ROYALTIES.—Notwithstanding the Mineral Leasing Act (30 U.S.C. 181 et seq.), the royalty rate for leases issued pursuant to this section shall be 16.67 percent.

(5) RECEIPTS.—Notwithstanding the Mineral Leasing Act (30 U.S.C. 181 et seq.), of the amount of adjusted bonus, rental, and royalty receipts de-

rived from the oil and gas program and operations on Federal land authorized under this section—

(A) 50 percent shall be paid to the State of Alaska; and

(B) the balance shall be deposited into the Treasury as miscellaneous receipts.

(c) 2 LEASE SALES WITHIN 10 YEARS.—

(1) REQUIREMENT.—

(A) IN GENERAL.—Subject to subparagraph (B), the Secretary shall conduct not fewer than 2 lease sales area-wide under the oil and gas program under this section by not later than 10 years after the date of enactment of this Act.

(B) SALE ACREAGES; SCHEDULE.—

(i) ACREAGES.—The Secretary shall offer for lease under the oil and gas program under this section—

(I) not fewer than 400,000 acres area-wide in each lease sale; and

(II) those areas that have the highest potential for the discovery of hydrocarbons.

(ii) SCHEDULE.—The Secretary shall offer—

(I) the initial lease sale under the oil and gas program under this section not later than 4 years after the date of enactment of this Act; and

(II) a second lease sale under the oil and gas program under this section not later than 7 years after the date of enactment of this Act.

(2) RIGHTS-OF-WAY.—The Secretary shall issue any rights-of-way or easements across the Coastal Plain for the exploration, development, production, or transportation necessary to carry out this section.

(3) SURFACE DEVELOPMENT.—In administering this section, the Secretary shall authorize up to 2,000 surface acres of Federal land on the Coastal Plain to be covered by production and support facilities (including airstrips and any area covered by gravel berms or piers for support of pipelines) during the term of the leases under the oil and gas program under this section.

Summary of Chairman's Mark
Reconciliation Legislation

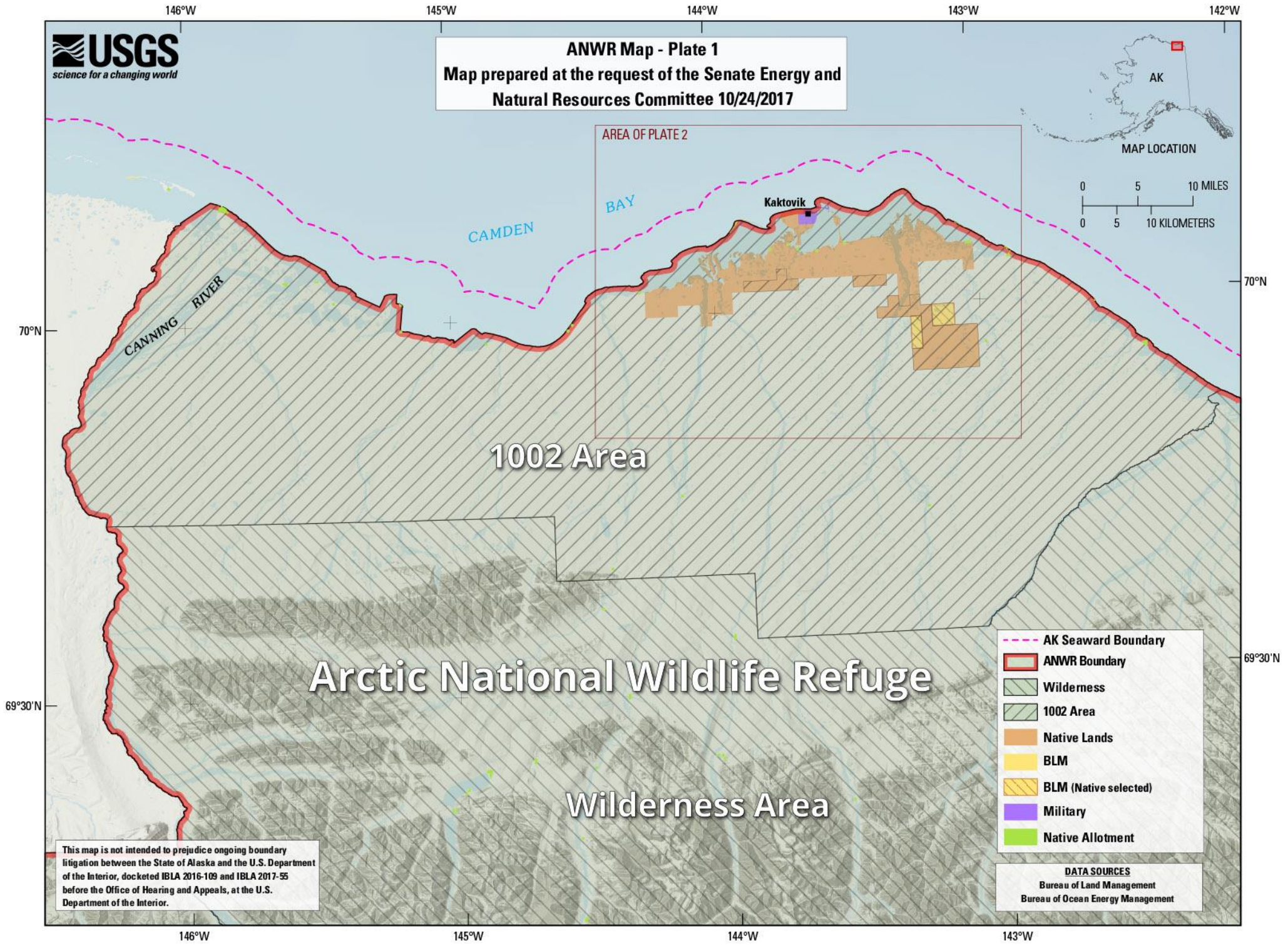
Pursuant to H. Con. Res. 71, the Concurrent Resolution on the Budget for Fiscal Year 2018, the reconciliation legislation contained in the Chairman's Mark directs the Secretary of the Interior to establish and administer a competitive oil and gas program in the non-wilderness portion of the Arctic National Wildlife Refuge, known as the "1002 Area" or Coastal Plain. The legislation defines the term "Coastal Plain" by referencing Plate 1 and Plate 2 of the October 24, 2017 Map prepared by the United States Geological Survey.

The legislation repeals the prohibition on development from the Coastal Plain contained in section 1003 of the Alaska National Interest Lands Conservation Act (16 U.S.C. 3143), and directs the Secretary to manage the oil and gas program on the Coastal Plain in accordance with the Naval Petroleum Reserves Production Act of 1976 (42 U.S.C. 6501 et seq.), except as otherwise provided. The text imposes a royalty rate for leases at 16.67 percent and allocates 50 percent of the revenue derived from the program to the State of Alaska, with the remainder going to the federal Treasury.

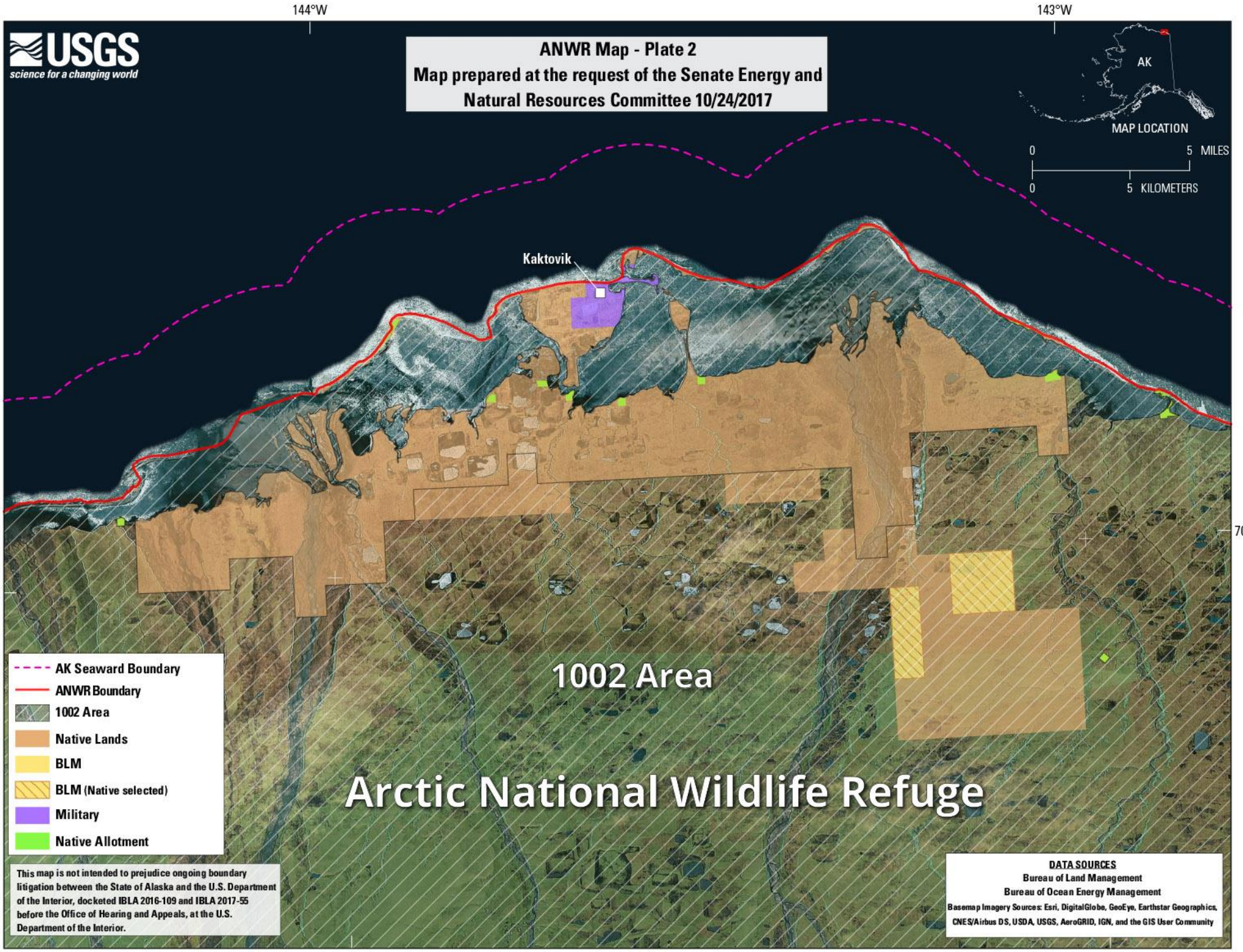
The legislation requires the Secretary to conduct at least two area-wide lease sales within the 10-year budget window. The first lease sale is to be held within four years of the Act's enactment and the second lease sale within seven years of enactment. Each lease sale must contain at least 400,000 acres and be comprised of those areas that have the highest potential for the discovery of hydrocarbons.

The legislation further directs the Secretary to issue any necessary rights-of-way or easements across the Coastal Plain for the exploration, development, production, or transportation associated with the oil and gas program. Additionally, the text limits surface development on federal land on the Coastal Plain to 2,000 acres.

The Congressional Budget Office estimates this reconciliation legislation will raise $1.092 billion over the 10-year budget window.


USGS
science for a changing world
ANWR Map - Plate 1
Map prepared at the request of the Senate Energy and Natural Resources Committee 10/24/2017
AREA OF PLATE 2
AK
MAP LOCATION
0 5 10 MILES
0 5 10 KILOMETERS
Kaktovik
BAY
CAMDEN
CANNING RIVER
1002 Area
Arctic National Wildlife Refuge
Wilderness Area
146°W
145°W
144°W
143°W
142°W
70°N
69°30'N
AK Seaward Boundary
ANWR Boundary
Wilderness
1002 Area
Native Lands
BLM
BLM (Native selected)
Military
Native Allotment
DATA SOURCES
Bureau of Land Management
Bureau of Ocean Energy Management
This map is not intended to prejudice ongoing boundary litigation between the State of Alaska and the U.S. Department of the Interior, docketed IBLA 2016-109 and IBLA 2017-55 before the Office of Hearing and Appeals, at the U.S. Department of the Interior.

0000001403


USGS
science for a changing world
ANWR Map - Plate 2
Map prepared at the request of the Senate Energy and Natural Resources Committee 10/24/2017
144°W
143°W
AK
MAP LOCATION
0
5 MILES
0
5 KILOMETERS
Kaktovik
70°N
70°N
1002 Area
Arctic National Wildlife Refuge
AK Seaward Boundary
ANWR Boundary
1002 Area
Native Lands
BLM
BLM (Native selected)
Military
Native Allotment
This map is not intended to prejudice ongoing boundary litigation between the State of Alaska and the U.S. Department of the Interior, docketed IBLA 2016-109 and IBLA 2017-55 before the Office of Hearing and Appeals, at the U.S. Department of the Interior.
DATA SOURCES
Bureau of Land Management
Bureau of Ocean Energy Management
Basemap Imagery Sources: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
144°W
143°W

0000001404

From: Helfrich, Devin
To: Howard, Amee
Subject: Re: Murkowski Releases Chairman's Mark to Meet FY2018 Budget Instruction
Date: Thursday, November 9, 2017 10:59:39 AM

You too (i'm going to a cabin in WV, so hopefully relaxing)

Devin Helfrich
Congressional Legislative Affairs Specialist
U.S. Fish and Wildlife Service
Office Direct: (703) 358-2130
Mobile: (202) 365-5971

On Thu, Nov 9, 2017 at 12:47 PM, Howard, Amee <amee_howard@fws.gov> wrote:

> Hi Devin,
>
> Thanks so much for sharing this information!!
>
> I know everyone has been curious and waiting to see what is in the works.
>
> Appreciate it!
> Hope you get to have a little you time this weekend!
>
> Thanks again!
> Amee
>
> On Wed, Nov 8, 2017 at 4:48 PM, Helfrich, Devin <devin_helfrich@fws.gov> wrote:
>
> > Nov 08 2017
> >
> > # Murkowski Releases Chairman's Mark to Meet FY2018 Budget Instruction
> >
> > *Generates Over $1 Billion in Revenues Over First 10 Years to Reduce Federal Deficit*
> >
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> >
> > "Our instruction is a tremendous opportunity both for our committee and our country," Murkowski said. "The legislation I released tonight will put Alaska and the entire nation on a path toward greater prosperity by creating jobs, keeping energy affordable for families and businesses, generating new wealth, and strengthening our security—while reducing the federal deficit not just by $1 billion over

ten years, but tens or even hundreds of billions of dollars over the decades to come."

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The committee will hold a markup on the legislation a full week from today, on the morning of Wednesday, November 15.

Permalink: https://www.energy.senate.gov/public/index.cfm/2017/11/murkowski-releases-chairman-s-mark-to-meet-fy2018-budget-instruction

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Amee Howard
Congressional and Legislative Affairs
U.S. Fish & Wildlife Service
Anchorage, Alaska
Office: (907)786-3509
Mobile: (907)229-8575
https://www.fws.gov/alaska/
"Conservation Begins with Hello"

From:	Howard, Amee
To:	Gregory Siekaniec; Karen Clark; Mitch Ellis; Mary Colligan; Socheata Lor; Damberg, Doug; Sara Boario; Patrick Lemons; Jenifer Kohout; Eric Taylor
Subject:	November 15th Senate Mark-up Hearing Information for Arctic Refuge 1002 Legislation
Date:	Thursday, November 9, 2017 11:20:54 AM

Nov 15 2017

Business Meeting to consider Reconciliation Legislation

366 Dirksen Senate Office Building 09:00 AM

The business meeting will be held on **Wednesday, November 15, 2017 at 9:00 a.m. EST in Room 366 of the Dirksen Senate Office Building in Washington, DC.**

The purpose of the business meeting is to consider, pursuant to H. Con. Res. 71, the Concurrent Resolution on the Budget for Fiscal Year 2018, reconciliation legislation to authorize the Secretary of the Interior to establish and administer a competitive oil and gas program in the non-wilderness portion of the Arctic National Wildlife Refuge, known as the "1002 Area" or Coastal Plain.

Permalink: https://www.energy.senate.gov/public/index.cfm/2017/11/business-meeting-to-consider-reconciliation-legislation

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Amee Howard
Congressional and Legislative Affairs
U.S. Fish & Wildlife Service
Anchorage, Alaska
Office: (907)786-3509
Mobile: (907)229-8575
https://www.fws.gov/alaska/
"Conservation Begins with Hello"

From:	Hamilton, Charles
To:	Paul Leonard; Wendy Loya
Subject:	AOOS Animal Telemetry Network (ATN) Workshop
Date:	Thursday, November 9, 2017 11:26:48 AM
Attachments:	Preliminary Agenda Outline 10_25 for AOOS_IOOS ATN Workshop.docx

Hi Paul and Wendy,

I just heard about this workshop and thought it may be of interest to the Arctic LCC effort in case you are not aware of it see draft agenda attached.

--
Regards,

Charles S. Hamilton
Special Assistant
Marine Mammals Management
U.S. Fish and Wildlife Service
1011 East Tudor Rd., MS-341
Anchorage, AK 99503
Voice: (907) 786-3804
FAX: (907) 786 - 3816

AOOS Animal Telemetry Network (ATN) Workshop
December 5-6, 2017,
Anchorage Marriott Downtown Hotel
Anchorage, Alaska

Identifying regional needs and priorities for animal telemetry observations of aquatic species

WORKSHOP TENTATIVE AGENDA

DAY 1

7:30 Coffee and pastries, meet and greet

8:30 – 9:00 Keynote Speaker (TBA)

9:00 Welcome, Review Objectives/ Agenda

- *Molly McCammon - AOOS Regional Association Director*

Overview of the U.S. National Animal Telemetry Network

- *Bill Woodward, NOAA IOOS ATN Network Coordinator*

SESSION FORMAT: Day 1 talks are on order of 15 minutes with 15 minutes at end of each session for discussion. Each session will accommodate 4 – 5 invited speakers (TBA) from the proposed organizations listed. Final speaker list will be mailed out once confirmed.

9:15 Private Sector Perspectives - to discuss regional telemetry applications and stakeholder needs (4-5 speakers)

- *Oil and Gas (e.g., Hillcorp, AK Oil and Gas Association)*
- *Contractor/Consulting (e.g., LGL)*
- *Ports and harbors, port authorities (Anchorage), Marine pilots*
- *Tourism and Recreation (e.g., Cruise ship association)*
- *Commercial Fishing (e.g., AK LongLiner Association, Central Bering Sea Fishermen's Association)*

10:45 Break

DRAFT

11:00 Community and Tribal Perspectives - to discuss issues with tagged animals, subsistence concerns, participation (4-5 speakers)

- *North Slope Borough*
- *AK Whaling Commission*
- *Walrus/seal hunter*
- *Indigenous Peoples Commission on Marine Mammals*
- *Arctic Waterways Safety Committee*

12:15 Lunch (hosted)

1:00 Resource Management Perspectives Representatives (Federal and State resource management agencies) – to discuss regional telemetry applications and stakeholder needs (4-5 speakers)

- *BOEM Alaska OCS Region*
- *ADF&G (Fish)*
  - *Subsistence representative from ADF&G?*
- *NOAA/AFSC/NMML*
- *USFW*
- *Non-Profits (Defenders of Wildlife, AK Whale Foundation)*
- *SEASWAP*

2:30 Researcher Perspectives, Representatives from the research community – to showcase telemetry projects focused on a range of species, discuss current telemetry assets in the Alaska Region, and highlight innovative technologies and methods (two groups of 4 speakers each)

- *USGS (polar bears)*
- *ADF&G (ice seals, belugas, and bowheads)*
- *NMFS/AKFSC/NMML – National Marine Fisheries, AK Fisheries Science Center, National Marine Mammal*
- *MARECOTEL* , UW/JISAO – *Univ. of Washington Joint Institute for the Study of the Atmosphere and Ocean*
- *NPRB – North Pacific Research Board*

3:00 Break

3:15 Continue Research Community Showcase

- *UAF – University of AK, Fairbanks*
- *OSU – Oregon State University*
- *NOAA/ADSC/NMML – National Marine Mammal Lab*

DRAFT

- *OTN – Ocean Telemetry Network*
- *ASLC – AK SeaLife Center*
- *Arctic: Passive Acoustic Research for Marine Mammals in Arctic*

4:30- 5:00 Wrap-up Day 1

Summary of Day 1, preview of questions to be addressed during Day 2 Breakout Sessions.

5:30 Adjourn; free time prior to hosted event

6:30 Social Event (hosted)

WORKSHOP TENTATIVE AGENDA

DAY 2

7:30 Coffee and pastries, meeting and greet

8:30 - 9:00 am Keynote speaker and Q&A (TBA)

9:04 – 9:30 am Recap Day 1, Describe Breakout Process, Groups, Goals

- *Bill Woodward – ATN*

9:30 am Short Break and retreat to breakout rooms

BREAKOUT SESSIONS

For the breakout sessions, the workshop attendees are organized into 3 pre-selected Groups (I, II & III), each with a Facilitator and Reporter. Each Group will meet separately and will address all BREAKOUT TASKS according to the schedule below.

9:45 - 10:45 **BREAKOUT SESSION A**

TASK: *Create a matrix (or set of matrices) of the animal telemetry observation needs in the AOOS Region vs. the assets that are currently in place (that we know of) to collect them; identify gaps.*

Ideas on how to organize them?

SPECIES?

GEO-LOCATION?

DRAFT

SPATIAL SCALE?

STAKEHOLDER NEEDS? (e.g., Resource Management/Commercial/Protected species)

TECHNOLOGY?

SCIENCE QUESTIONS?

OBSERVING TECHNOLOGY?

10:45 Break (Coffee, snacks)

11:00 - 12:00 **BREAKOUT SESSION B**

TASK: *Identify challenges and concerns with animal tagging efforts in Alaska.*

Discuss the value of Alaska researchers participating in the ATN…what would be the value-added from a network approach to individual research goals?

If money was no object, or if we had $1M/yr for ten years, define what a baseline Animal Telemetry Network (acoustic and satellite) in the AOOS Region could/should look like. Identify priority items.

12:00 - 1:00 LUNCH (provided)

1:00 - 2:00 **BREAKOUT SESSION C**

TASK: *Describe the effective telemetry data aggregation and sharing pathways within the AOOS Region, what sharing outside the region is/could be valuable and with whom, and whether there are additional capabilities that would improve the ability of AOOS to aggregate and share.*

2:00 - 2:45 pm Report-out from Breakout Sessions (15 minutes each)

2:45 - 3:00 pm Wrap Up, Actions. Adjourn

DRAFT

From: Mark Bertram
To: Harwood, Christopher
Cc: Arthur, Stephen; Roy Churchwell
Subject: Re: biological districting
Date: Thursday, November 9, 2017 11:36:55 AM

Is everyone available at 10am, same day

Sent from my iPhone

On Nov 9, 2017, at 7:54 AM, Harwood, Christopher <christopher_harwood@fws.gov> wrote:

> Roy and I typically leave at 4. Is 30 minutes enough or should we plan on staying later (4:30?)?
>
> We could likely do first thing (start no later than 8) and go to 9-9:30. I'd ask Tina to delay our staff meeting to 9:30.
>
> On Wed, Nov 8, 2017 at 4:18 PM, Bertram, Mark <mark_bertram@fws.gov> wrote:
>
> > Steve,
> >
> > How about we move it to 3:30pm Alaska Time?
> >
> > Chris and Roy, can you make that time as well?
> >
> > Cheers,
> > Mark
> >
> > Mark_Bertram@fws.gov
> > Supervisory Wildlife Biologist
> > US Fish and Wildlife Service
> > Yukon Flats National Wildlife Refuge
> > 101 12th Avenue, Room 264
> > Fairbanks, Alaska 99701
> > Voice: (907) 456-0446
> > Cell: (907) 347-1524
> > Fax: (907) 456-0447
> > Toll Free: 1-800-531-0676
> > http://www.fws.gov/refuge/yukon_flats/
> > https://www.facebook.com/YukonFlatsNationalWildlifeRefuge/
> >
> > On Wed, Nov 8, 2017 at 3:50 PM, Arthur, Stephen <stephen_arthur@fws.gov> wrote:
> >
> > > It seems I have another meeting scheduled from 1-3 on Monday afternoon. Can we reschedule our discussion for either before or after that? I'm available all day.
> > >
> > > Steve

Stephen M. Arthur, Ph.D.
Supervisory Wildlife Biologist
Arctic National Wildlife Refuge
101 12th Ave., Room 236
Fairbanks, AK 99701
(907)455-1830

On Wed, Nov 8, 2017 at 10:56 AM, Bertram, Mark <mark_bertram@fws.gov> wrote:

> Sounds good.
>
> Cheers,
> Mark
>
> Mark_Bertram@fws.gov
> Supervisory Wildlife Biologist
> US Fish and Wildlife Service
> Yukon Flats National Wildlife Refuge
> 101 12th Avenue, Room 264
> Fairbanks, Alaska 99701
> Voice: (907) 456-0446
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> Toll Free: 1-800-531-0676
> http://www.fws.gov/refuge/yukon_flats/
> https://www.facebook.com/YukonFlatsNationalWildlifeRefuge/
>
> On Wed, Nov 8, 2017 at 10:18 AM, Harwood, Christopher <christopher_harwood@fws.gov> wrote:
>
> > If it's ok with you two, we're going to have Roy attend, too, as I will not be around for the larger meeting with Doug on December 7.
> >
> > On Tue, Nov 7, 2017 at 8:34 AM, Bertram, Mark <mark_bertram@fws.gov> wrote:
> >
> > > Steve,
> > >
> > > My number is 907 456-0446. We can save you a dime and call you as well if you want to pass on your number.
> > >
> > > So we will all talk on Monday November 13 at 1:30pm Alaska time.
> > >
> > > Cheers,
> > > Mark
> > >
> > > Mark_Bertram@fws.gov
> > > Supervisory Wildlife Biologist
> > > US Fish and Wildlife Service
> > > Yukon Flats National Wildlife Refuge
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https://www.facebook.com/YukonFlatsNationalWildlifeRefuge/

On Tue, Nov 7, 2017 at 8:09 AM, Arthur, Stephen <stephen_arthur@fws.gov> wrote:

> Yes, I'll plan to call in then. Just let me know what phone number to call.
>
> Steve
>
> Stephen M. Arthur, Ph.D.
> *Supervisory Wildlife Biologist*
> *Arctic National Wildlife Refuge*
> *101 12th Ave., Room 236*
> *Fairbanks, AK 99701*
> *(907)455-1830*
>
> On Mon, Nov 6, 2017 at 9:02 AM, Bertram, Mark <mark_bertram@fws.gov> wrote:
>
> > Steve and Chris,
> >
> > Would you both be available for a teleconference Monday November 13 at 1:30 pm Alaska Time to discuss biological districting?
> >
> > Cheers,
> > Mark
> >
> > Mark_Bertram@fws.gov
> > Supervisory Wildlife Biologist
> > US Fish and Wildlife Service
> > Yukon Flats National Wildlife Refuge
> > 101 12th Avenue, Room 264
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> > Voice: (907) 456-0446
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> > http://www.fws.gov/refuge/yukon_flats/
> > https://www.facebook.com/YukonFlatsNationalWildlifeRefuge/
> >
> > On Mon, Nov 6, 2017 at 8:52 AM, Harwood, Christopher

<christopher_harwood@fws.gov> wrote:

I think Nov 13 is ok, but we generally have 9:00 staff meeting on Mondays so a later time would be better.

On Mon, Oct 30, 2017 at 4:35 PM, Mark Bertram <mark_bertram@fws.gov> wrote:

Thanks Steve, I will wait for Chris to weigh in and we will pick a date and time

Sent from my iPhone

On Oct 30, 2017, at 3:43 PM, Arthur, Stephen <stephen_arthur@fws.gov> wrote:

Nov 13 should work for me, and the previous week would be ok as well (assuming I can call in).

Steve

Stephen M. Arthur, Ph.D.
Supervisory Wildlife Biologist
Arctic National Wildlife Refuge
101 12th Ave., Room 236
Fairbanks, AK 99701
(907)455-1830

On Wed, Oct 25, 2017 at 2:42 PM, Bertram, Mark <mark_bertram@fws.gov> wrote:

Hi Chris and Steve,

I note you are both out of town with Steve gone thru Nov 10 and Chris thru Nov 5. I propose we get together at 9am Monday Nov 13 to discuss the districting idea. Please let me know if that day/time will work for you.

Cheers,
Mark

Mark_Bertram@fws.gov
Supervisory Wildlife Biologist
US Fish and Wildlife Service
Yukon Flats National Wildlife Refuge
101 12th Avenue, Room 264
Fairbanks, Alaska 99701
Voice: (907) 456-0446
Cell: (907) 347-1524
Fax: (907) 456-0447
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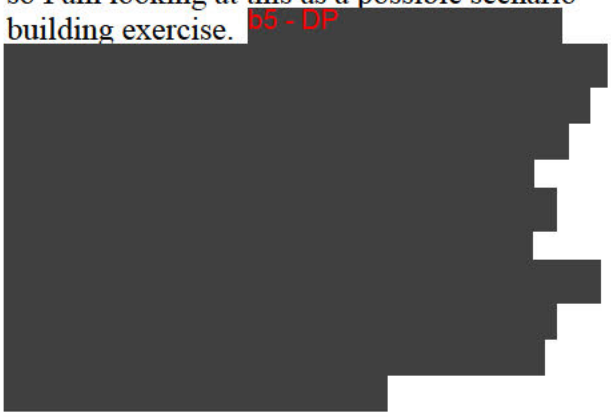
http://www.fws.gov/refuge/yukon_flats/
https://www.facebook.com/Yukon

FlatsNationalWildlifeRefuge/

On Wed, Oct 25, 2017 at 2:20 PM, Bertram, Mark <mark_bertram@fws.gov> wrote:

> Hi Chris and Steve,
>
> Nathan Hawkaluk asked me to contact you both as a first step to opening a dialogue with the Fairbanks refuge biological staff (all 11 of them) regards to identifying strategies for us to get our biological priorities done on refuges as our resources decrease. The regional office refers to this as "Districting".
>
> As is often the case we are given very little information or direction to have this discussion so I am looking at this as a possible scenario building exercise. b5 - DP
>
> 
>
> So after we talk then we could put together a more organized agenda to have a broader discussion among the full Fairbanks refuge biological staff.
>
> Would you both be available to talk Friday Nov 10 at 9am? Steve, I know you are in the process of moving; so please suggest an alternate date/time if this one is too soon for you.
>
> Cheers,
> Mark
>
> Mark_Bertram@fws.gov
> Supervisory Wildlife Biologist
> US Fish and Wildlife Service
> Yukon Flats National Wildlife Refuge
> 101 12th Avenue, Room 264

Fairbanks, Alaska 99701
Voice: (907) 456-0446
Cell: (907) 347-1524
Fax: (907) 456-0447
Toll Free: 1-800-531-0676
http://www.fws.gov/refuge/yukon_flats/
https://www.facebook.com/Yukon FlatsNationalWildlifeRefuge/

--
Christopher Harwood
Wildlife Biologist
U.S. Fish and Wildlife Service
Kanuti National Wildlife Refuge
101 12th Ave.; Room 206
Fairbanks, AK 99701
(907) 455-1836 (w)
(907) 456-0506 (fax)

"In my house, anyone who uses one word when they could have used ten just isn't trying hard."

- Josiah Edward Bartlet, PhD, Nobel Laureate

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- Josiah Edward Bartlet, PhD, Nobel Laureate

From: kevinp
To: gnickas@wildernesswatch.org; dserra@wildernesswatch.org; jsmith@wildernesswatch.org; gary@wildrockies.org; danajohnson@wildernesswatch.org; [redacted]@gmail.com; [redacted]@gmail.com; fmauer@mosquitonet.com; roger_kaye@fws.gov
Subject: From Greenwire -- ARCTIC: Refuge drilling worth $1.1B for feds, Alaska — CBO
Date: Thursday, November 9, 2017 11:51:17 AM

This Greenwire story was sent to you by: kevinp@wildernesswatch.org

GREENWIRE
AN E&E NEWS PUBLICATION

ARCTIC

Refuge drilling worth $1.1B for feds, Alaska — CBO

Kellie Lunney, E&E News reporter
Published: Thursday, November 9, 2017

The Arctic National Wildlife Refuge in northern Alaska. Fish and Wildlife Service/Wikipedia

Drilling in the Arctic National Wildlife Refuge's coastal plain would bring in about $1.1 billion for Uncle Sam over the next decade after the federal government splits the revenue with Alaska, the Congressional Budget Office said yesterday.

The nonpartisan CBO assumes a total $2.2 billion coming in between 2018 and 2027 from oil and gas drilling in the 1002 area, a figure that includes estimated proceeds from bonus bids paid by companies in search of leases.

Legislation drafted by Senate Energy and Natural Resources Chairwoman Lisa Murkowski (R-Alaska) stipulates a 50-50 revenue-sharing split between the state and the federal government (***Greenwire***, Nov. 9).

But CBO offered a caveat in its **analysis**: "Estimates of bonus bids for leases in ANWR are

uncertain. Potential bidders might make assumptions that are different from CBO's, including assumptions about long-term oil prices, production costs, the amount of oil and gas resources in ANWR, and alternative investment opportunities."

Bonus bids are what companies pay to obtain leases. Lessees also would pay annual rent to retain leases as well as royalties based on any energy development.

Murkowski's **bill** would impose a 16.67 percent royalty on oil and gas produced in the refuge's 1002 area. By way of comparison, the government charges royalties of 12.5 percent for onshore oil and gas production and 18.75 percent for energy developed in the outer continental shelf.

CBO's cost estimate doesn't anticipate "significant" royalty payments from ANWR until after 2027.

Murkowski's bill — scheduled for a Nov. 15 markup, would allow up to 2,000 acres of surface land in the coastal plain for production and support facilities. It directs the Interior Department to conduct two lease sales within ANWR's 1002 area within the 10-year budget window, the first within four years of enactment and the second within seven years of the legislation becoming law.

Murkowski told reporters today that the "real benefit" from energy development in the refuge's coastal plain will come after production.

"That's where we anticipate that the real revenue coming to the state and the federal Treasury will come into play," she said.

The fiscal 2018 budget resolution that Congress passed last month tasked Murkowski's panel with finding $1 billion during the next decade to help offset Republicans' $1.5 trillion tax cut.

Those instructions gave her the opportunity to write legislation paving the way for drilling in the refuge's 1.5-million-acre coastal plain, a longtime priority of the Alaska delegation and other Republicans.

Attaching ANWR language to the larger tax package through reconciliation allows it to move by a simple majority vote without the threat of a filibuster. That means it won't need any Democratic support in the Senate.

It's the best shot the Alaska delegation has had in decades to realize its goal of allowing energy development in the refuge's coastal plain.

Opponents of drilling in ANWR have argued that the math behind the Republican tax plan and the estimated revenue from refuge drilling is fuzzy at best.

The left-leaning Center for American Progress analyzed data based on recent lease sales in the state, which found the federal government could expect closer to $37.5 million in earnings. That is well short of $1 billion.

Sen. Maria Cantwell (D-Wash.), the Energy Committee's ranking member, this morning was asked by a reporter whether CBO's score gave an accurate picture of what ANWR would yield over the next decade.

"I doubt it," she said.

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From: Jim Kurth
To: Cribley, Bud
Cc: Gregory Siekaniec; Cynthia Martinez; Greg Sheehan; Barbara Wainman
Subject: Re: From E&E Daily -- ANWR: Murkowski unveils legislation to allow drilling in refuge
Date: Thursday, November 9, 2017 12:07:12 PM

I haven't read the bill yet, would be interested in your perspective.

Sent from my iPhone

On Nov 9, 2017, at 9:58 AM, Cribley, Bud <bud_cribley@fws.gov> wrote:

> I'm sure your all are already aware of the language in the bill, but it is and interesting twist. Would you like to have a discussion or is that premature?
>
> Bud
>
> ---------- Forwarded message ----------
> From: **bud_cribley** <email_this@eenews.net>
> Date: Thu, Nov 9, 2017 at 9:17 AM
> Subject: From E&E Daily -- ANWR: Murkowski unveils legislation to allow drilling in refuge
> To: bud_cribley@fws.gov

This E&E Daily story was sent to you by: bud_cribley@fws.gov

E&E DAILY

AN E&E NEWS PUBLICATION

ANWR

Murkowski unveils legislation to allow drilling in refuge

Kellie Lunney, E&E News reporter

Published: Thursday, November 9, 2017

Senate Energy and Natural Resources Chairwoman Lisa Murkowski (R-Alaska) released legislation last night to make way for drilling in the Arctic National Wildlife Refuge. Energy and Natural Resources Committee/Facebook

Senate legislation unveiled last night to allow oil and gas drilling in part of the 19-million-acre Arctic National Wildlife Refuge would allocate a 50 percent revenue-sharing split between the state of Alaska and the federal government.

Calling it a "tremendous opportunity" for both Alaska and the country, Energy and Natural Resources Chairwoman Lisa Murkowski released her much-anticipated **language** in advance of a markup scheduled for Wednesday.

The Alaska Republican's proposal would require the Interior Department to conduct two lease sales within ANWR's coastal plain within the 10-year budget window.

It also calls for the secretary to "issue any necessary rights-of-way or easements across the coastal plain for the exploration, development, production, or transportation associated with the oil and gas program," according to a **summary**.

The fiscal 2018 budget resolution, which Congress passed last month, tasked Murkowski's panel with finding $1 billion in new revenues during the next decade as part of a larger GOP effort to accelerate tax cuts through the reconciliation process.

Those instructions gave Murkowski the opportunity to write legislation paving the way for drilling in the refuge's 1.5-million-acre coastal plain, a longtime priority of the Alaska delegation and other Republicans.

Attaching ANWR language to the larger tax package through reconciliation allows it to move by a simple majority vote without the threat of a filibuster. That means it won't need any Democratic support in the Senate.

It's the best shot the Alaska delegation has had in decades to realize its goal

of allowing energy development in the refuge's coastal plain, also known as the **1002 area**.

"For over 40 years, Alaskans have led the fight to safely and responsibly unlock the 1002's vast energy resources," Rep. Don Young (R-Alaska) said in a statement. Young, a 23-term lawmaker, has shepherded such legislation successfully through the House more than a dozen times.

"Today is an important step in that process, one that ultimately works to create new jobs and opportunities for our people, generate new revenue and wealth, and strengthen the economic outlook of Alaska and the nation," he added.

In addition to the 50-50 revenue-sharing split between Alaska and Uncle Sam, Murkowski's legislation would impose a 16.67 percent royalty rate for leases.

"The legislation I released tonight will put Alaska and the entire nation on a path toward greater prosperity by creating jobs, keeping energy affordable for families and businesses, generating new wealth, and strengthening our security — while reducing the federal deficit not just by $1 billion over ten years, but tens or even hundreds of billions of dollars over the decades to come," Murkowski said in a statement.

But opponents of drilling in ANWR have argued that the math behind the Republican tax plan and the estimated revenue from drilling in ANWR's 1002 area is fuzzy at best.

The left-leaning Center for American Progress analyzed data based on recent lease sales in the state, which found the federal government could expect closer to $37.5 million in earnings. That is well short of $1 billion.

Michael LaRosa, communications director for the Environment and Natural Resources Committee's top Democrat, Maria Cantwell of Washington, took to Twitter shortly after Murkowski made her announcement criticizing the plan.

"This revenue source will pay for 0.067% (less than one-tenth of one percent) of the cost of tax cuts for the wealthy," he wrote.

Cantwell is a fierce opponent of oil and gas drilling in ANWR and successfully led the last major effort to defeat a Senate measure to allow energy development in the region. That was in 2005.

The Alaska Wilderness League, which has long opposed drilling in the refuge, criticized Murkowski's legislation and blasted Republicans' use of the reconciliation process to try to advance energy development in ANWR.

"It's deplorable that a backdoor budget maneuver is being used to ram Arctic drilling through without a full, fair and open debate," Adam Kolton, the group's executive director, said in a statement. "This bill would allow roads, pipelines, gravel mines and well pads to be erected across the entire birthing grounds of

the Coastal Plain, where caribou calve and where polar bear mothers den."

The Wilderness Society also lambasted the bill and its insertion into the budget process.

"Most Americans oppose drilling in the refuge, and the backers of this bill are keenly aware that if it were subject to a full debate and vote, the scheme would lose on the merits," said Nicole Whittington-Evans, the group's Alaska regional director. "With millions of acres already open for oil leasing in the Arctic, industrializing and destroying this refuge makes absolutely no sense."

If Congress ends up approving drilling in ANWR, the process would unfold over several years. Murkowski's legislation stipulates that the Interior Department must conduct the first lease sale within four years of enactment and the second lease sale within seven years of the legislation becoming law.

"Each lease sale must contain at least 400,000 acres and be comprised of those areas that have the highest potential for the discovery of hydrocarbons," the legislative summary said.

Drilling supporters say it not only would boost the economy, but also would strengthen national security because it would make the United States less reliant on foreign oil.

"I have no doubt that this legislation, which would lead to producing more energy responsibly by opening up the small section of the 1002 area in ANWR, will help make the United States the world's energy super power again, will dramatically increase our country's national security and lead to American jobs and productive diplomacy around the globe," Alaska Republican Sen. Dan Sullivan said in a statement.

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Phone: 202-628-6500 Fax: 202-737-5299

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Bud C Cribley
Senior Advisor for Energy with the U.S. Fish & Wildlife Service
Office # 202-208-4331
Cell # 907-717-5141
Office # MIB 3341
email: bud_cribley@fws.gov

From:	Howard, Amee
To:	Carol Damberg
Subject:	Fwd: Murkowski Releases Chairman's Mark to Meet FY2018 Budget Instruction
Date:	Thursday, November 9, 2017 12:21:05 PM
Attachments:	Chairman"s Mark FLO17783 11-15-17 Bus Mtg.pdf Summary of Chairman"s Mark 11-15-17 SENR Cmte Business Meeting.pdf ANWR Map Plate 1 and Plate 2 11-15-17 Bus Mtg.pdf

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---------- Forwarded message ----------
From: **Howard, Amee** <amee_howard@fws.gov>
Date: Thu, Nov 9, 2017 at 8:36 AM
Subject: Fwd: Murkowski Releases Chairman's Mark to Meet FY2018 Budget Instruction
To: Mary Colligan <mary_colligan@fws.gov>, Jenifer Kohout <Jenifer_Kohout@fws.gov>, Patrick Lemons <Patrick_Lemons@fws.gov>, "Leonetti, Crystal" <crystal_leonetti@fws.gov>, Andrea Medeiros <andrea_medeiros@fws.gov>, Eric Taylor <eric_taylor@fws.gov>

Hi All,

FYI - Updated information on oil and gas efforts by Congress for Arctic.

Let me know if you have any questions.
Thanks so much!
Amee

---------- Forwarded message ----------
From: **Helfrich, Devin** <devin_helfrich@fws.gov>
Date: Wed, Nov 8, 2017 at 4:48 PM
Subject: Murkowski Releases Chairman's Mark to Meet FY2018 Budget Instruction
To: Amee Howard <amee_howard@fws.gov>, Mitch Ellis <mitch_ellis@fws.gov>, Gregory Siekaniec <gregory_siekaniec@fws.gov>, Karen Clark <karen_clark@fws.gov>, Sara Boario <sara_boario@fws.gov>, Socheata Lor <socheata_lor@fws.gov>, "Damberg, Doug" <doug_damberg@fws.gov>, "Fox, Joanna" <joanna_fox@fws.gov>
Cc: "Martin Kodis (Marty)" <martin_kodis@fws.gov>, Angela Gustavson <angela_gustavson@fws.gov>, Barbara Wainman <barbara_wainman@fws.gov>, Matthew Huggler <matthew_huggler@fws.gov>, Cynthia Martinez <cynthia_martinez@fws.gov>, Shaun Sanchez <shaun_sanchez@fws.gov>

Nov 08 2017

Murkowski Releases Chairman's Mark to Meet FY2018 Budget Instruction

Generates Over $1 Billion in Revenues Over First 10 Years to Reduce Federal Deficit

U.S. Sen. Lisa Murkowski, R-Alaska, today released reconciliation legislation pursuant to the Senate Energy and Natural Resources Committee's instruction to raise $1 billion in federal revenues in H. Con.

Res. 71, the Concurrent Resolution on the Budget for Fiscal Year 2018.

“Our instruction is a tremendous opportunity both for our committee and our country,” Murkowski said. “The legislation I released tonight will put Alaska and the entire nation on a path toward greater prosperity by creating jobs, keeping energy affordable for families and businesses, generating new wealth, and strengthening our security—while reducing the federal deficit not just by $1 billion over ten years, but tens or even hundreds of billions of dollars over the decades to come.”

The reconciliation legislation would authorize limited and responsible energy development in a small part of the non-wilderness portion of the Arctic National Wildlife Refuge in Alaska, known as the “1002 Area” or Coastal Plain.

The Congressional Budget Office estimates the legislation will raise $1.092 billion over the 10-year budget window. Between royalties and federal income taxes, it will raise substantially greater revenues once production from the 1002 Area begins.

View the text of the Chairman’s Mark here.

View a summary of the Chairman’s Mark here.

View the map referenced in the Chairman’s Mark here.

Murkowski is chairman of the Senate Committee on Energy and Natural Resources.

The committee will hold a markup on the legislation a full week from today, on the morning of Wednesday, November 15.

Permalink: https://www.energy.senate.gov/public/index.cfm/2017/11/murkowski-releases-chairman-s-mark-to-meet-fy2018-budget-instruction

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--
Amee Howard
Congressional and Legislative Affairs
U.S. Fish & Wildlife Service
Anchorage, Alaska
Office: (907)786-3509
Mobile: (907)229-8575
https://www.fws.gov/alaska/
"Conservation Begins with Hello"

--
Amee Howard
Congressional and Legislative Affairs
U.S. Fish & Wildlife Service

Anchorage, Alaska
Office: (907)786-3509
Mobile: (907)229-8575
https://www.fws.gov/alaska/
"Conservation Begins with Hello"

SEC. ___. OIL AND GAS PROGRAM.

(a) DEFINITIONS.—In this section:

(1) COASTAL PLAIN.—The term "Coastal Plain" means the area identified as the 1002 Area on the plates prepared by the United States Geological Survey entitled "ANWR Map – Plate 1" and "ANWR Map – Plate 2", dated October 24, 2017, and on file with the United States Geological Survey and the Office of the Solicitor of the Department of the Interior.

(2) SECRETARY.—The term "Secretary" means the Secretary of the Interior, acting through the Bureau of Land Management.

(b) OIL AND GAS PROGRAM.—

(1) IN GENERAL.—Section 1003 of the Alaska National Interest Lands Conservation Act (16 U.S.C. 3143) is repealed.

(2) ESTABLISHMENT.—

(A) IN GENERAL.—The Secretary shall establish and administer a competitive oil and gas program for the leasing, development, production, and transportation of oil and gas in and from the Coastal Plain.

(B) PURPOSES.—Section 303(2)(B) of the Alaska National Interest Lands Conservation Act (Public Law 96–487; 94 Stat. 2390) is amended—

(i) in clause (iii), by striking "and" at the end;

(ii) in clause (iv), by striking the period at the end and inserting "; and"; and

(iii) by adding at the end the following:

"(v) to provide for an oil and gas program on the Coastal Plain.".

(3) MANAGEMENT.—Except as otherwise provided in this section, the Secretary shall manage the oil and gas program on the Coastal Plain in accordance with the Naval Petroleum Reserves Production Act of 1976 (42 U.S.C. 6501 et seq.) (including regulations).

(4) ROYALTIES.—Notwithstanding the Mineral Leasing Act (30 U.S.C. 181 et seq.), the royalty rate for leases issued pursuant to this section shall be 16.67 percent.

(5) RECEIPTS.—Notwithstanding the Mineral Leasing Act (30 U.S.C. 181 et seq.), of the amount of adjusted bonus, rental, and royalty receipts de-

rived from the oil and gas program and operations on Federal land authorized under this section—

(A) 50 percent shall be paid to the State of Alaska; and

(B) the balance shall be deposited into the Treasury as miscellaneous receipts.

(c) 2 LEASE SALES WITHIN 10 YEARS.—

(1) REQUIREMENT.—

(A) IN GENERAL.—Subject to subparagraph (B), the Secretary shall conduct not fewer than 2 lease sales area-wide under the oil and gas program under this section by not later than 10 years after the date of enactment of this Act.

(B) SALE ACREAGES; SCHEDULE.—

(i) ACREAGES.—The Secretary shall offer for lease under the oil and gas program under this section—

(I) not fewer than 400,000 acres area-wide in each lease sale; and

(II) those areas that have the highest potential for the discovery of hydrocarbons.

(ii) SCHEDULE.—The Secretary shall offer—

(I) the initial lease sale under the oil and gas program under this section not later than 4 years after the date of enactment of this Act; and

(II) a second lease sale under the oil and gas program under this section not later than 7 years after the date of enactment of this Act.

(2) RIGHTS-OF-WAY.—The Secretary shall issue any rights-of-way or easements across the Coastal Plain for the exploration, development, production, or transportation necessary to carry out this section.

(3) SURFACE DEVELOPMENT.—In administering this section, the Secretary shall authorize up to 2,000 surface acres of Federal land on the Coastal Plain to be covered by production and support facilities (including airstrips and any area covered by gravel berms or piers for support of pipelines) during the term of the leases under the oil and gas program under this section.

Summary of Chairman's Mark
Reconciliation Legislation

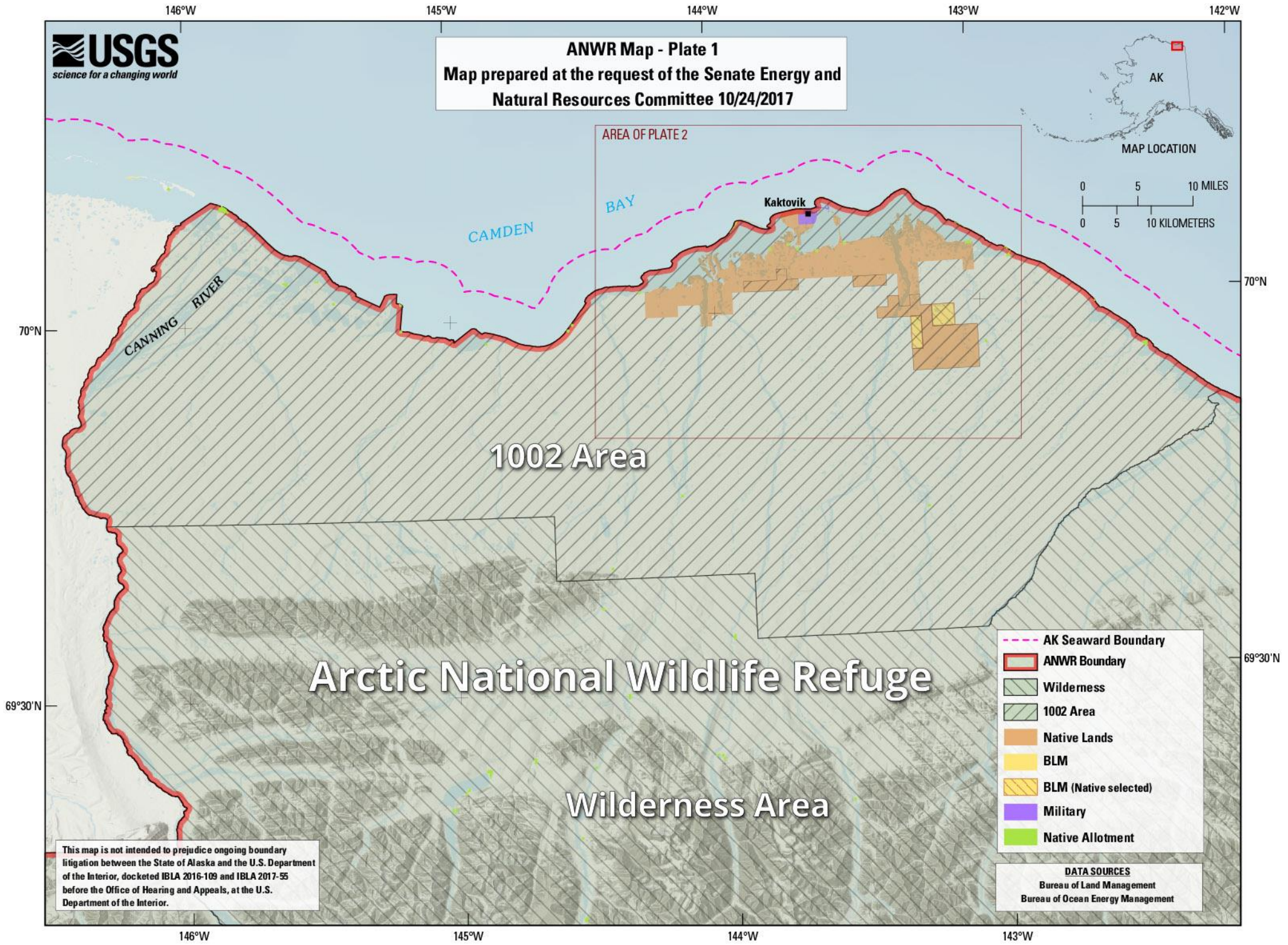
Pursuant to H. Con. Res. 71, the Concurrent Resolution on the Budget for Fiscal Year 2018, the reconciliation legislation contained in the Chairman's Mark directs the Secretary of the Interior to establish and administer a competitive oil and gas program in the non-wilderness portion of the Arctic National Wildlife Refuge, known as the "1002 Area" or Coastal Plain. The legislation defines the term "Coastal Plain" by referencing Plate 1 and Plate 2 of the October 24, 2017 Map prepared by the United States Geological Survey.

The legislation repeals the prohibition on development from the Coastal Plain contained in section 1003 of the Alaska National Interest Lands Conservation Act (16 U.S.C. 3143), and directs the Secretary to manage the oil and gas program on the Coastal Plain in accordance with the Naval Petroleum Reserves Production Act of 1976 (42 U.S.C. 6501 et seq.), except as otherwise provided. The text imposes a royalty rate for leases at 16.67 percent and allocates 50 percent of the revenue derived from the program to the State of Alaska, with the remainder going to the federal Treasury.

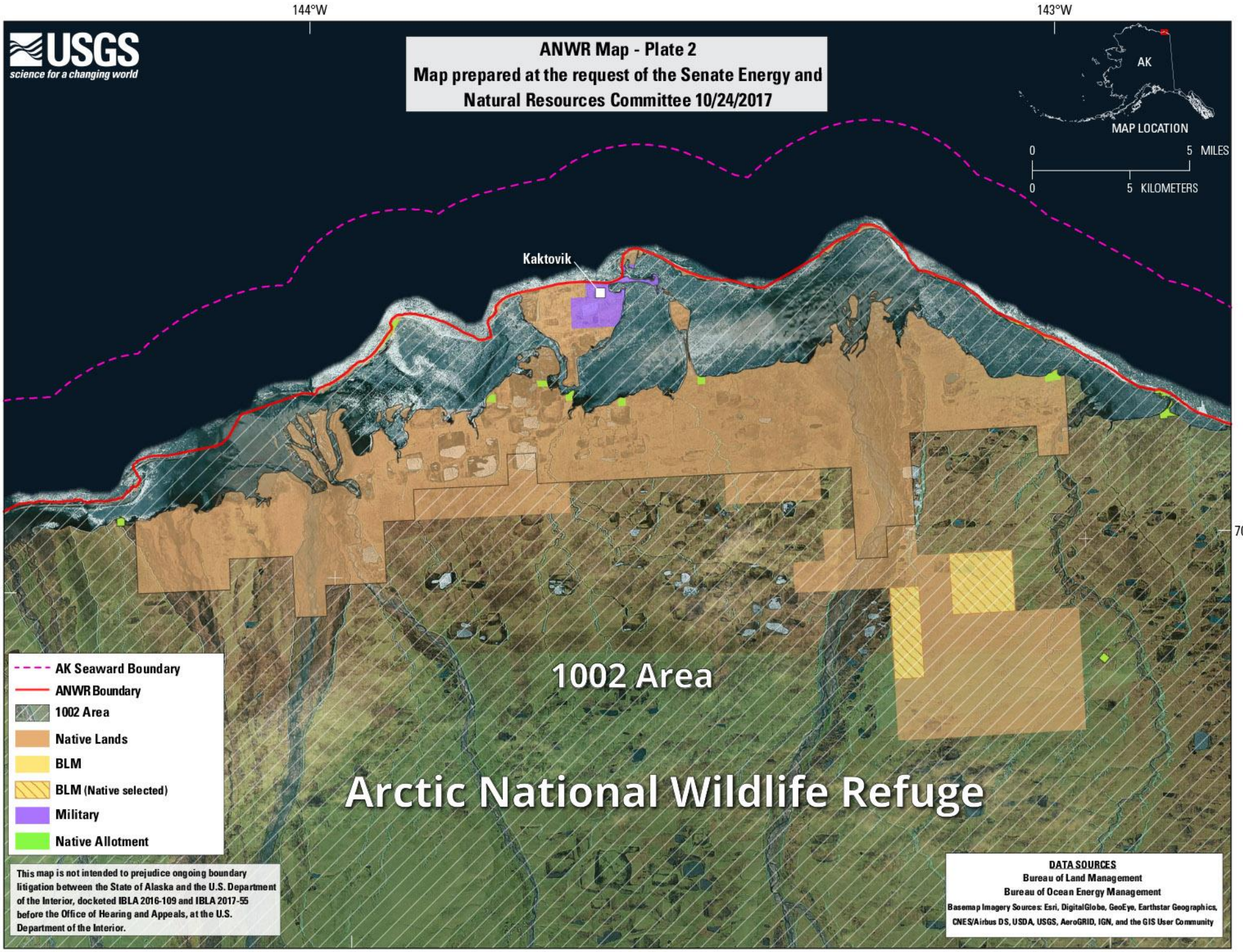
The legislation requires the Secretary to conduct at least two area-wide lease sales within the 10-year budget window. The first lease sale is to be held within four years of the Act's enactment and the second lease sale within seven years of enactment. Each lease sale must contain at least 400,000 acres and be comprised of those areas that have the highest potential for the discovery of hydrocarbons.

The legislation further directs the Secretary to issue any necessary rights-of-way or easements across the Coastal Plain for the exploration, development, production, or transportation associated with the oil and gas program. Additionally, the text limits surface development on federal land on the Coastal Plain to 2,000 acres.

The Congressional Budget Office estimates this reconciliation legislation will raise $1.092 billion over the 10-year budget window.


USGS
science for a changing world
ANWR Map - Plate 1
Map prepared at the request of the Senate Energy and Natural Resources Committee 10/24/2017
AREA OF PLATE 2
AK
MAP LOCATION
0 5 10 MILES
0 5 10 KILOMETERS
Kaktovik
BAY
CAMDEN
CANNING RIVER
1002 Area
Arctic National Wildlife Refuge
Wilderness Area
146°W
145°W
144°W
143°W
142°W
70°N
69°30'N
AK Seaward Boundary
ANWR Boundary
Wilderness
1002 Area
Native Lands
BLM
BLM (Native selected)
Military
Native Allotment
DATA SOURCES
Bureau of Land Management
Bureau of Ocean Energy Management
This map is not intended to prejudice ongoing boundary litigation between the State of Alaska and the U.S. Department of the Interior, docketed IBLA 2016-109 and IBLA 2017-55 before the Office of Hearing and Appeals, at the U.S. Department of the Interior.

0000001436


USGS
science for a changing world
ANWR Map - Plate 2
Map prepared at the request of the Senate Energy and Natural Resources Committee 10/24/2017
144°W
143°W
AK
MAP LOCATION
0
5 MILES
0
5 KILOMETERS
Kaktovik
70°N
70°N
1002 Area
Arctic National Wildlife Refuge
AK Seaward Boundary
ANWR Boundary
1002 Area
Native Lands
BLM
BLM (Native selected)
Military
Native Allotment
This map is not intended to prejudice ongoing boundary litigation between the State of Alaska and the U.S. Department of the Interior, docketed IBLA 2016-109 and IBLA 2017-55 before the Office of Hearing and Appeals, at the U.S. Department of the Interior.
DATA SOURCES
Bureau of Land Management
Bureau of Ocean Energy Management
Basemap Imagery Sources: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
144°W
143°W

0000001437

From:	Fox, Joanna
To:	Ryan Mollnow
Cc:	Brady, Stephanie; Lor, Socheata; Tracy Fischbach; Damberg, Doug; Steve Berendzen; John Brewer; Diane Granfors
Subject:	Re: Arctic NWR Vintage Seismic Data from 1980s
Date:	Thursday, November 9, 2017 12:42:08 PM

Hi Ryan,

I confess I don't know much about ServCat or about what Arctic Refuge has already uploaded, but I suspect none of our historical records have been, aside from our Annual Narratives and biological reports. Our records are currently not well organized, and we're in the process of trying to improve that - recognizing we'll likely be receiving more frequent requests for information and records.

I suspect we have a fair bit of work to do before we can identify specific records that should be uploaded to ServCat. But if you think the records I've provided this week should be and there's an easy way to do it, we should probably go for it.

Thank you,
Joanna

Joanna L. Fox
Deputy Refuge Manager
Arctic National Wildlife Refuge
101 12th Avenue, Room 236
Fairbanks, AK 99701
(907) 456-0549

Follow us on Facebook!
www.facebook.com/arcticnationalwildliferefuge

"Do what you can, with what you have, where you are." -- Theodore Roosevelt

On Wed, Nov 8, 2017 at 4:47 PM, Ryan Mollnow <ryan_mollnow@fws.gov> wrote:

> I am thinking these documents should all end up in ServCat. Stephanie what do you think? Joanna, how much of Arctic's historical data/files have been uploaded to ServCat? This might be something for us to initiate sooner than later to help with analysis.
>
> Thanks
> Ryan
>
> Sent from my iPhone
>
> On Nov 7, 2017, at 3:54 PM, Brady, Stephanie <stephanie_brady@fws.gov> wrote:
>
> > I am searching through the files that we have on our planning drive - I have looped in Tracy because she has a better handle on where

these documents might reside - if we have it. Stephanie

stephanie_brady@fws.gov | Branch Chief, Conservation Planning and Policy |
U.S. Fish and Wildlife Service | National Wildlife Refuge System | Alaska |
907.306.7448
Did you know?
The **National Wildlife Refuge System** has:
50 million annual visitors, 850 million acres, and 566 units.

---------- Forwarded message ----------
From: **Lor, Socheata** <socheata_lor@fws.gov>
Date: Tue, Nov 7, 2017 at 12:42 PM
Subject: Re: Arctic NWR Vintage Seismic Data from 1980s
To: "Fox, Joanna" <joanna_fox@fws.gov>
Cc: "Damberg, Doug" <doug_damberg@fws.gov>, Ryan Mollnow <ryan_mollnow@fws.gov>, "Brady, Stephanie" <stephanie_brady@fws.gov>, Steve Berendzen <steve_berendzen@fws.gov>, John Brewer <john_brewer@fws.gov>

Thanks for keeping us posted, Joanna. John Brewer is also looking and he found a couple of Records of Decision (1984 and 1985) and he's still looking.

Soch
~~~~~~~~~~~~~~~~~
Socheata Lor, Ph.D.
Deputy Assistant Regional Director - Region 7
National Wildlife Refuge System
U.S. Fish and Wildlife Service
1011 E. Tudor Road
Anchorage, AK 99503
Office: 907.786.3420
Cell: 907.891.6194
~~~~~~~~~~~~~~~~~

On Tue, Nov 7, 2017 at 12:23 PM, Fox, Joanna <joanna_fox@fws.gov> wrote:
> I'm finding some files, and still looking for more. We've scanned what we've located so far, but I'm still looking for the 1983 Exploration Plan (I located a 1985 "amended" plan).
>
> _____
> Joanna L. Fox
> Deputy Refuge Manager
> Arctic National Wildlife Refuge
> 101 12th Avenue, Room 236
> Fairbanks, AK 99701
> (907) 456-0549
>
> Follow us on Facebook!

www.facebook.com/arcticnationalwildliferefuge

"Do what you can, with what you have, where you are." -- Theodore Roosevelt

On Tue, Nov 7, 2017 at 12:20 PM, Damberg, Doug <doug_damberg@fws.gov> wrote:

> see Doug C's note below re: Planning files
>
> Doug Damberg
> Refuge Supervisor, AK North Zone
> U.S. Fish and Wildlife Service
> 1011 E. Tudor Rd.; Anchorage, AK 99503
> Office: (907) 786-3329
> Cell: (907) 947-6302
>
> ---------- Forwarded message ----------
> From: **Douglas Campbell** <douglas_campbell@fws.gov>
> Date: Tue, Nov 7, 2017 at 8:56 AM
> Subject: Re: Arctic NWR Vintage Seismic Data from 1980s
> To: "Damberg, Doug" <doug_damberg@fws.gov>
>
> Doug
>
> Steve B was able to find the SUP for the seismic. It's possible they have the results. I've not come across it in any of the realty files.
>
> The other possibility is that Planning may have a copy that would be in the boxes HQ sent us several years ago that have info from the EIS etc of the development plan. John Martin or Pete Wikoff may know.
>
> Sent from my iPhone
>
> On Nov 7, 2017, at 8:51 AM, Damberg, Doug <doug_damberg@fws.gov> wrote:
>
> > Doug C and John -
> > Please see the email string below an let us know Realty has any of this information.
> > Thx,
> >
> > Doug Damberg
> > Refuge Supervisor, AK North Zone
> > U.S. Fish and Wildlife Service
> > 1011 E. Tudor Rd.; Anchorage, AK 99503
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> > Cell: (907) 947-6302

On Tue, Nov 7, 2017 at 7:29 AM, Mitch Ellis <mitch_ellis@fws.gov> wrote:

> Joanna and Doug - see email string below. Joe Darnell is asking for some correspondence and plans that Arctic may have in the files? Maybe check with Realty as well. Thanks.
>
> Sent from my iPhone
>
> Begin forwarded message:
>
> **From:** Mitch Ellis <mitch_ellis@fws.gov>
> **Date:** November 7, 2017 at 7:26:16 AM AKST
> **To:** Karen Clark <karen_clark@fws.gov>
> **Subject: Re: Arctic NWR Vintage Seismic Data from 1980s**
>
> We'll see if we can track it down.
>
> Sent from my iPhone
>
> On Nov 7, 2017, at 6:12 AM, Karen Clark <karen_clark@fws.gov> wrote:
>
> > Hey Mitch,
> > Any thoughts about where a copy of this plan could be obtained? Do you think it could be in Arctic Refuge files? Let me know what you think so we can track this down.
> >
> > Thanks, Karen
> >
> > Sent from my iPhone
> >
> > Begin forwarded message:
> >
> > **From:** Greg Siekaniec <greg_siekaniec@fws.gov>
> > **Date:** November 6, 2017 at 7:02:38 PM AKST
> > **To:** karen_clark@fws.gov
> > **Subject: Fwd: Arctic NWR Vintage Seismic Data from 1980s**

Karen,

Please see Joe Darnell's request for old seismic data correspondence and information. Can you begin to investigate this question? BLM May hold some of the information but we should have the correspondence in our files. Perhaps at Arctic NWR?

Thank you,

Greg

Sent from my iPhone

Begin forwarded message:

From: "Darnell, Joseph" <joe.darnell@sol.doi.gov>
Date: November 6, 2017 at 7:31:46 PM CST
To: Greg Siekaniec <greg_siekaniec@fws.gov>
Subject: **Arctic NWR Vintage Seismic Data from 1980s**

Greg -

Some legal question have

come up over the status of the seismic data collected during the 1980s. I need to know where to secure a copy of the exploration plan submitted to the Service to secure the permit and any correspondence between the Service and the permittee over the terms of the permit and handling of data from the exploration work.

Thanks.

Joe

Joseph Darnell
Regional Solicitor
Alaska Region - Dept. of the Interior
Anchorage, Alaska
Direct Phone (907) 271-4118 /
Main Office Phone (907) 271-4131
Fax (907) 271-4143 /

Mobile (907)
301-6687
joe.darnell@sol.doi.gov

From: Mollnow, Ryan
To: Fox, Joanna
Cc: Brady, Stephanie; Damberg, Doug; Steve Berendzen; John Brewer; Diane Granfors
Subject: Re: Arctic NWR Vintage Seismic Data from 1980s
Date: Thursday, November 9, 2017 12:53:04 PM

Hi Joanna,
Great feedback and you are not alone in this area. I will cast this over to Stephanie and Diane to discuss and explore with you. I appreciate your efforts so far and maybe there is a way I&M can assist in this area. Don't forget about Hilmar when it comes to data management, and he can also help answer questions about ServCat.

Thanks for your hard work,

Ryan Mollnow

U.S. Fish and Wildlife Service, National Wildlife Refuge System, Alaska
Regional Hunting and Fishing Chief, work: 907-786-3326 - cell: 907-223-6381

On Thu, Nov 9, 2017 at 10:41 AM, Fox, Joanna <joanna_fox@fws.gov> wrote:

> Hi Ryan,
>
> I confess I don't know much about ServCat or about what Arctic Refuge has already uploaded, but I suspect none of our historical records have been, aside from our Annual Narratives and biological reports. Our records are currently not well organized, and we're in the process of trying to improve that - recognizing we'll likely be receiving more frequent requests for information and records.
>
> I suspect we have a fair bit of work to do before we can identify specific records that should be uploaded to ServCat. But if you think the records I've provided this week should be and there's an easy way to do it, we should probably go for it.
>
> Thank you,
> Joanna
>
> _____
> Joanna L. Fox
> Deputy Refuge Manager
> Arctic National Wildlife Refuge
> 101 12th Avenue, Room 236
> Fairbanks, AK 99701
> (907) 456-0549
>
> Follow us on Facebook!
> www.facebook.com/arcticnationalwildliferefuge
>
> *"Do what you can, with what you have, where you are." -- Theodore Roosevelt*
>
> On Wed, Nov 8, 2017 at 4:47 PM, Ryan Mollnow <ryan_mollnow@fws.gov> wrote:
>
> > I am thinking these documents should all end up in ServCat. Stephanie what do you think? Joanna, how much of Arctic's historical data/files have been uploaded to ServCat? This might be something for us to initiate sooner than later to help with analysis.

Thanks
Ryan

Sent from my iPhone

On Nov 7, 2017, at 3:54 PM, Brady, Stephanie <stephanie_brady@fws.gov> wrote:

> I am searching through the files that we have on our planning drive - I have looped in Tracy because she has a better handle on where these documents might reside - if we have it. Stephanie
>
> stephanie_brady@fws.gov | Branch Chief, Conservation Planning and Policy |
> U.S. Fish and Wildlife Service | National Wildlife Refuge System | Alaska |
> 907.306.7448
> *Did you know?*
> The **National Wildlife Refuge System** has:
> 50 million annual visitors, 850 million acres, and 566 units.
>
> ---------- Forwarded message ----------
> From: **Lor, Socheata** <socheata_lor@fws.gov>
> Date: Tue, Nov 7, 2017 at 12:42 PM
> Subject: Re: Arctic NWR Vintage Seismic Data from 1980s
> To: "Fox, Joanna" <joanna_fox@fws.gov>
> Cc: "Damberg, Doug" <doug_damberg@fws.gov>, Ryan Mollnow <ryan_mollnow@fws.gov>, "Brady, Stephanie" <stephanie_brady@fws.gov>, Steve Berendzen <steve_berendzen@fws.gov>, John Brewer <john_brewer@fws.gov>
>
> Thanks for keeping us posted, Joanna. John Brewer is also looking and he found a couple of Records of Decision (1984 and 1985) and he's still looking.
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> ~~~~~~~~~~~~~~~~
> *Socheata Lor, Ph.D.*
> *Deputy Assistant Regional Director - Region 7*
> *National Wildlife Refuge System*
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> *Anchorage, AK 99503*
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> ~~~~~~~~~~~~~~~~
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Joanna L. Fox
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> Doug Damberg
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Sent from my iPhone

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To: karen_clark@fws.gov
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Thank you,

Greg

Sent from my iPhone

Begin forwarded message:

From: "Darnell, Joseph" <joe.darnell@sol.doi.gov>
Date: November

6, 2017
at
7:31:46
PM CST
To: Greg
Siekaniec
<greg_siekaniec@fws.gov>
Subject:
Arctic
NWR
Vintage
Seismic
Data
from
1980s

Greg -

Some legal
question
have come
up over the
status of the
seismic
data
collected
during the
1980s. I
need to
know
where to
secure a
copy of the
exploration
plan
submitted
to the
Service to
secure the
permit and
any
correspondence
between the
Service and
the
permittee
over the
terms of the
permit and
handling of
data from
the
exploration
work.

Thanks.

Joe

Joseph Darnell
Regional Solicitor
Alaska Region - Dept. of the Interior
Anchorage, Alaska
Direct Phone (907) 271-4118 / Main Office Phone (907) 271-4131
Fax (907) 271-4143 / Mobile (907) 301-6687
joe.darnell@sol.doi.gov

From: Keogh, Warren
To: Megan Collins
Subject: Fwd: Requested Item Delivered Electronically
Date: Thursday, November 9, 2017 12:55:52 PM

Megan,

FYI. This is a small example of how helpful folks at ARLIS can be. I made a phone call to Sharon Prien at ARLIS yesterday looking for a clean, legible copy of an old Public Land Order (PLO 399) re hot/mineral springs in the 1002 Area of the Arctic NWR. (We have a copy on the R-Drive but it is of poor quality.) She was apologetic that she couldn't get a clean copy of the PLO to me until today. The point is, there are times when the helpful reference librarians at ARLIS can save you hours of work with a simple phone call or written request because you have a good working relationship with them and/or because you are an employee of the FWS (an ARLIS founding agency) that often allows you prioritized treatment.

warren

---------- Forwarded message ----------
From: **Keogh, Warren** <warren_keogh@fws.gov>
Date: Thu, Nov 9, 2017 at 10:46 AM
Subject: Fwd: Requested Item Delivered Electronically
To: sharon@arlis.org

Sharon,

Thanks so much, as always.

warren

---------- Forwarded message ----------
From: **ARLIS Interlibrary Loan** <ill@arlis.org>
Date: Thu, Nov 9, 2017 at 9:23 AM
Subject: Requested Item Delivered Electronically
To: warren_keogh@fws.gov

Dear Warren Keogh,

An article that you requested:
Title: United States and Alaska; see PLO No. 399; revoking EO 13241/2 and amending EO 5389, withdrawing public lands containing hot or medicinal springs
Author:

TN: 130818

has been received and processed by the Interlibrary Loan Staff.
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option from your main menu. The URL for logging on to ILLiad is:

https://arlis.illiad.oclc.org/illiad/logon.html

Your username for ILLiad is: [redacted]

If you have questions about this service, please e-mail us at sharon@arlis.org or call us at 907-786-7677.

--
Warren Keogh
Paralegal Specialist
Water Resources Branch, Division of Natural Resources
U.S. Fish & Wildlife Service
1011 East Tudor Rd.
Anchorage, Alaska 99503

Phone: (907) 786-3388

--
Warren Keogh
Paralegal Specialist
Water Resources Branch, Division of Natural Resources
U.S. Fish & Wildlife Service
1011 East Tudor Rd.
Anchorage, Alaska 99503

Phone: (907) 786-3388

ARLIS Document Delivery

ILLiad TN: 130815

Journal Title: Public Land Order 399

Volume:
Issue:
Month/Year: Aug. 20, 1947
Pages: 12 FR 5780– 1

Article Author:

Article Title: Alaska; revoking EO No. 14321/2; withdrawing lands containing hot or medicinal springs. Amended by PLO No. 614 (14 FR 6517

Imprint:

Book or Report Call #:

Warren Keogh (23755000070138)
FWS/Refuges

1011 E. Tudor Rd.
Anchorage, AK 99503

warren_keogh@fws.gov

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Secs. 8 to 16, inclusive;
Sec. 17, N½, E½SW¼ and SE¼,
Sec 20, NE¼, N½SE¼ and SE¼SE¼,
Secs. 21 to 28, inclusive;
Sec. 29, NE¼NE¼,
Sec. 33, NE¼, E½NW¼ and SE¼,
Secs. 34, 35, and 36.
T. 6 N., R. 21 E.,
Sec. 25, SE¼SE¼,
Sec. 34, SE¼SW¼ and SE¼,
Sec. 35, S½NE¼, SE¼NW¼ and S½,
Sec. 36.
T. 4 N., R. 22 E.,
Secs. 1 to 21, inclusive;
Sec. 22, N½, SW¼ and N½SE¼,
Sec. 23, N½NE¼, SW¼NE¼ and NW¼,
Sec. 24, NW¼NW¼,
Sec. 28, N½NE¼, N½NW¼ and SW¼NW¼,
Sec. 29, N½, N½SW¼ and NW¼SE¼,
Sec. 30;
Sec. 31, lot 1 and NE¼NW¼.
T. 5 N., R. 22 E.,
T. 6 N., R. 22 E.,
Sec. 13, E½SW¼, SW¼SW¼ and SE¼;
Sec. 14, SE¼SE¼,
Sec, 21, SE¼SW¼, NE¼SE¼ and S½SE¼;
Sec. 22, S½NE¼ and S½,
Secs. 23 to 28, inclusive;
Sec. 29, NE¼, S½NW¼ and S½,
Sec. 30, lot 4, E½SW¼ and SE¼,
Secs. 31 to 36, inclusive.
T. 4 N., R. 23 E.,
Sec. 1, lots 1 to 4, inclusive, SW¼NE¼, S½NW¼ and NW¼SW¼,
Sec. 2, N½, SW¼ and N½SE¼,
Secs. 3 to 8, inclusive;
Sec. 9, N½, N½SW¼, SW¼SW¼ and NW¼SE¼,
Sec. 10, N½NE¼ and NW¼,
Sec. 17, N½NW¼,
Sec. 18, lots 1, 2, and 3, NE¼, E½NW¼ and NE¼SW¼.
T. 5 N., R. 23 E.,
T. 6 N., R. 23 E.,
Sec. 1, lots 1 and 2, S½NE¼, S½NW¼ and S½,
Sec. 2, NE¼SW¼, S½SW¼ and SE¼;
Sec. 3, SE¼SE¼,
Sec. 8, SE¼SW¼, NE¼SE¼, and S½SE¼,
Sec. 9, S½NE¼ and S½,
Secs. 10 to 17, inclusive;
Sec. 18, lots 2, 3, and 4, NE¼, SE¼NW¼, E½SW¼ and SE¼,
Secs. 19 to 36, inclusive.
T. 5 N., R. 24 E.,
Secs. 1 to 23, inclusive;
Sec. 24, N½, SW¼, N½SE¼ and SW¼SE¼,
Sec. 25, NW¼NW¼,
Sec. 26, N½NE¼ and NW¼,
Sec. 27, N½, N½SW¼, SW¼SW¼ and N½SE¼,
Secs. 28, 29, and 30;
Sec. 31, N½, SW¼, N½SE¼ and SW¼SE¼,
Sec. 32, N½ and N½SW¼,
Sec. 33, NW¼NE¼ and N½NW¼.
T. 6 N., R. 24 E.
T. 7 N., R. 24 E.,
Sec. 24, S½SE¼,
Sec. 25;
Sec. 26, S½NE¼, SE¼NW¼ and S½,
Sec. 27, S½SW¼, NE¼SE¼ and S½SE¼;
Sec. 31, S½SE¼;
Sec. 32, SE¼NE¼ and S½,
Sec. 33; NE¼, NE¼NW¼, S½NW¼ and S½,
Secs. 34, 35, and 36.
T. 5 N., R. 25 E.,
Secs. 1 to 11, inclusive;
Sec. 12, N½, N½SW¼, SW¼SW¼ and NW¼SE¼,
Sec. 14, N½NW¼,
Sec. 15, N½NE¼, SW¼NE¼, NW¼ and NW¼SW¼,
Sec. 19, lots 1, 2, and 3, NE¼, E½NW¼
Secs. 17 and 18;
Sec. 19, lots 1, 2, and 3, NE¼, N½NW¼ and NE¼SW¼,
Sec. 20, NW¼NE¼, N½NW¼ and SW¼NW¼.
T. 6 N., R. 25 E.
T. 7 N., R. 25 E.,
Sec. 13;
Sec. 14, NE¼, NE¼NW¼, S½NW¼ and S½,
Sec. 15, S½NE¼ and S½,
Sec. 16, SE¼SW¼, NE¼SE¼ and S½SE¼,
Sec. 19, lot 4, SE¼NE¼, E½SW¼ and SE¼,
Sec. 20, NE¼, S½NW¼ and S½,
Secs. 21 to 36, inclusive.
T. 5 N., R. 26 E.,
Secs. 1 to 6, inclusive;
Sec. 7, lots 1 and 2, N½NE¼ and E½NW¼.
T. 6 N., R. 26 E.
T. 7 N., R. 26 E.,
Secs. 13 to 36, inclusive.
T. 5 N., R. 27 E.,
Secs. 5 and 6.
T. 6 N., R. 27 E.,
Secs. 5 to 8, secs. 17 to 20, and secs. 29 to 32, inclusive.
T. 7 N., R. 27 E.,
Secs. 17 to 20 and secs. 29 to 32, inclusive.

The areas described, including both public and nonpublic lands, aggregate 270,345.02 acres.

The lands are semi-arid in character, with a rolling to rough surface and a generally rocky soil.

C. GIRARD DAVIDSON,
Assistant Secretary of the Interior

AUGUST 19, 1947.

[F. R. Doc. 47-8009; Filed, Aug. 27, 1947; 8:45 a. m.]

[Public Land Order 398]

CALIFORNIA

REVOKING PUBLIC LAND ORDER NO. 116 OF APRIL 26, 1943 WITHDRAWING PUBLIC LANDS FOR USE OF WAR DEPARTMENT FOR AIRPORT PURPOSES

By virtue of the authority vested in the President and pursuant to Executive Order No. 9337 of April 24, 1943, it is ordered as follows:

Public Land Order No. 116 of April 26, 1943, withdrawing the following-described public land for the use of the War Department for airport purposes, is hereby revoked.

SAN BERNARDINO MERIDIAN

T. 8 N., R. 23 E.,
Sec. 19, N½NE¼.

The area described contains 80 acres.

This land is subject to the order of October 16, 1931, of the Secretary of the Interior withdrawing certain lands for reclamation purposes.

C. GIRARD DAVIDSON,
Assistant Secretary of the Interior

AUGUST 19, 1947.

[F. R. Doc. 47-8008; Filed, Aug. 27, 1947; 8:45 a. m.]

[Public Land Order 399]

UNITED STATES AND ALASKA

REVOCATION OF EXECUTIVE ORDER 1324½, WITHDRAWING PUBLIC LANDS CONTAINING HOT OR MEDICINAL SPRINGS IN ALASKA AND AMENDING EXECUTIVE ORDER 5389 WITHDRAWING SUCH LANDS IN UNITED STATES

By virtue of the authority contained in section 1 of the act of June 25, 1910, c. 421, 36 Stat. 847 (U. S. C., Title 43, sec. 141) and pursuant to Executive Order No. 9337 of April 24, 1943, it is ordered as follows:

Executive Order No. 1324½ of March 28, 1911, withdrawing certain public lands in the Territory of Alaska containing hot or medicinal springs, as amended by Executive Order No. 1883 of January 24, 1914, is hereby revoked; and Executive Order No. 5389 of July 7, 1930, withdrawing certain public lands containing hot or medicinal springs, exclusive of such lands in Alaska, is amended by deleting therefrom the words "exclusive of Alaska" so that the said order shall apply to lands containing hot or medicinal springs in both Alaska and the United States. Executive Order No. 5389, as herein amended, shall not apply to lands within National Forests.

This order shall not otherwise become effective to change the status of the surveyed or unsurveyed public lands in Alaska released from withdrawal by this order until 10:00 a. m. on October 22, 1947. At that time, subject to valid existing rights and the provisions of existing withdrawals, the unsurveyed lands shall become subject to settlement and other forms of appropriation in accordance with applicable laws and regulations, but the surveyed lands shall become subject to application, petition, location, or selection as follows:

(a) *Ninety-day period for preference-right filings.* For a period of 90 days from October 22, 1947, to January 20, 1948, inclusive, the surveyed public lands in Alaska released from withdrawal by this order shall be subject to (1) application under the homestead laws, or the small tract act of June 1, 1938 (52 Stat. 609, 43 U. S. C. sec. 682a) as amended, by qualified veterans of World War II, for whose service recognition is granted by the act of September 27, 1944 (58 Stat. 734, 43 U. S. C. secs. 279–283), subject to the requirements of applicable law, and (2) application under any applicable public-land law, based on prior existing valid settlement rights and preference rights conferred by existing laws or equitable claims subject to allowance and confirmation. Applications by such veterans shall be subject to claims of the classes described in subdivision (2)

(b) *Twenty-day advance period for simultaneous preference-right filings.* For a period of 20 days from October 2, 1947 to October 21, 1947, inclusive, such veterans and persons claiming preference rights superior to those of such veterans, may present their applications, and all such applications, together with those presented at 10:00 a. m. on October 22, 1947, shall be treated as simultaneously filed.

(c) *Date for non-preference right filings authorized by the public-land laws.* Commencing at 10:00 a. m. on January 21, 1948, any of the lands remaining unappropriated shall become subject to such application, petition, location, or selection by the public generally as may be authorized by the public-land laws.

(d) *Twenty-day advance period for simultaneous non-preference right filings.* Applications by the general public may be presented during the 20-day period from January 1, 1948, to January 20, 1948, inclusive, and all such applica-

0000001455

tions, together with those presented at 10:00 a. m. on January 21, 1948, shall be treated as simultaneously filed.

Veterans shall accompany their applications with certified copies of their certificates of discharge, or other satisfactory evidence of their military or naval service. Persons asserting preference rights, through settlement or otherwise, and those having equitable claims, shall accompany their applications by duly corroborated affidavits in support thereof, setting forth in detail all facts relevant to their claims.

Applications for these lands, which shall be filed in the proper district land office in Alaska shall be acted upon in accordance with the regulations contained in § 295.8 of Title 43 of the Code of Federal Regulations (Circular No. 324, May 22, 1914, 43 L. D. 254) to the extent that such regulations are applicable. Applications under the homestead laws shall be governed by the regulations contained in Part 65 of Title 43 of the Code of Federal Regulations and applications under the small tract act of June 1, 1938, shall be governed by the regulations contained in Part 257 of that title.

Inquiries concerning these lands shall be addressed to the proper district land office in Alaska.

The lands released from withdrawal by this order and for which applications may be filed as stated above are described as follows:

All surveyed public lands in Alaska containing hot springs, or other springs the waters of which possess curative medicinal properties, to the extent of 160 acres surrounding each spring, in rectangular form with side and end lines equidistant, as near as may be, from such spring or group of springs, not including, however, any smallest legal subdivision of the public land surveys which contains a hot spring, or a spring the waters of which possess curative properties.

C. GIRARD DAVIDSON,
Assistant Secretary of the Interior.

AUGUST 20, 1947.

[F. R. Doc. 47-8007; Filed, Aug. 27, 1947; 8:45 a. m.]

TITLE 49—TRANSPORTATION AND RAILROADS

Chapter II—Office of Defense Transportation

[Supp. Administrative Order ODT 1-5D]

DELEGATION OF AUTHORITY TO TRANSPORTATION OFFICER, RAILWAY TRANSPORT DEPARTMENT

Pursuant to § 503.5, paragraph (b) of Administrative Order ODT 1, as amended (8 F. R. 6001; 9 F. R. 4615)

1. M. F. Pitcher, Transportation Officer, Railway Transport Department, Office of Defense Transportation, is hereby authorized to execute and issue in her discretion, subject to such terms and conditions as she may prescribe, and in the name of the Director of the Office of Defense Transportation, the special permits contemplated by § 500.73 of General Order ODT 18A, Revised, as amended (11 F. R. 8229, 8829, 10616, 13320, 14172; 12 F. R. 1034, 2386) and the special permits contemplated by General Order ODT 1, Revised, as amended (11 F. R. 8228, 9040, 10616) or as such orders may be hereafter amended, revised, or reissued.

2. The exercise of the powers and authority conferred by this order shall be subject to the general control and supervision of the Director of the Office of Defense Transportation and the Director, Railway Transport Department, Office of Defense Transportation.

This Supplementary Administrative Order ODT 1-5D shall become effective on September 2, 1947.

Supplementary Administrative Order ODT 1-5C (11 F. R. 8491), is hereby revoked as of the effective date of this Supplementary Administrative Order ODT 1-5D.

Issued at Washington, D. C., this 25th day of August 1947.

A. H. GASS,
Director, Railway Transport Department, Office of Defense Transportation.

[F. R. Doc. 47-8023; Filed, Aug. 27, 1947; 8:47 a. m.]

TITLE 50—WILDLIFE

Chapter I—Fish and Wildlife Service, Department of the Interior

PART 26—EAST CENTRAL REGION NATIONAL WILDLIFE REFUGES

NECEDAH NATIONAL WILDLIFE REFUGE, WISCONSIN; DEER HUNTING REGULATIONS

Section 26.678a (11 F. R. 9040) is revised to read as follows:

§ 26.678a *Necedah National Wildlife Refuge, Wisconsin; hunting of deer.* Deer may be taken during the open season prescribed by the State Conservation Department for the hunting of deer, on all of the lands of the Necedah National Wildlife Refuge, Wisconsin, except the following:

Closed Area: W½ and that part of the SE¼ west of the Farnam Ditch in Sec. 4; all refuge land north and east of the Grand Dike Road in Sec. 5, 6, 7, and 8; all refuge land west of the refuge road known as the East Dike Road in Sec. 9; all in T. 18 N., R. 3 E.; S½ of Sec. 6; N½ of Sec. 7; all west of the East Dike Road in the SW¼ Sec. 23; S½, NW¼, and that part of the NE¼ west of the road locally known as the Speedway, in Sec. 29; E½ and all of the W½ east of the Little Yellow River Drainage Ditch in Sec. 30; E½ and all of the W½ east of the north-south road locally known as the Carpenter Road in Sec. 31; all of Sec. 32; that part of the SW¼ west of the Farnam Ditch and that part of the NW¼ west of the east dike of the Rynearson Flowage in Sec. 33; all in T. 19 N., R. 3 E., Fourth Principal Meridian.

Entry on and use of the refuge for any purpose is covered by the regulations for the Administration of National Wildlife Refuges dated December 19, 1940 (5 F. R. 5284), as amended, and strict compliance therewith is required. Hunters must follow such routes of travel within the refuge as are designated by posting. In addition all hunters must comply with State hunting laws and regulations and must have on their person and exhibit at the request of any authorized Federal or State officer whatever license or licenses as may be required by such laws and regulations which said license shall serve as a Federal permit for hunting deer on the refuge.

State cooperation may be enlisted in the regulation, management, and operation of the public hunting area, and the State may promulgate such special regulations as may be necessary for such regulation, management, and operation. In the event such State regulations are issued, compliance therewith shall be a requisite to lawful entry for the purpose of hunting. (Sec. 84, 35 Stat. 1104, as amended; 18 U. S. C. 145)

Dated: August 19, 1947.

CLARENCE COTTAM,
Acting Director.

[F. R. Doc. 47-8024; Filed, Aug. 27, 1947; 8:45 a. m.]

PROPOSED RULE MAKING

TREASURY DEPARTMENT

Bureau of Customs

[19 CFR, Part 61]

[192-36.32]

SKY HARBOR SEAPLANE BASE, DULUTH, MINN.

NOTICE OF PROPOSED DESIGNATION AS TEMPORARY AIRPORT OF ENTRY FOR PERIOD OF 1 YEAR

Notice is hereby given that, pursuant to authority contained in section 7 (b) of the Air Commerce Act of 1926, as amended (49 U. S. C., Sup., 177 (b)), it is proposed to designate the Sky Harbor Seaplane Base, Duluth, Minnesota, as a temporary airport of entry for civil aircraft and for merchandise carried thereon arriving from places outside the United States, as defined in section 9 (b) of said act (49 U. S. C. 179 (b)), for a period of 1 year; and it is further proposed to amend the list of temporary airports of entry in § 6.13, Customs Regulations of 1943 (19 CFR, Cum. Supp., 6.13) as amended, to show such designation.

This notice is published pursuant to section 4 of the Administrative Procedure Act (Public Law 404, 79th Congress). Data, views, or arguments with respect to the proposed designation of the above-mentioned airport as an airport of entry may be addressed to the Commissioner of Customs, Bureau of Customs, Washington 25, D. C., in writing. To assure consideration of such communications, they must be received in the Bureau of Customs not later than 20 days from the date of publication of this notice in the FEDERAL REGISTER.

[SEAL] A. L. M. WIGGINS,
Acting Secretary of the Treasury.

AUGUST 22, 1947.

[F. R. Doc. 47-8022; Filed, Aug. 27, 1947; 8:45 a. m.]

0000001456

From:	Megan Reschke, Alaska Wilderness League
To:	Roger Kaye
Subject:	Big Arctic Refuge Week Ahead!
Date:	Thursday, November 9, 2017 12:57:38 PM

Dear Roger,

Yesterday evening, Senator Murkowski released the text of the bill to open the Arctic Refuge to development and scheduled a business meeting for next Wednesday, November 15th, to consider this legislation in the Energy and Natural Resources Committee. **Now, more than ever, is the time to make our voices heard in defense of this wild and sacred place.**

This announcement follows a hearing held last week on opening the Coastal Plain of the Refuge to drilling. Watching our congressional delegation talk about development as something that all Alaskans want was frustrating.

Our senators seemed to ignore Gwich'in Sam Alexander testifying right in the room with them. He expressed so eloquently:

"We're not sitting here asking for anything...we're not saying give us money, give us hospitals…What we're saying is let us live as Gwich'in. Because we already recognize the wealth as people and that's nothing that you can give us. We recognize that is something that can be taken away from us." He continued, "I keep hearing 'well the locals, let's hear what the locals have to say about the 1002 area.' You know who the locals are? They're caribou. Those are the locals that don't have a voice. And that's why we're here as Gwich'in."

I'm also an Alaskan, and I oppose development in this wild and sacred Refuge. I stand against attempts to open it to drilling because I believe that some places should be protected for current and future generations, because I stand with the Gwich'in people and want to help protect the place they call "the sacred place where life begins," and because I love my state and know that places like the Arctic Refuge are a huge part of what makes it special.

If you haven't already, click here to send our delegation a message in advance of this markup to let them know that you are against drilling in the Refuge.

And if you have, forward this message along to friends or family so they can too!

As always, if you want to chat in more depth about these issues, feel free to send me an email or call. I'm always happy to talk.

- Megan

Alaska Wilderness League

1026 W 4th Ave #201, Anchorage, AK 99501 | Tel: 907-222-4046
122 C St NW, Ste 240, Washington, DC 20001 | Tel: 202-544-5205

Click here to unsubscribe or here to support our work.

From:	Fischbach, Tracy
To:	John Martin
Cc:	Stephanie Brady
Subject:	Update on Arctic 1002 Discussions
Date:	Thursday, November 9, 2017 1:04:07 PM

Hi John,

Welcome back! I'll be in at 9, but since I know that you'll be in earlier, I thought I'd give you some things to consider.

1. Look at the documents that Mike Gieryic sent us in his 11/3 emails. There is a copy of the State's proposal for doing exploration in the 1002 area attached to one of those. Very interesting read. He also included EAs from the NPRA that also give us some insights into what we might expect for exploration and development.

2. We need to strategize a bit about how to tackle the new EA. Frankly, I'm not sure that we can get to a FONSI because of the unknown effects. Mike feels strongly that we need to evaluate the effects of exploration as best we can. The State's proposal at least gives us something to use as a stand-in proposed exploration plan.

3. We need to gather an in-house IDT. I will take charge on that part of this business. I will be a social butterfly the week of November 6, gathering up folks who may be able to help us out. I'm thinking Refuge folks (Steve, Joanna, Steve Arthur (bio), Jen Reed (visitor experiences), others?), Joanna Bryant (EA, Subsistence), Marine Mammals Management (polar bears), MBM (international bird resources), Ed (cultural resources), John T (water), and whoever else we think needs to be involved.

4. After I send this, I'll review/edit my notes from our meeting with Joe D and Mike G so everyone has those and can get a sense of where DOI solicitors feel that we should go.

Again, welcome back. See you soon! -Tracy

Tracyann S Fischbach
Natural Resources Planner
National Wildlife Refuge System - Region 7
Division of Natural Resources & Conservation Planning
(907) 786-3369

Hours: Mon - Thurs 9:15 am to 3:15 pm
"Getting right down and smelling the fresh soil is good for any one." - from the 1913 Handbook for Girl Scouts by W. J. Hoxie

Need access to Refuge Documents?
Online Document Database (ServCat)
Need Refuge land status info for Alaska?
FWS Region 7 Land Mapper (FWS version)
FWS Region 7 Land Mapper (Public version)
Region 7 GeoPDF Map Portal

From: Bertram, Mark
To: Stephen Arthur; Christopher Harwood; Roy Churchwell
Subject: Meet at 10 am AK Time on Monday Nov 13
Date: Thursday, November 9, 2017 1:12:04 PM
Attachments: Yukon Flats annual timeline of biological activities in priority order.docx

---

Hi everyone,

It sounds like we had conflicts in the afternoon so lets plan on meeting at 10am (alaska time) on Monday Nov 13 to discuss biological districting. As mentioned earlier this discussion will set the stage for a followup meeting (hopefully later in the month) among the collective biological staffs of the three refuges.

I put together a timeline of prioritized biological projects (attached) that we do at Yukon Flats to assist in discussions of what could we do collectively at each of the three refuges to address different future scenarios [redacted]

We can call Steve from my office.

Have a good long weekend.

Cheers,
Mark

Mark_Bertram@fws.gov
Supervisory Wildlife Biologist
US Fish and Wildlife Service
Yukon Flats National Wildlife Refuge
101 12th Avenue, Room 264
Fairbanks, Alaska 99701
Voice: (907) 456-0446
Cell: (907) 347-1524
Fax: (907) 456-0447
Toll Free: 1-800-531-0676
http://www.fws.gov/refuge/yukon_flats/
https://www.facebook.com/YukonFlatsNationalWildlifeRefuge/

| Yukon Flats annual timeline of biological activities in priority order | | |

From:	Fischbach, Tracy
To:	Ryan Mollnow; Socheata Lor; Mitch Ellis; Stephanie Brady; Joseph Darnell; Michael Gieryic; Doug Damberg; John Martin
Subject:	Arctic 1002 EA - ATTORNEY CLIENT PRIVILEGE - Meeting Notes
Date:	Thursday, November 9, 2017 1:14:06 PM

Hi all,

Following are my notes from our discussion with Mike and Joe on November 1. Please let me know if you see something that is not correct.

Thanks!

November 1, 2017

Attendees: Ryan Mollnow, Socheata Lor, Mitch Ellis, Stephanie Brady, Joe Darnell, Mike Gieryic, Doug Damberg, Tracy Fischbach

In the EA we do need to have explanations of why we aren't analyzing other parts of this chapter. Why aren't we doing the environmental portion of the regs?
Lead with a discussion outlining that the rest of the reg is not within the scope of the evaluation. It's not warranted as part of the change. We may decide that the environmental protections are adequate. Put a disclaimer somewhere that the additional NEPA would lay out possible additional stipulations.

Add "Considered but Eliminated" Section - Include the other Environmental Regulations in 37.31 & 32. It's beyond the scope of the proposed rule-making and we can include other stipulations (see page 11 of current EA).

We can add to stipulations but not remove regulatory requirements.

Reference the CCP and the earlier EIS (Chapt 4 from 1983 version). Develop an executive summary to put into the environmental consequences (incorporate by reference). Then add any new information about that resource area. Give summaries of any updated information for these creatures.

Consider this as a programmatic model. Review the 1983 EIS to consider the broad brush evaluation that was done. For example, where is the polar bear critical habitat. Water resources section may be new information for this issue.

Review the CCP and the EIS to understand the whole list of resources to consider.

Check out recent NPRA NEPA documents from 2012.

Consider other resources to evaluate other resources such as "opportunities for visitor experiences." Think about when the action takes affect and then consider what opportunities would be affected.

Section 810 needs to be included along with general discussions of Section 7 and Section 106. Specific Section 7

& Section 106 would be done when we do site-specific NEPA.

T&E Species - Polar bears, spectacled eiders in small numbers,

---

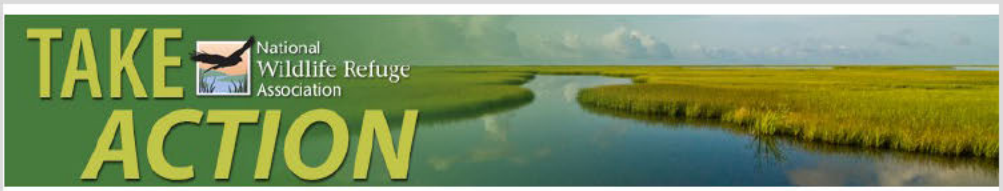
Tracyann S Fischbach
Natural Resources Planner
National Wildlife Refuge System - Region 7
Division of Natural Resources & Conservation Planning
(907) 786-3369

Hours: Mon - Thurs 9:15 am to 3:15 pm
"Getting right down and smelling the fresh soil is good for any one." - from the 1913 Handbook for Girl Scouts by W. J. Hoxie

Need access to Refuge Documents?
Online Document Database (ServCat)
Need Refuge land status info for Alaska?
FWS Region 7 Land Mapper (FWS version)
FWS Region 7 Land Mapper (Public version)
Region 7 GeoPDF Map Portal

From: Caroline Brouwer
To: doug_damberg@fws.gov
Subject: Senate Releases Bill to open Arctic NWR to drilling—Your Help Needed!
Date: Thursday, November 9, 2017 1:27:00 PM

Forward to a Friend



Dear Doug,

November 9, 2017: Last night, the Senate released a bill that would open the Arctic Refuge to oil and gas development, and if we don't push back hard, it will become reality.

This latest effort to open the Refuge marks the closest that Congress has come to opening the Arctic National Wildlife Refuge to oil and gas drilling since President Bill Clinton vetoed an attempt in 1995.

Senator Lisa Murkowski (R-Alaska) is the chair of the committee of jurisdiction, and she is singly-focused on passing this legislation. Why? Because she intends to give half of all profits to the state of Alaska. And on top of that - the profits would be decimal dust - just $1 billion in revenue over 10 years! We would ruin forever one of the last remaining great ecosystems of the planet for about a day and a half of interest payment on our national debt.

What makes this even more galling is that these revenues would NOT then go towards wildlife habitat or restoration projects, but as offsets for the Trump

Administration's push for tax cuts for corporations and for the wealthy.

Senator Murkowski's Energy and Natural Resources Committee held a hearing last Thursday on the repercussions of opening up this pristine wildlife habitat for development. Even with the witness list stacked against the Refuge - only 3 of the 12 witnesses spoke against allowing drilling—it was clear from the hearing that not only would wildlife suffer, but the Gwich'in people, who rely solely on the Porcupine caribou herd for their survival and would cease to exist as they do today should this bill pass and drilling commence (a video from the recent Arctic Hearing detailing some of their concerns can be seen here).

The Arctic Refuge is America's last frontier. It has remained untouched for millennia yet pro-drilling special interests would despoil this iconic place forever – at a time when the United States has a surplus of oil. We must not allow drilling to permanently damage this irreplaceable refuge and its iconic wildlife.

Please contact both of your U.S. Senators and U.S. Representative ask them to oppose the inclusion of any language that seeks to drill in the Arctic National Wildlife Refuge. This move to open the Refuge is all about money money money. This refuge and its wildlife are priceless, and we should protect them at all costs.

Take Action!

Thank you,
Caroline Brouwer, Director of Government Affairs

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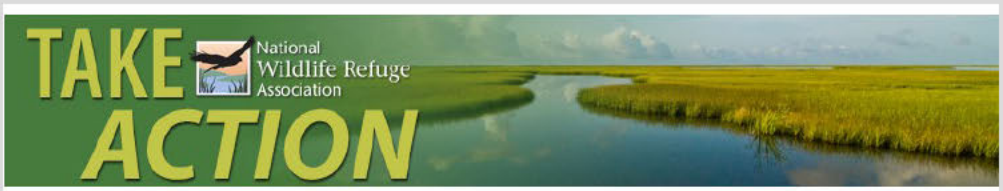
From: Caroline Brouwer
To: Mitch_Ellis@fws.gov
Subject: Senate Releases Bill to open Arctic NWR to drilling—Your Help Needed!
Date: Thursday, November 9, 2017 1:27:30 PM

Forward to a Friend



Dear Mitch,

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Take Action!

Thank you,
Caroline Brouwer, Director of Government Affairs

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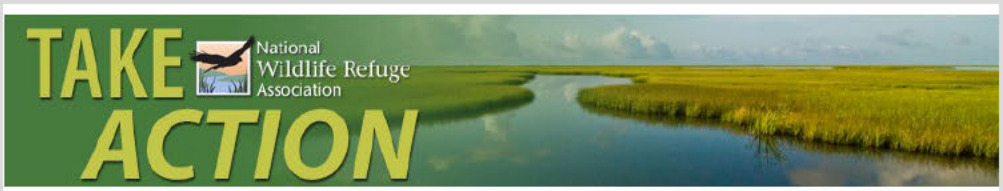
From: Caroline Brouwer
To: Ronnie_Sanchez@fws.gov
Subject: Senate Releases Bill to open Arctic NWR to drilling—Your Help Needed!
Date: Thursday, November 9, 2017 1:27:36 PM

Forward to a Friend



Dear Ronnie ,

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Take Action!

Thank you,
Caroline Brouwer, Director of Government Affairs

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From: Harwood, Christopher
To: Mark Bertram
Cc: Arthur, Stephen; Roy Churchwell
Subject: Re: biological districting
Date: Thursday, November 9, 2017 1:31:22 PM

I'll email Mike and let him know that Roy and I need to leave our staff meeting by 10.

On Thu, Nov 9, 2017 at 9:35 AM, Mark Bertram <mark_bertram@fws.gov> wrote:

> Is everyone available at 10am, same day
>
> Sent from my iPhone
>
> On Nov 9, 2017, at 7:54 AM, Harwood, Christopher <christopher_harwood@fws.gov> wrote:
>
> > Roy and I typically leave at 4. Is 30 minutes enough or should we plan on staying later (4:30?)?
> >
> > We could likely do first thing (start no later than 8) and go to 9-9:30. I'd ask Tina to delay our staff meeting to 9:30.
> >
> > On Wed, Nov 8, 2017 at 4:18 PM, Bertram, Mark <mark_bertram@fws.gov> wrote:
> >
> > > Steve,
> > >
> > > How about we move it to 3:30pm Alaska Time?
> > >
> > > Chris and Roy, can you make that time as well?
> > >
> > > Cheers,
> > > Mark
> > >
> > > Mark_Bertram@fws.gov
> > > Supervisory Wildlife Biologist
> > > US Fish and Wildlife Service
> > > Yukon Flats National Wildlife Refuge
> > > 101 12th Avenue, Room 264
> > > Fairbanks, Alaska 99701
> > > Voice: (907) 456-0446
> > > Cell: (907) 347-1524
> > > Fax: (907) 456-0447
> > > Toll Free: 1-800-531-0676
> > > http://www.fws.gov/refuge/yukon_flats/
> > > https://www.facebook.com/YukonFlatsNationalWildlifeRefuge/
> > >
> > > On Wed, Nov 8, 2017 at 3:50 PM, Arthur, Stephen <stephen_arthur@fws.gov> wrote:
> > >
> > > > It seems I have another meeting scheduled from 1-3 on Monday afternoon.

Can we reschedule our discussion for either before or after that? I'm available all day.

Steve

Stephen M. Arthur, Ph.D.
Supervisory Wildlife Biologist
Arctic National Wildlife Refuge
101 12th Ave., Room 236
Fairbanks, AK 99701
(907)455-1830

On Wed, Nov 8, 2017 at 10:56 AM, Bertram, Mark <mark_bertram@fws.gov> wrote:

> Sounds good.
>
> Cheers,
> Mark
>
> Mark_Bertram@fws.gov
> Supervisory Wildlife Biologist
> US Fish and Wildlife Service
> Yukon Flats National Wildlife Refuge
> 101 12th Avenue, Room 264
> Fairbanks, Alaska 99701
> Voice: (907) 456-0446
> Cell: (907) 347-1524
> Fax: (907) 456-0447
> Toll Free: 1-800-531-0676
> http://www.fws.gov/refuge/yukon_flats/
> https://www.facebook.com/YukonFlatsNationalWildlifeRefuge/
>
> On Wed, Nov 8, 2017 at 10:18 AM, Harwood, Christopher <christopher_harwood@fws.gov> wrote:
>
> > If it's ok with you two, we're going to have Roy attend, too, as I will not be around for the larger meeting with Doug on December 7.
> >
> > On Tue, Nov 7, 2017 at 8:34 AM, Bertram, Mark <mark_bertram@fws.gov> wrote:
> >
> > > Steve,
> > >
> > > My number is 907 456-0446. We can save you a dime and call you as well if you want to pass on your number.
> > >
> > > So we will all talk on Monday November 13 at 1:30pm Alaska time.
> > >
> > > Cheers,
> > > Mark

Mark_Bertram@fws.gov
Supervisory Wildlife Biologist
US Fish and Wildlife Service
Yukon Flats National Wildlife Refuge
101 12th Avenue, Room 264
Fairbanks, Alaska 99701
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Toll Free: 1-800-531-0676
http://www.fws.gov/refuge/yukon_flats/
https://www.facebook.com/YukonFlatsNationalWildlifeRefuge/

On Tue, Nov 7, 2017 at 8:09 AM, Arthur, Stephen <stephen_arthur@fws.gov> wrote:

> Yes, I'll plan to call in then. Just let me know what phone number to call.
>
> Steve
>
> Stephen M. Arthur, Ph.D.
> *Supervisory Wildlife Biologist*
> *Arctic National Wildlife Refuge*
> *101 12th Ave., Room 236*
> *Fairbanks, AK 99701*
> *(907)455-1830*
>
> On Mon, Nov 6, 2017 at 9:02 AM, Bertram, Mark <mark_bertram@fws.gov> wrote:
>
> > Steve and Chris,
> >
> > Would you both be available for a teleconference Monday November 13 at 1:30 pm Alaska Time to discuss biological districting?
> >
> > Cheers,
> > Mark
> >
> > Mark_Bertram@fws.gov
> > Supervisory Wildlife Biologist
> > US Fish and Wildlife Service
> > Yukon Flats National Wildlife Refuge
> > 101 12th Avenue, Room 264
> > Fairbanks, Alaska 99701
> > Voice: (907) 456-0446
> > Cell: (907) 347-1524
> > Fax: (907) 456-0447
> > Toll Free: 1-800-531-0676
> > http://www.fws.gov/refuge/yukon_flats/

https://www.facebook.com/YukonFlatsNationalWildlifeRefuge/

On Mon, Nov 6, 2017 at 8:52 AM, Harwood, Christopher <christopher_harwood@fws.gov> wrote:

> I think Nov 13 is ok, but we generally have 9:00 staff meeting on Mondays so a later time would be better.
>
> On Mon, Oct 30, 2017 at 4:35 PM, Mark Bertram <mark_bertram@fws.gov> wrote:
>
> > Thanks Steve, I will wait for Chris to weigh in and we will pick a date and time
> >
> > Sent from my iPhone
> >
> > On Oct 30, 2017, at 3:43 PM, Arthur, Stephen <stephen_arthur@fws.gov> wrote:
> >
> > > Nov 13 should work for me, and the previous week would be ok as well (assuming I can call in).
> > >
> > > Steve
> > >
> > > Stephen M. Arthur, Ph.D.
> > > *Supervisory Wildlife Biologist*
> > > *Arctic National Wildlife Refuge*
> > > *101 12th Ave., Room 236*
> > > *Fairbanks, AK 99701*
> > > *(907)455-1830*
> > >
> > > On Wed, Oct 25, 2017 at 2:42 PM, Bertram, Mark <mark_bertram@fws.gov> wrote:
> > >
> > > > Hi Chris and Steve,
> > > >
> > > > I note you are both out of town with Steve gone thru Nov 10 and Chris thru Nov 5. I propose we get together at 9am Monday Nov 13 to discuss the districting idea. Please let me know if that day/time will work for you.
> > > >
> > > > Cheers,
> > > > Mark
> > > >
> > > > Mark_Bertram@fws.gov
> > > > Supervisory Wildlife Biologist
> > > > US Fish and Wildlife Service
> > > > Yukon Flats National Wildlife Refuge
> > > > 101 12th Avenue, Room 264
> > > > Fairbanks, Alaska 99701

Voice: (907) 456-0446
Cell: (907) 347-1524
Fax: (907) 456-0447
Toll Free: 1-800-531-0676
http://www.fws.gov/refuge/yukon_flats/
https://www.facebook.com/YukonFlatsNationalWildlifeRefuge/

On Wed, Oct 25, 2017 at 2:20 PM, Bertram, Mark <mark_bertram@fws.gov> wrote:

> Hi Chris and Steve,
>
> Nathan Hawkaluk asked me to contact you both as a first step to opening a dialogue with the Fairbanks refuge biological staff (all 11 of them) regards to identifying strategies for us to get our biological priorities done on refuges as our resources decrease. The regional office refers to this as "Districting".
>
> As is often the case we are given very little information or direction to have this discussion so I am looking at this as a possible scenario building exercise. b5 - DP

> So after we talk then we could put together a more organized agenda to have a broader discussion among the full Fairbanks refuge biological staff.
>
> Would you both be available to talk Friday Nov 10 at 9am? Steve, I know you are in the process of moving; so please suggest an alternate date/time if this one is too soon for you.
>
> Cheers,

Mark

Mark_Bertram@fws.gov
Supervisory Wildlife Biologist
US Fish and Wildlife Service
Yukon Flats National Wildlife Refuge
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Fairbanks, Alaska 99701
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--
Christopher Harwood
Wildlife Biologist
U.S. Fish and Wildlife Service
Kanuti National Wildlife Refuge
101 12th Ave.; Room 206
Fairbanks, AK 99701
(907) 455-1836 (w)
(907) 456-0506 (fax)

"In my house, anyone who uses one word when they could have used ten just isn't trying hard."

- Josiah Edward Bartlet, PhD, Nobel Laureate

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From: Kodis, Martin
Subject: FWS Congressional Affairs Update
Date: Thursday, November 9, 2017 1:59:33 PM
Attachments: 11.9.17 (1).docx

All,

The Congressional Affairs Update for this past week is attached.

Enjoy the long weekend.

Marty

--
Martin Kodis
Chief, Division of Congressional and Legislative Affairs
U.S. Fish and Wildlife Service

5275 Leesburg Pike
Falls Church, VA 22041

703-358-2241 ph
703-358-2245 fax

CONGRESSIONAL AFFAIRS UPDATE

Division of Congressional and Legislative Affairs
U.S. Fish and Wildlife Service

November 9, 2017

2017 Congressional Recess Schedule

Senate	Holidays & Special Days	House
Nov. 10	**Veterans Day** Nov. 10 (Observed)	Nov. 10
Nov. 20 – Nov. 24	**Thanksgiving Day** Nov. 23	Nov. 20 – Nov. 24
Dec. 18 – Dec. 29	**Christmas Day** Dec. 25	Dec. 18 – Dec. 29

UPDATES ON LEGISLATION OF INTEREST

House and Senate Resolve Conference Negotiations on National Defense Authorization Act
On Wednesday, November 8, the House and Senate conferees reached a consensus on the National Defense Authorization Act (NDAA, H.R. 2810) for fiscal year 2018. Conference negotiations had been occurring over the last two weeks to resolve differences between the different versions of the bills passed by House and the Senate in July and September, respectively. The conference report for the NDAA now goes to both the House and Senate floors for final votes.

House Passes Legislation Addressing Hydropower Policy
On Thursday, November 9, the House of Representatives voted 257-166 to pass H.R. 3043, the Hydropower Policy Modernization Act of 2017. The bill seeks to streamline federal permitting for hydropower projects by designating the Federal Energy Regulatory Commission (FERC) as the lead coordinating agency for all environmental reviews and providing FERC with the authority to set schedules for applicants and permitting agencies. H.R. 3043 provides FERC with the discretion to limit requirements for environmental reviews in amending existing hydropower licenses. The bill also directs FERC to compile best management practices to inform licensing proceedings, relying on existing data and studies to the greatest extent practicable. The bill next goes to the Senate for consideration.

HEARINGS AND MARKUPS OF INTEREST

Subcommittee Discusses Draft Legislation to Overhaul Federal Lands Energy Policy
On Tuesday, November 7, the House Natural Resources Subcommittee on Energy and Mineral Resources held a legislative hearing to discuss draft legislation on H.R. 4239, the SECURE American Energy Act, sponsored by **Majority Whip Steve Scalise (R-LA-1).** The bill centers on the distribution of revenues from offshore energy leases, the establishment of wind lease sale

requirements, and incidental take permitting of marine mammals under the Marine Mammal Protection Act (MMPA). The bill also prohibits the designation of marine monuments by the President. The conversation primarily focused on revenue sharing among states from oil and gas leases, and a few Members spoke to issues related to the MMPA:

- **Rep. Doug Lamborn (R-CA-5)** discussed concerns that opposition to seismic exploration due to supposed damages to marine mammal hearing may have ulterior motives to prevent extraction of potential resource reserves. Witness David Holt cited a study produced under the previous administration that found no negative impact on marine mammals from seismic drilling.
- **Rep. Mike Johnson (R-LA-4)** spoke about regulatory impediments to energy development due to perceived duplicative permitting processes under the ESA and MMPA. He suggested that the inclusion of his bill, H.R. 3133, the Streamlining Environmental Approvals (SEA) Act of 2107, would help to reduce these burdens.
- **Rep. Darren Soto (D-FL-9)** expressed concerns about impacts of seismic drilling on marine life along the Florida coast, and referenced a letter sent by **Rep. John Rutherford (R-FL-10)** and other Florida coastal Republican members that relayed these concerns.

For more information, please visit:
https://naturalresources.house.gov/calendar/eventsingle.aspx?EventID=403237

Committee Marks Up Bills Related to Energy Policy on Federal Lands and Echinoderms
On Wednesday, November 8, the House Natural Resources Committee held a markup of several bills of interest to the Service. H.R. 2504, "To ensure fair treatment in licensing requirements for the export of certain echinoderms," sponsored by **Rep. Chellie Pingree (D-ME-1)**, was passed out of committee by unanimous consent. The Committee also considered the SECURE American Energy Act (H.R. 4239), sponsored by **Majority Whip Scalise (R-LA-1),** which was the subject of a legislative hearing the previous day (see above entry). The Committee voted 19-14 to pass the SECURE American Energy Act. Several amendments to H.R. 4239 were considered, including:

- 010, offered by **Rep. Don Beyer (D-VA-8)**, strikes language that expedites incidental take permitting under the MMPA and reduces perceived duplicative processes under the MMPA and ESA. Defeated 15-19.
- 027, offered by **Rep. Johnson (R-LA-4)**, transfers take-permitting authority of offshore energy activities from the Department of Commerce to the Department of the Interior. Adopted 23-13.
- #1, offered by **Rep. Liz Cheney (R-WY-AL)**, adds new language that amends the Migratory Bird Treaty Act to prohibit enforcement of accidental or incidental violations of Section 2 of the Act regarding taking, killing, or possessing migratory birds. Adopted 20-14.
- 012, offered by **Ranking Member Raul Grijalva (D-AZ-3)**, adds new language that permanently reauthorizes the Land and Water Conservation Fund. Defeated 15-19.

For more information, please visit:
https://naturalresources.house.gov/calendar/eventsingle.aspx?EventID=403266

UPCOMING HEARINGS

Committee to Markup Legislation on Energy Development in Arctic Refuge
On Wednesday, November 15, the Senate Committee on Energy and Natural Resources will hold a markup of legislation that would open the 1002 Area of the Arctic National Wildlife Refuge's coastal plain to oil and gas development, pursuant to the fiscal year 2018 budget resolution. The meeting is scheduled for 9:00 a.m. in 366 Dirksen Senate Office Building.

For more information, please visit:
https://www.energy.senate.gov/public/index.cfm/2017/11/business-meeting-to-consider-reconciliation-legislation

Subcommittee to Discuss National Wildlife Refuge System Legislation
On Wednesday, November 15, the House Natural Resources Subcommittee on Federal Lands will hold a legislative hearing to discuss several bills related to public lands, including H.R. 3979, Keep America's Refuges Operational Act, sponsored by **Rep. Hakeem Jeffries (D-NY-8)**. The bill amends the Fish and Wildlife Act of 1956 to reauthorize volunteer, partner, and education programs in the National Wildlife Refuge System. The hearing is scheduled for 10:30 a.m. in 1334 Longworth House Office Building.

For more information, please visit:
https://naturalresources.house.gov/calendar/eventsingle.aspx?EventID=403326

INTRODUCED LEGISLATION OF INTEREST

S.2093 — A bill to amend the Omnibus Public Land Management Act of 2009 to clarify the authority of the Administrator of the Federal Emergency Management Agency with respect to post-storm assessments, and for other purposes.
Sponsor: Sen. Wicker, Roger F. [R-MS] (Introduced 11/07/2017) Cosponsors: (0)
Committees: Senate - Homeland Security and Governmental Affairs
Latest Action: Senate - 11/07/2017 Read twice and referred to the Committee on Homeland Security and Governmental Affairs.

S.2092 — A bill to amend the Bunning-Bereuter-Blumenauer Flood Insurance Reform Act of 2004 to require insurance agents who sell flood insurance policies under the National Flood Insurance Program to take certain continuing educational courses, and for other purposes.
Sponsor: Sen. Wicker, Roger F. [R-MS] (Introduced 11/07/2017) Cosponsors: (0)
Committees: Senate - Banking, Housing, and Urban Affairs
Latest Action: Senate - 11/07/2017 Read twice and referred to the Committee on Banking, Housing, and Urban Affairs.

S.2091 — A bill to amend the National Flood Insurance Act of 1968 to provide relief from surcharges to small businesses and nonprofit organizations.
Sponsor: Sen. Wicker, Roger F. [R-MS] (Introduced 11/07/2017) Cosponsors: (0)

Committees: Senate - Banking, Housing, and Urban Affairs
Latest Action: Senate - 11/07/2017 Read twice and referred to the Committee on Banking, Housing, and Urban Affairs.

S.2090 — A bill to amend the Biggert-Waters Flood Insurance Reform Act of 2012 to make reforms to flood mapping programs, and for other purposes.
Sponsor: Sen. Wicker, Roger F. [R-MS] (Introduced 11/07/2017) Cosponsors: (0)
Committees: Senate - Banking, Housing, and Urban Affairs
Latest Action: Senate - 11/07/2017 Read twice and referred to the Committee on Banking, Housing, and Urban Affairs.

S.2078 — A bill to maximize land management efficiencies, promote land conservation, generate education funding, and for other purposes.
Sponsor: Sen. Heinrich, Martin [D-NM] (Introduced 11/06/2017) Cosponsors: (1)
Committees: Senate - Energy and Natural Resources
Latest Action: Senate - 11/06/2017 Read twice and referred to the Committee on Energy and Natural Resources.

H.R.4317 — To authorize the Federal Energy Regulatory Commission to issue an order continuing a stay of a hydroelectric license for the Mahoney Lake hydroelectric project in the State of Alaska, and for other purposes.
Sponsor: Rep. Young, Don [R-AK-At Large] (Introduced 11/08/2017) Cosponsors: (0)
Committees: House - Energy and Commerce
Latest Action: House - 11/08/2017 Referred to the House Committee on Energy and Commerce.

H.R.4306 — To reauthorize and amend the National Sea Grant College Program Act, and for other purposes.
Sponsor: Rep. Huffman, Jared [D-CA-2] (Introduced 11/08/2017) Cosponsors: (1)
Committees: House - Natural Resources
Latest Action: House - 11/08/2017 Referred to the House Committee on Natural Resources.

H.R.4304 — To provide whistleblower protections to certain workers in the offshore oil and gas industry.
Sponsor: Rep. DeSaulnier, Mark [D-CA-11] (Introduced 11/08/2017) Cosponsors: (3)
Committees: House - Education and the Workforce
Latest Action: House - 11/08/2017 Referred to the House Committee on Education and the Workforce.

H.R.4302 — To amend the Federal Reserve Act to create congressional accountability for emergency lending programs, and for other purposes.
Sponsor: Rep. Tipton, Scott R. [R-CO-3] (Introduced 11/08/2017) Cosponsors: (0)
Committees: House - Financial Services, Rules
Latest Action: House - 11/08/2017 Referred to the Committee on Financial Services, and in addition to the Committee on Rules, for a period to be subsequently determined by the Speaker, in each case for consideration of such provisions as fall within the jurisdiction of the committee concerned.

H.R.4299 — To provide for the indefinite duration of certain military land withdrawals, to improve the management of lands currently subject to such withdrawals and to make the management of such lands more transparent, and for other purposes.
Sponsor: Rep. Bishop, Rob [R-UT-1] (Introduced 11/08/2017) Cosponsors: (2)
Committees: House - Natural Resources, Armed Services
Latest Action: House - 11/08/2017 Referred to the Committee on Natural Resources, and in addition to the Committee on Armed Services, for a period to be subsequently determined by the Speaker, in each case for consideration of such provisions as fall within the jurisdiction of the committee concerned.

H.R.4298 — To amend the Food Security Act of 1985 to allow grazing as a mid-contract management practice in the conservation reserve program, and for other purposes.
Sponsor: Rep. Hartzler, Vicky [R-MO-4] (Introduced 11/08/2017) Cosponsors: (0)
Committees: House - Agriculture
Latest Action: House - 11/08/2017 Referred to the House Committee on Agriculture.

H.R.4257 — To maximize land management efficiencies, promote land conservation, generate education funding, and for other purposes.
Sponsor: Rep. Stewart, Chris [R-UT-2] (Introduced 11/06/2017) Cosponsors: (1)
Committees: House - Natural Resources
Latest Action: House - 11/06/2017 Referred to the House Committee on Natural Resources.

H.R.4239 — SECURE American Energy Act
Sponsor: Rep. Scalise, Steve [R-LA-1] (Introduced 11/03/2017) Cosponsors: (10)
Committees: House - Natural Resources
Latest Action: House - 11/03/2017 Referred to the House Committee on Natural Resources.

From: Damberg, Doug
To: Fischbach, Tracy
Subject: Fwd: Arctic Refuge internal 1002 meeting - potential invite list
Date: Thursday, November 9, 2017 2:17:46 PM

Doug Damberg
Refuge Supervisor, AK North Zone
U.S. Fish and Wildlife Service
1011 E. Tudor Rd.; Anchorage, AK 99503
Office: (907) 786-3329
Cell: (907) 947-6302

---------- Forwarded message ----------
From: **Berendzen, Steve** <steve_berendzen@fws.gov>
Date: Fri, Oct 20, 2017 at 5:43 PM
Subject: Re: Arctic Refuge internal 1002 meeting - potential invite list
To: "Damberg, Doug" <doug_damberg@fws.gov>
Cc: Ryan Mollnow <ryan_mollnow@fws.gov>, John W Martin <John_W_Martin@fws.gov>, John Trawicki <john_trawicki@fws.gov>, Socheata Lor <Socheata_Lor@fws.gov>, Joanna Fox <joanna_fox@fws.gov>, Stephen Arthur <stephen_arthur@fws.gov>

Thanks, Doug - with the accelerated pace of activity related to seismic testing and potential extraction, I would appreciate an internal group convening and charting a path forward.

As Steve Arthur said earlier this week, there are a lot of gaps in our biological resource knowledge in the 1002 Area, and most people seem to assume that since studies were completed in the 80's we have all the biological information that's needed. However, many of the results of those studies are no longer relevant due to variables such as climate change, natural changes in species distribution and abundance, and changes in resource priorities.

Migratory birds, especially shorebirds and waterfowl have elevated as priorities, and have demonstrated big changes in abundance and distribution. And, they apparently weren't monitored very closely at that time. There's also a need for additional water studies and potential impacts to fisheries resources, water chemistry, and water bodies including streams and assorted wetlands. I'm sure there will be other priority inventory needs as well, but the biological staff are best suited to identify all of this.

I don't think it's too early to look at priority monitoring needs, and I think you're suggested agenda topics are right on the mark. Arctic Refuge staff will be very interested in discussing future biological planning needs.

Steve Berendzen
Acting Manager, Arctic National Wildlife Refuge
907-456-0253

On Fri, Oct 20, 2017 at 4:15 PM, Damberg, Doug <doug_damberg@fws.gov> wrote:

> All:
> We've talked about setting up an internal FWS-only meeting to talk about 1002 issues, in

some ways a parallel to the inter-agency meeting from last week but with a little more focus on our own FWS preparation and needs for what might be headed our way.

Is this something that still interests folks? Please let me know if this is still needed and/or useful after our inter-agency meeting this past week. If it is duplicative and not needed, we need to know that too.

If you think it is useful, we should develop a list of agenda topics, and invitees. Here is a quick straw dog for each - please review and add to it. From there, we can refine the list and strategize and when/where.

Potential agenda topics:
+ What data gaps do we have that we should focus our FWS biological capacity at?
+ What additional workforce capacity do we need that should be incorporated into our workforce planning efforts?
+ What are the lessons learned from the last big push to open up Arctic? Who do we need to talk to including retirees?

Potential invitees:
Ryan Mollnow
John Trawicki
John Martin
Doug Damberg
Soch Lor
Stephanie Brady
Sarena Selbo
Wendy Loya
Diane Granfors
Eric Taylor (or someone else in Mig Birds)
Susie Miller
Jim Wilder
Ted Swem
Jimmy Fox
Sarah Conn
Steve Berendzen
Joanna Fox
Other Arctic NWR staff (Steve/Joanna input)

Thanks!
d

Doug Damberg
Refuge Supervisor, AK North Zone
U.S. Fish and Wildlife Service
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Cell: (907) 947-6302

From: Damberg, Doug
To: Fischbach, Tracy
Subject: Fwd: Arctic Refuge internal 1002 meeting - potential invite list
Date: Thursday, November 9, 2017 2:18:19 PM

Doug Damberg
Refuge Supervisor, AK North Zone
U.S. Fish and Wildlife Service
1011 E. Tudor Rd.; Anchorage, AK 99503
Office: (907) 786-3329
Cell: (907) 947-6302

---------- Forwarded message ----------
From: **Ryan Mollnow** <ryan_mollnow@fws.gov>
Date: Mon, Oct 23, 2017 at 7:00 AM
Subject: Re: Arctic Refuge internal 1002 meeting - potential invite list
To: "Damberg, Doug" <doug_damberg@fws.gov>
Cc: John W Martin <John_W_Martin@fws.gov>, John Trawicki <john_trawicki@fws.gov>, Steve Berendzen <steve_berendzen@fws.gov>, Socheata Lor <Socheata_Lor@fws.gov>

Hi Doug,
Yes I think we should have some discussions to identify gaps and potential path forward. We may need a brainstorm meeting to discuss how to arrange this. Soch has a good idea to use our current meeting to discuss how to move forward.

Thanks,
Ryan Mollnow
Division Natural Resources
Alaska Region
National Wildlife Refuge System

On Oct 20, 2017, at 4:16 PM, Damberg, Doug <doug_damberg@fws.gov> wrote:

> All:
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Other Arctic NWR staff (Steve/Joanna input)

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From:	Damberg, Doug
To:	Fischbach, Tracy
Subject:	Fwd: Arctic Refuge internal 1002 meeting - potential invite list
Date:	Thursday, November 9, 2017 2:18:37 PM
Attachments:	Coastal Plain 1002 Area Interagency & Interdisciplinary Teams 11Oct2017.docx

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---------- Forwarded message ----------
From: **Martin, John** <john_w_martin@fws.gov>
Date: Mon, Oct 23, 2017 at 9:43 AM
Subject: Re: Arctic Refuge internal 1002 meeting - potential invite list
To: "Damberg, Doug" <doug_damberg@fws.gov>
Cc: Ryan Mollnow <ryan_mollnow@fws.gov>, John Trawicki <john_trawicki@fws.gov>, Steve Berendzen <steve_berendzen@fws.gov>, Socheata Lor <Socheata_Lor@fws.gov>, Stephanie Brady <stephanie_brady@fws.gov>

Doug

Thanks for the update.

Yes, I believe an internal working group is essential. Please let me know how I can assist.

As a suggestion, I would include Ed Decleva as in the early 1980s the Alaska Region received a pretty sharp note from the Advisory Council on Historic Preservation regarding our compliance with the National Historic Preservation Act (section 106) relative to ANILCA and pending oil and gas explorations. Cultural resource clearances will have to be added to endangered species consultations and any application/NEPA, which will not help in expediting the review process.

Regarding addressing any data-gaps, I suggest the following as considerations.

Implement a vulnerability assessment for fish, wildlife and habitats in the Arctic Coastal Plain (ACP), integrating a synthesis of studies completed to date. Overall this effort would be largely based upon a thorough review of published and gray literature. As noted previously, USGS wrapped up their studies in 2002, a time when species-specific studies were rolling over to ecosystem-based (function and process) level studies concurrent with the rollout of the LCC, of which Arctic was the first based on the WildREACH Workshop (2008, publshed in 2009). More recently there is the BLM-sponsored North Slope REA (2016). These documents demonstrate the current focus on landscape which integrate species and habitat studies.

A vulnerability assessment objectives may include:

1. Develop a ranking of relative O&G vulnerability for key species, suites of species and essential habitats.

2. Develop a ranking of relative climate change vulnerability for key species, suites of species, and essential habitats. The Wildlife Conservation Society published *Assessing Climate Change Vulnerability of Breeding Birds in Arctic Alaska* in 2012. And a draft *National Fish, Wildlife and Plants Climate Adaption Strategy: Arctic Tundra Ecosystems* was circulated in 2014 but I am not certain this was finalized.

3. For key species, suites of species and essential habitats identify factors contributing most to overall vulnerability.

4. Provide information useful for adaptation planning, O&G activities and conservation priorities. Results may be framed in terms of uncertainty for some effects or a range of effects.

5. Provide geospatial forecasting for selected species, suites of species, and essential habitats.

An exhaustive review of literature may include, and these are provided only as starting points for a larger discussion.

> Review 1987 mitigation recommendations for applicability and updating, including focus on selected species from 1980-2001: caribou, wolf, wolverine, grizzly bear, migratory waterfowl, muskox, and polar bear.

> Review trophic mismatch particularly plant green-up through browning to senescence for vascular forage species and peak nutrient content contrasted with lactating mammals, and invertebrate emergence and peak insect densities contrasted with breeding birds.

> Review ACP by migratory shorebirds for post-breeding (staging – loafing and/or essential resource feeding) assessing abundance, distribution, timing, species composition and habitat requirements of shorebirds.

> Revisit some recent population and/or habitat-based studies such as *Relative Shorebird Densities at Coastal Sites in the Arctic NWR* (2012) to evaluate recent changes that might be attributed to climate change (so these might be isolated from pending oil and gas effects).

> Revisit species-specific studies and conservation priorities for the ACP, i.e., Beaufort Sea Coastal Plain priority species. However, this time including a habitat component priority. Are the current Service priorities sufficient to cover the extent ACP O&G effects, or are other species warranted, specifically invertebrates and plants?

Polar bear

Porcupine Caribou herd

Dolly Varden (North Slope)

Buff-breasted Sandpiper

Dunlin

Common Eider

> Review international, national and regional landscape and species-oriented networks, such as the Program for Regional and International Shorebird Monitoring (PRISM), Alaska Shorebird Group, International Wader Study Group, Committee for Holarctic Shorebird monitoring (CHASM), Arctic Goose Joint Venture, and/or other long-term monitoring or working groups to determine how their research and monitoring focus may fill critical data-gaps for the ACP, or if the proposed ACP O&G is of sufficient concern to warrant creation of new research and/or monitoring focuses for these networks. This may also include data sharing among the Arctic Council's Conservation of Arctic Flora and Fauna (CAFF) Arctic Biodiversity Assessment (ABA) and/or Circumpolar Biodiversity Monitoring Program (CBMP). How can larger distribution-wide declines be isolated from ACP local declines? (refer to Population declines in North American shorebirds: ecology, life-history and sexual selection, 2006).

> Review the NRC *Cumulative Environmental Effects of Oil and Gas Activities on Alaska's North Slope* (2003), integrate new studies since publication, and evaluate future needs for exploration, development and production for a projected minimum lifespan of 50-60 years. This would include consideration of restoration technologies and demonstration projects thereof, that would be minimal initially but increase over time. Cumulative effects should include changes to permafrost and sea level rise over the projected lifespan of oil and gas activities through restoration. Specifically

included under O&G cumulative effects are population sources and sinks, population traps, trophic cascades, displacement-replacement-extinction of local or regional populations, invasive species vulnerability, etc.

Also, FYI - there is a 1990 *Arctic NWR Proposed Oil and Gas Management Program for the Coastal Plain*, this might be relevant and a starting point for generating a new or updated management approach for the 1002 area.

Thanks

John

On Fri, Oct 20, 2017 at 4:15 PM, Damberg, Doug <doug_damberg@fws.gov> wrote:

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Jimmy Fox
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Steve Berendzen
Joanna Fox
Other Arctic NWR staff (Steve/Joanna input)

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Office: (907) 786-3329
Cell: (907) 947-6302

Coastal Plain 1002 Area, Arctic NWR: Interagency Resource Assessment and/or Alaska Region Interdisciplinary Team Evaluation of Existing Data – Current and Future Needs for Proposed Exploration Activities

Specialties [suggested based upon 1982-1985 resource assessment studies & RODs; strongly inferred; 50 CFR §§ 37 & ANILCA § 1002(d)]	**Interagency Team*** (suggested, smaller team preferred, i.e., agency POCs; based upon 1982-1985 resource assessment studies & RODs)	**Alaska Region Interdisciplinary Team*** (suggested smaller core team with larger disciplinary teams)
Chair – rotating (at least crossing 2 fiscal years, or ca 18-24 months or longer for consistency among agencies and/or disciplines; reporting to Alaska Region RD as described throughout 50 CFR §§ 37; 37.41)	BLM-USGS-FWS	Refuge Chief or designate
Arctic NWR	Refuge Manager or designate	Refuge Manager or designate
Oil & Gas Permitting/Leasing	BLM USGS (O&G data management)	FWS equivalent for O&G Leasing?
Wildlife Resources	BLM-USGS-FWS	Wildlife Biologist (Refuges, MBM**, FES-MM, FES-Fisheries) T&E Biologist (FES-Polar Bear)
Water Resources	BLM-USGS-FWS	Water Resources
Subsistence Resources (traditional & cultural uses)	BLM-FWS (unaware of USGS Subsistence specialists)	OSM
Cultural Resources (compliance NHPA 106/110)	BLM-FWS (unaware of USGS Cultural Res specialists)	Cultural Resources
Best available science (BAS)	BLM-USGS-FWS	Arctic LCC/LCD Refuge I&M
Other permitting – ROWs, SUP (may have more relevance at point of leasing – development & production activities)	(BLM-FWS?)	Realty Planning? Refuge Manager or designate
Administrative Tracking & Program Management-Mitigation Synthesis?	?	Planning?

* per 50 CFR 37.42 Inspection and Monitoring, RD may appoint Field Monitors to oversee or inspect O&G activities or emergencies.

** in addition to the primary historic focus on waterfowl and then listed Peregrine Falcon, may want to consider adding raptors, shorebirds, and songbirds as specialty bioindicators.

Exploration Plan Application Review & Processing including expedited EIS, as described in 50 CFR §§ 37, specifically § 37.1; § 37.21; § 37.22; § 37.31; § 37.32.

1. Evaluation Criteria (overarching - based upon 1982-1985 resource assessment studies & RODs; 50 CFR § 37.1)

- Best possible data (current terminology = best available science, BAS);
- No significant adverse effects; and,
- No unnecessary duplication.

Significance may be reduced via mitigation – see 29 1987 recommendations. Significant effects may be attributable to direct, indirect or cumulative impacts.

2. Basis for decision-making – exploration plan approval by Interagency Resource Assessment Committee and/or Alaska Region Interdisciplinary Team.

- Committee or Team recommendations.
- Adherence to established mitigation standards and conventions or actions and features.
- Public concerns or issues as identified during scoping/comment on exploration plans.
- When lacking direct or comparable data or analyses, best professional judgment and experience.
- Alaska Regional Director's approval.

jwm11Oct2017

From: Fischbach, Tracy
To: Damberg, Doug
Subject: Re: Arctic Refuge internal 1002 meeting - potential invite list
Date: Thursday, November 9, 2017 2:20:57 PM

Excellent! Thank you.

Tracyann S Fischbach
Natural Resources Planner
National Wildlife Refuge System - Region 7
Division of Natural Resources & Conservation Planning
(907) 786-3369

Hours: Mon - Thurs 9:15 am to 3:15 pm
"Getting right down and smelling the fresh soil is good for any one." - from the 1913 Handbook for Girl Scouts by W. J. Hoxie

Need access to Refuge Documents?
Online Document Database (ServCat)
Need Refuge land status info for Alaska?
FWS Region 7 Land Mapper (FWS version)
FWS Region 7 Land Mapper (Public version)
Region 7 GeoPDF Map Portal

On Thu, Nov 9, 2017 at 12:17 PM, Damberg, Doug <doug_damberg@fws.gov> wrote:

> Here's the email we talked about this morning.
>
> Doug Damberg
> Refuge Supervisor, AK North Zone
> U.S. Fish and Wildlife Service
> 1011 E. Tudor Rd.; Anchorage, AK 99503
> Office: (907) 786-3329
> Cell: (907) 947-6302
>
> ---------- Forwarded message ----------
> From: **Damberg, Doug** <doug_damberg@fws.gov>
> Date: Fri, Oct 20, 2017 at 4:15 PM
> Subject: Arctic Refuge internal 1002 meeting - potential invite list
> To: Ryan Mollnow <ryan_mollnow@fws.gov>, John W Martin <John_W_Martin@fws.gov>, John Trawicki <john_trawicki@fws.gov>, Steve Berendzen <steve_berendzen@fws.gov>
> Cc: Socheata Lor <Socheata_Lor@fws.gov>
>
> All:
> We've talked about setting up an internal FWS-only meeting to talk about 1002 issues, in some ways a parallel to the inter-agency meeting from last week but with a little more focus on our own FWS preparation and needs for what might be headed our way.
>
> Is this something that still interests folks? Please let me know if this is still needed and/or

useful after our inter-agency meeting this past week. If it is duplicative and not needed, we need to know that too.

If you think it is useful, we should develop a list of agenda topics, and invitees. Here is a quick straw dog for each - please review and add to it. From there, we can refine the list and strategize and when/where.

Potential agenda topics:
+ What data gaps do we have that we should focus our FWS biological capacity at?
+ What additional workforce capacity do we need that should be incorporated into our workforce planning efforts?
+ What are the lessons learned from the last big push to open up Arctic? Who do we need to talk to including retirees?

Potential invitees:
Ryan Mollnow
John Trawicki
John Martin
Doug Damberg
Soch Lor
Stephanie Brady
Sarena Selbo
Wendy Loya
Diane Granfors
Eric Taylor (or someone else in Mig Birds)
Susie Miller
Jim Wilder
Ted Swem
Jimmy Fox
Sarah Conn
Steve Berendzen
Joanna Fox
Other Arctic NWR staff (Steve/Joanna input)

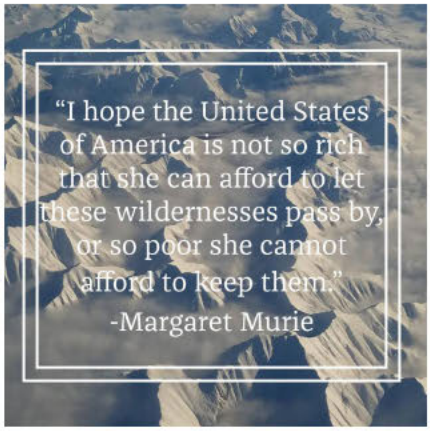
Thanks!
d

Doug Damberg
Refuge Supervisor, AK North Zone
U.S. Fish and Wildlife Service
1011 E. Tudor Rd.; Anchorage, AK 99503
Office: (907) 786-3329
Cell: (907) 947-6302

From: Northern Alaska Environmental Center
To: roger_kaye@fws.gov
Subject: The Arctic needs your voice
Date: Thursday, November 9, 2017 2:48:35 PM

Week of 10/6/17

TAKE ACTION: Senator Murkowski takes next steps to allow drilling in the Arctic Refuge



On Wednesday afternoon, Senator Lisa Murkowski, along with the rest of the Alaska delegation and Governor Walker, released legislation that moves even further towards dismantling Arctic Refuge protections that Alaskans and others have supported for decades. The legislation requires the Secretary of Interior to conduct at least two area-wide lease sales in the Coastal Plain, or 1002 area, within the 10- year budget window.

Senator Murkowski and the rest of the Alaska delegation must continue to hear from Alaskans that drilling is not and never will be a solution to our fiscal and climate challenges. We will not allow sacred landscapes to be put at risk for the political and economic benefit of a few.

Call Senator Murkowski and let her know that she does not speak for all Alaskans, and that we need our elected leaders to advocate for sustainable energy futures that offer climate solutions, not put further strain on communities already bearing the weight of climate change in Alaska.

Additionally, add your voice to the record of the November 2nd Senate Energy and Natural Resources Committee Hearing by emailing fortherecord@energy.senate.gov, where Murkowski and Governor Walker both spoke in support of removing Refuge protections.

Stand with the Gwich'in Nation and their supporters around the world in protecting the Arctic Refuge.

The Refuge needs your voice.

And don't forget to celebrate, too

And as Ed Abbey said, in addition to all our work on behalf of our sacred and beloved lands, "Save the other half of yourselves and your lives for pleasure and adventure. It is not enough to fight for the land; it is even more important to enjoy it." And to enjoy the company of those we work with. Join us Saturday for the Night for the North.

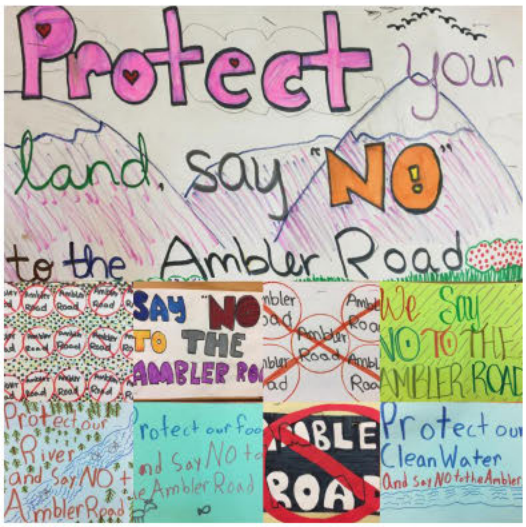
We're getting the last minute details worked out for Saturday's auction, and it promises to be a fantastic evening with new and old friends, good food and music, and an opportunity to celebrate and support our favorite places.

Our outcry auction will feature fabulous trips and gear donated by businesses and individuals all over Alaska, and, of course, Fairbanks artist Somer Hahm's original painting, "First Snow." In addition to auctioning off the original, prints will be available for sale on Saturday. Other highlights include a seven night stay for up to four people at Green's Lake Minchumina Getaway, a week in an adobe casita in Gila, New Mexico, and three nights at Arctic Arts Studio in Nome.

For those who prefer to stay closer to home, handyman Shawn Tisdell offers four hours of services to the highest bidder. Dana and Martin Truffer will prepare a fondue dinner for four, or if you prefer to cook your own, you can bid on ten pounds of fresh seafood from Alaska Marine Conservation Council's 49 Catch.

We're looking forward to a fun evening with you - see you soon!

Reminder: Ambler Road public meetings this week!



Ambler Road scoping meetings will be starting this week. These meetings offer a chance to give public testimony and hear others' concerns. The Bureau of Land Management (BLM) has scheduled public scoping meetings in communities along the route of the proposed Road, as well as Fairbanks and Anchorage. See the full schedule here, and keep an eye on the schedule; **dates are subject to change due to weather or other variables**. Mark your calendars, work on a testimony, and represent your interests.

Fairbanks, please join us at our office at 830 College Road from 4pm till 5:45 on the 16th before the meeting to learn more about the proposed project, the reasons to oppose it, and connect with others who are interested in learning more. We will have posterboard and markers available if you or your child would like to make a sign to leave outside the door of the Westmark Hotel where the meetings will be held.

For more information, contact clean water & mining coordinator Julia Mickley at mickley@northern.org or 452-5092.

***

The public scoping period is open until January 31, 2018. The National Park Service is also accepting comments on which route through Gates of the Arctic National Preserve is preferred. The NPS comment period ends January 15, 2018, prior to the BLM comment period on the entire project.

The proposed Ambler Road intersects the migratory route of the 3 arctic caribou herds. It would cross 2900 streams, 11 major rivers and 1700 acres of wetland. This area is spawning ground for 3 species of salmon, sheefish, whitefish and more, and connects parks, wilderness areas, wildlife refuges and a national preserve. Allakaket, Bettles,

Galena, Kobuk, Evansville, Evansville Inc., Brooks Range Council, and Tanana Chiefs Conference have passed statements of opposition. Recently, the Northwest Arctic Subsistence Regional Advisory Council (RAC) met in Kotzebue. The Council spoke unanimously about the significant impacts the proposed road would have on subsistence resources. They will be submitting a letter with their concerns.

Catch 49 looking for Fairbanks volunteer!

Catch 49, the Alaska Marine Conservation Council's Seafood Hub, is in need of a volunteer on the morning of the 13th or 14th at Beaver Sports to help weigh and distribute fish, and to possibly offer use of a larger SUV or truck. This would most likely be between the hours of 11am and 2pm, or longer if the volunteer is available. To learn more, email David Fleming at david@akmarine.org.

News

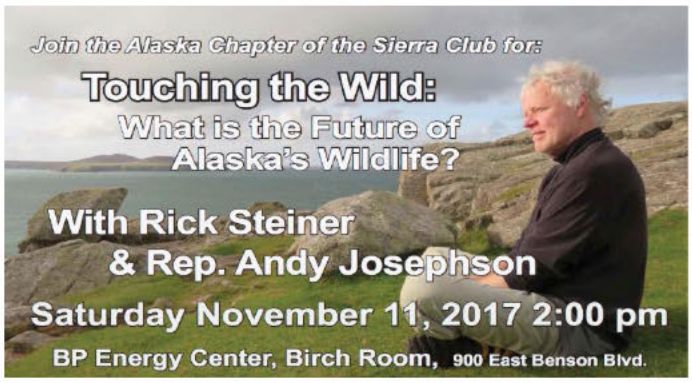
:: **Nuns Stand With Native Alaskans to Oppose Drilling in the Arctic National Wildlife Refuge**. If you don't often associate nuns with environmental activism, you probably haven't met the Sisters of Mercy. The Roman Catholic women's organization strives to "act in harmony and interdependence with all of creation" by advocating action on climate change and standing in solidaritywith pipeline protestors. This week, the Sisters reaffirmed their commitment to protecting all life on Earth, when they called on Congress to keep drilling out of the Arctic National Wildlife Refuge, the largest National Wildlife Refuge in the country. *Earther*.

:: **In Kongiganak, A Groundbreaking Microgrid Cuts Heating Costs In Half** Microgrids are a big deal in Alaska, but even by those standards Kongiganak's is unique. "They're a petri dish; they can be a laboratory," said Dennis Meiners, the founder of Intelligent Energy Systems. Meiners' company specializes in renewable energy solutions for remote communities. He's worked closely with Roderick Phillip, Puvurnaq Power Company, Kong's local utility, over the past few years and helped Kong's utility develop a sustainable grid. KYUK.

:: **Northern Interior village leaders discuss joining borough.** PJ Simon, a former first chief of Allakaket, said it's only a matter of time before copper and other resources in the region are developed and that the villages in the upper Koyukuk River region may as well cash in. By creating or joining a borough, tax revenue could lead to infrastructure, jobs and more money for schools. *Fairbanks Daily News-Miner*.

Events & Announcements

::November 9: Voices of the Wilderness. 7pm, UAF Schaible Auditorium. Join the Alaska Alpine Club for an evening with Fairbanks artist Klara Maisch on an artist in resdiency in Trace Arm - Ford's Terror, creating artwork in remote locations, and the concepts of wilderness.



::November 11: Anchorage: Touching the Wild: What is the Future of Alaska's Wildlife? Join the Alaska Chapter of the Sierra Club for an inspiring joint presentation by biologist and conservationist Rick Steiner and Rep. Andy Josephson (D-Anchorage) on the importance of protecting Alaska's wolves, bears and other wildlife. Free and open to the public.

::November 14-15: NPS Hosts Gates of the Arctic Subsistence Resource Commission Meeting. The National Park Service's Gates of the Arctic National Park Subsistence Resource Commission will meet in Fairbanks on Tuesday, November 14 from 9am-5pm, and Wednesday, November 15 from 9-11:30am, at the Sophie Station Hotel Board Room, 1717 University Avenue, Fairbanks. Topics will include reports from the nine-member commission on subsistence issues and concerns and updates from National Park Service staff on management issues, wildlife research, monitoring activities, and changes to Federal wildlife regulations. This meeting is open to the public. Those who cannot attend in person can call in free of charge at **1-877-886-9352**, code #1503732.

For more information on the Commission or to receive a copy of the proposed agenda, please contact Marcy Okada, Subsistence Coordinator, at **(907) 455-0639** or marcy_okada@nps.gov.

::November 15: Inu-Yupiaq Dance & We Breathe Again Film Screening. Celebrate American Indian and Alaska Native Heritage Month with the Nanook Diversity and Action Center and all its affiliates as we rise up in celebration with an Inu-Yupiaq Dance Performance and the film screening of *We Breathe Again*. This event will be held in the Wood Center Arctic Java from 6-8 pm on Nov 15th. Free and open to the public!

::December 7: Deadline to Apply for Arctic Frontiers Student Forum 2018. The five-day interdisciplinary event, taking place alongside the Arctic Frontiers conference in Tromsø, Norway in January 2018, brings together students from across the world with interest in the Arctic. Bachelor and Master students from any field of study are invited to apply.

MISSION

The Northern Alaska Environmental Center promotes conservation of the environment and sustainable resource stewardship in Interior and Arctic Alaska through education and advocacy.

Northern Alaska Environmental Center | 830 College Rd, Fairbanks, AK 99701-1535

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From: Google Alerts
To: sara_boario@fws.gov
Subject: Google Alert - U.S. Fish and Wildlife Service Alaska
Date: Thursday, November 9, 2017 3:11:22 PM

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U.S. Fish and Wildlife Service Alaska

As-it-happens update · November 9, 2017

NEWS

Scientists Decry Arctic Oil Expansion in Letter to **US** Senators

Scientific American

Scientists Decry Arctic Oil Expansion in Letter to **U.S.** Senators ... **U.S. Fish** & **Wildlife Service**, said in a letter to Senator Lisa Murkowski of **Alaska** and ...

37 Leading Arctic **Wildlife** Scientists Oppose Arctic Refuge Drilling - eNews Park Forest
Full Coverage

Flag as irrelevant

Fish & **Wildlife** conserves unique shoreline along Sunset Lake in Benson

Vermont Biz

Other funding sources for the project included the **U.S. Fish** & **Wildlife Service** and the Vermont Housing and Conservation Board. The Nature ...

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From: Taylor, Eric
To: Amee Howard
Subject: Fwd: FYI - 11.09.17 Letter to Senator Murkowski from 37 scientists re. Arctic Refuge
Date: Thursday, November 9, 2017 3:31:01 PM
Attachments: arctic_refuge_science_letter_2017_11_09_final.pdf

---

Thank you Amee. I know most of the signatories on this letter; further I was sent back to DC for a month detail by Regional Director Dave Allen when this proposal was considered by another administration and thus am very familiar with the data, publications, and reports for the findings in this correspondence. I appreciate you forwarding it on.

Eric

Eric J. Taylor
Chief, Division of Migratory Bird Management
U.S. Fish and Wildlife Service
1011 E. Tudor Road, MS 201
Anchorage, Alaska 99503-6199
907.786.3446 (office)
907.903.7210 (cell)
eric_taylor@fws.gov

On Thu, Nov 9, 2017 at 12:57 PM, Howard, Amee <amee_howard@fws.gov> wrote:

> Hi All,
>
> FYI - Here is the letter being discussed ahead of the mark-up next week and as a result of the hearing last week.
>
> Thanks so much!
> Amee
>
> --
> *Amee Howard*
> *Congressional and Legislative Affairs*
> U.S. Fish & Wildlife Service
> Anchorage, Alaska
> Office: (907)786-3509
> Mobile: (907)229-8575
> https://www.fws.gov/alaska/

November 9, 2017

The Honorable Lisa Murkowski, Chair
The Honorable Maria Cantwell, Ranking Member
Committee on Energy and Natural Resources
United States Senate
Washington, DC 20510

Dear Senators Murkowski and Cantwell:

As scientists who have either conducted research in Arctic Alaska or traveled in the Arctic National Wildlife Refuge, we are writing to highlight for you the fundamental importance of fully protecting its 1.5-million acre coastal plain. Based on our experience in the Arctic, we oppose oil exploration, development and production in the Arctic Refuge. Such activity would be incompatible with the purposes for which the refuge was established, including "to conserve fish and wildlife populations and habitats in their natural diversity."

When the original Arctic National Wildlife Range was established in 1960 by the Eisenhower Administration, it was done with the foresight and wisdom to protect an entire ecosystem, both south and north of the Brooks Range, including the rich coastal plain. Decades of biological study and scientific research within the Arctic Refuge have confirmed that the coastal plain specifically is vital to the biological diversity of the entire refuge. Within the narrow (15-40 miles) coastal plain, there is a unique compression of habitats which concentrates a wide array of wildlife native to the Arctic, including polar bears, grizzly bears, wolves, wolverines, caribou, muskoxen, Dolly Varden char, Arctic grayling, and many species of migratory birds. In fact, according to the U.S. Fish and Wildlife Service, the Arctic Refuge coastal plain contains the greatest wildlife diversity of any protected area above the Arctic Circle.

In 2003, the National Research Council (NRC) published a report on the "Cumulative Environmental Effects of Oil and Gas Activities on Alaska's North Slope." Led by Dr. Gordon Orians, University of Washington, this report was prepared by a panel of prominent scientists following an extensive review of the literature and consultations with experts. It remains the best, most comprehensive synthesis of the effects of oil development on wildlife and the landscape of Arctic Alaska. Among the report's "major findings" (Chapter 11) are the following:

- Three-dimensional seismic surveys require a high spatial density of trails. "Seismic exploration can damage vegetation and cause erosion, especially along stream banks."

- The effects of roads, pads, pipelines, and other infrastructure extend far beyond the physical footprint itself, and the distances at which impacts occur vary with the environmental component affected. "Effects on hydrology, vegetation, and animal populations occur at distances up to several kilometers…"

- "Roads have had effects as far-reaching and complex as any physical component of the North Slope oil fields."

- Denning polar bears are among the animals that "have been affected by industrial activities on the North Slope."

- Readily available food supplies in the oil fields attract higher-than-normal densities of predators, which then prey on birds and their eggs and young. The reproductive success rate of some bird species in the developed parts of oil fields "has been reduced to the extent that it is insufficient to balance mortality."

- The spread of industrial activity, especially to the east where the coastal plain is narrower than elsewhere [i.e., the Arctic Refuge], "would likely result in reductions in reproductive success" for caribou.

Although oilfield technologies continue to improve, the NRC's findings are still of concern today. Indeed, proposals that would limit the "footprint" of oil development to 2,000 acres on the coastal plain within the Arctic Refuge are of little value, since those acres may be spread over much of the coastal plain. This would be especially true if oil reserves are scattered in multiple pockets across the refuge, as is suggested by the U.S. Geological Survey (Fact Sheet 0028-01). Since the effects of industrial activities, starting with seismic surveys, are not limited to the footprint of a structure or to its immediate vicinity, it is highly likely that such activities would result in significant impacts on a variety of wildlife in the refuge's narrow coastal plain.

Development of yet another oilfield would further set back efforts to limit the carbon emissions that are fueling the dramatic changes in climate now affecting Alaska. Polar bears—listed as "threatened" under the Endangered Species Act—are already struggling with deteriorating sea ice and increasingly are forced to den on land on the eastern Beaufort Sea coast, including the coastal plain of the Arctic Refuge. In fact, three-fourths of the refuge coastal plain is designated as critical habitat for polar bears, which are highly vulnerable to disturbance due to oil and gas activities.

The NRC report and subsequent work done in Arctic Alaska strongly indicate that the cumulative impact of many seemingly small changes is significant. New development on the coastal plain of the Arctic Refuge, one of the nation's and planet's premier protected areas, will only contribute to these harmful impacts on wildlife. For all these reasons, we oppose oil and gas exploration, development and production on the coastal plain of the Arctic Refuge.

Thank you for your consideration.

Sincerely,

Signatories to this letter are attached

Signatories[1]

R. Terry Bowyer, Ph.D.
Professor Emeritus, Wildlife Ecology
University of Alaska Fairbanks
Fairbanks, Alaska

Mike Boylan, M.Sc.
National Wildlife Refuges Association
Anchorage, Alaska

Jedediah Brodie, Ph.D.
Craighead Chair, Wildlife Conservation
University of Montana,
Missoula, Montana

Stephen Brown, Ph.D.
Shorebird Biologist
Saxtons River, Vermont

F. Stuart Chapin III, Ph.D.
Professor Emeritus, Ecology
University of Alaska Fairbanks
Fairbanks, Alaska

Dave Cline, M.Sc.
National Audubon Society (retired)
U.S. Fish & Wildlife Service (retired)
North Bend, Washington

John Coady, Ph.D.
Alaska Dept. of Fish & Game (retired)
Fairbanks, Alaska

Peter G. Connors, Ph.D.
Bodega Marine Lab (retired)
University of California – Davis
Bodega Bay, California

Joseph Cook, Ph.D.
Professor of Biology
University of New Mexico
Albuquerque, New Mexico

Jim Dau, M.Sc.
Alaska Dept. of Fish & Game (retired)
Kotzebue, Alaska

Anthony R. DeGange, M.Sc.
U.S. Geological Survey (retired)
Anchorage, Alaska

Jeff Fair, M.Sc.
Fairwinds Wildlife Services
Palmer, Alaska

Kathy Frost, M.Sc.
Alaska Dept. of Fish & Game (retired)
Kailua Kona, Hawaii

H. River Gates, M.Sc.
Shorebird Biologist
Anchorage, Alaska

Mary E. Hogan, M.Sc.
U.S. Fish & Wildlife Service (retired)
Anchorage, Alaska

David R. Klein, Ph.D.
Professor Emeritus, Wildlife Management
University of Alaska Fairbanks
Fairbanks, Alaska

Jack Lentfer, M.Sc.
U.S. Marine Mammal Commission (retired)
Alaska Dept. of Fish & Game (retired)
Gustavus, Alaska

Joe Liebezeit, M.Sc.
Audubon Society of Portland
Portland, Oregon

Lloyd Lowery, M.Sc.
Alaska Dept. of Fish & Game (retired)
Kailua Kona, Hawaii

[1] Institutional affiliations are for informational purposes only.

Rosa H. Meehan, Ph.D.
U.S. Fish & Wildlife Service (retired)
Anchorage, Alaska

Sterling Miller, Ph.D.
Alaska Dept. of Fish & Game (retired)
National Wildlife Federation (retired)
Missoula, Montana

Russell M. Oates, M.Sc.
former Refuge Biologist, Arctic NWR
U.S. Fish & Wildlife Service (retired)
Burnsville, North Carolina

Gordon Orians, Ph.D.
Professor Emeritus, Biology
University of Washington
Seattle, Washington

Martha Raynolds, Ph.D.
Arctic Plant Ecologist
Fairbanks, Alaska

Martin Robards, Ph.D.
Arctic Beringia Program
Wildlife Conservation Society
Fairbanks, Alaska

George Schaller, Ph.D.
Wildlife Conservation Society
West Lebanon, New Hampshire

Scott Schliebe, Ph.D.
U.S. Fish & Wildlife Service (retired)
Anchorage, Alaska

John W. Schoen, Ph.D.
Alaska Dept. of Fish & Game (retired)
Audubon Alaska (retired)
Anchorage, Alaska

Nathan Senner, Ph.D.
University of Montana
Missoula, Montana

Stanley Senner, M.Sc.
National Audubon Society
Missoula, Montana

David W. Shaw, M.Sc.
Biologist-guide
Fairbanks, Alaska

E. LaVerne Smith, M.Sc.
U.S. Fish & Wildlife Service (retired)
Anchorage, Alaska

Dan Taylor, M.Sc.
Audubon California (retired)
Sacramento, California

Nils Warnock, Ph.D.
Audubon Alaska
Anchorage, Alaska

Robert G. White, Ph.D.
Professor Emeritus, Zoophysiology
University of Alaska Fairbanks
Fairbanks, Alaska

Kenneth R. Whitten, M.Sc.
Alaska Dept. of Fish & Game (retired)
Fairbanks, Alaska

Steve Zack, Ph.D.
Wildlife Conservation Society (retired)
Portland, Oregon

From: Wendy Loya
To: Ryan Mollnow; stephanie_brady@fws.gov; Diane Granfors
Cc: Paul Leonard; Socheata Lor
Subject: Arctic LCC follow up on working with refuges on development effects science needs
Date: Thursday, November 9, 2017 3:57:35 PM

Hi Ryan, Stephanie and Diane,

I just wanted to follow up on the conversation I had with Ryan and Stephanie regarding how Arctic LCC could help refuges think strategically on the types of science that will be needed to evaluate the what, when and where of oil exploration and development on Arctic Refuge. My suggestion was that we could perhaps facilitate a workshop that was structured around some of the decision-making issues and impact assessment needs of both BLM-NPRA and DNR (especially water use/ice roads) that could help guide science planning by refuge staff, USGS and other researchers. Is that, or some variation of that, still of interest? I know that some Arctic staff have begun to do outreach on this to other agency experts, and we can move forward with Arctic/refuges staff engaged in identifying their needs. Maybe that is the next step?

Ryan, I know you are transitioning positions, but wanted to make sure to capture your thoughts on this ☺

Cheers,
Wendy

Dr. Wendy M. Loya, Coordinator
Arctic Landscape Conservation Cooperative (LCC)
Anchorage, Alaska
907.786.3532 (office)
907.227.2942 (mobile)

From: Ellis, Mitch
To: Mitch Ellis
Subject: Fwd: BOG Comments
Date: Thursday, November 9, 2017 4:11:58 PM
Attachments: BOG TALKING POINTS NOV 10_DraftMitch20171006.docx

---

Mitch Ellis
Chief of Refuges, Alaska Region
National Wildlife Refuge System
U.S. Fish and Wildlife Service
1011 East Tudor Road
Anchorage, Alaska 99503
(907)786-3667 wk
(907)947-4416 mob

---------- Forwarded message ----------
From: **Carol Damberg** <carol_damberg@fws.gov>
Date: Mon, Nov 6, 2017 at 2:41 PM
Subject: BOG Comments
To: Mitch Ellis <mitch_ellis@fws.gov>

Mitch - Here is the draft of comments I developed. Let me know your edits or comments. I will be in ANILCA training Tues and Wed. at the Cambell Tract but could meet with you before after the training if needed. I will have some printed supporting materials available about each topic for us to reference if needed.

I did not bring up b5 - DP (and not responsive) - I thought that was more of an OSM topic – but I can insert if needed a small blurb like

b5 - DP (and not responsive)

Let me know your thoughts - Super Fun Times Ahead!

Carol Damberg

U.S. Fish and Wildlife Service

Regional Subsistence Coordinator

U.S. Fish & Wildlife Service, Alaska Region (7)

1011 East Tudor Road

Anchorage, AK 99503

Tel: (907) 786-3400

Work Cell: 907 723-2461

Personal Cell: (907)-891-9004

Carol_damberg@fws.gov

BOG TALKING POINTS NOV 10, 2017

Thank you for the opportunity to provide some updates on FWS topics. Greg is sorry he could not be here - but he is actually out hunting! If you do not have specific initial questions I can provide the Board with some updates we thought might be of interest.

- b5 DP (and not responsive)

- b5 DP (and not responsive)

- b5 DP (and not responsive)

- **Arctic NWR 1002:** b5 DP

- b5 DP (and not responsive)

- b5 DP (and not responsive)

From:	Carol Damberg
To:	Mitch Ellis
Cc:	Carol Damberg; Gregory Siekaniec; Karen Clark; Ronnie Sanchez; Doug Damberg; David Wigglesworth; Mary Colligan; Socheata Lor
Subject:	Final Talking points for BOG
Date:	Thursday, November 9, 2017 5:24:19 PM
Attachments:	BOG TALKING POINTS NOV 10_DraftMitch20171109.docx

Hey Mitch - Here are the final talking points. Added a few from Wildlife and Sport Fish Restoration. I will have printed copies for us tomorrow. See you at 7:30 a.m.

Carol Damberg

U.S. Fish and Wildlife Service
Regional Subsistence Coordinator

U.S. Fish & Wildlife Service, Alaska Region (7)

1011 East Tudor Road

Anchorage, AK 99503

Tel: (907) 786-3400

Work Cell: 907 723-2461

Personal Cell: (907)-891-9004

Carol_damberg@fws.gov

BOG TALKING POINTS NOV 10, 2017

Thank you for the opportunity to provide some updates on FWS topics. Greg is sorry he could not be here - but he had other obligations he could not re-schedule. If you do not have specific initial questions I can provide the Board with some updates we thought might be of interest.

- **A New Chief of Fishing and Hunting** has been created within the FWS for at least a one year period as directed by our Secretary of Interior. The new Headquarters Chief position will work with a team of 8 regional chiefs to support two recent DOI Secretarial Orders (3347 and 3356) that aim to support and expand hunting and fishing opportunities and increase recreation opportunities for all Americans. Within Alaska, Ryan Mollnow has filled the Chief Fishing and Hunting positon that started Nov. 1. Mr. Mollnow was formerly our Refuge Natural Resources Division Chief and has worked with the NWRS in AK for **x** years in varying positions. Mr. Mollnow's duties will be primarily to work with a national team to review existing regulations and identify if there are areas to improve hunting and fishing access and opportunities. Other duties will include:
  - Coordinate with managers and regional leadership to recommend best practices and direction for potential regulatory alignment
  - Identify ways to expand partnerships with States to support and promote recreational opportunities
  - Assess and promote how the Service provides quality hunting and fishing opportunities.
  - Promote outdoor recreation opportunities for veterans, youth and non-traditional underrepresented users.
  - Promote in general conservation, access, opportunities for outdoor recreation, hunting and fishing ethics, fair chase, and hunting and fishing education.
  - NOTE: All AK refuges already have very open access and all are open to hunting and fishing with all refuges assimilating State regulations, with very minor exceptions. In Alaska, only 4 refuges have refuge specific regulations: Kenai, Kodiak, APB, and AK Maritime (see fact sheet for specifics if needed). Refuge specific regulations deal primarily with changes in access for safety and conservation reasons.
- **Statewide Regulations for National Wildlife Refuges in Alaska: Non-subsistence Take of Wildlife, Public Participation and Closure Procedures.** As you know, the non-subsistence take of wildlife regulation that went into effect in August of 2016 was nullified in early April after Congress repealed the regulation. That means that the rule is null and void and we revert to the previously existing regulations. The Service was required to publish a rule in the Federal Register to effect the changes in the CFRs and revert the language to what is was previously. That rule-making has been completed as of Nov. 8.
- **Kenai Regulations:** The U.S. Fish and Wildlife Service (Service) published a Notice of Intent in the Federal Register (82 FR 45793) to initiate a rulemaking that will consider changes for the Kenai National Wildlife Refuge's public use regulations on October 2, 2017. The Service will next develop the scope, steps, and timelines associated with this review process, which will include consultation with the State and affected Tribes and ANCSA corporations. The Refuge's public use regulations were revised recently, publishing as a Final Rule on May 5, 2016 ((81 FR 27030).
- **Arctic NWR 1002**: The Federal Government is considering opening the Arctic 1002 Area for oil and gas development. A full committee hearing was held on November 2, 2017. The purpose of the hearing was to receive testimony on the potential for oil and gas exploration and development in Arctic National Wildlife Refuge, known as the "1002 Area" or Coastal Plain. For additional details and movement of legislation please go to the Senate Energy and Natural Resource Committee Website.

- Of mutual interest, among many wildlife resources, is the conservation of the Porcupine Caribou Herd. FWS appreciates Bruce Dale's involvement with Porcupine Caribou Herd working group. ??

- **Landscape Conservation Cooperative Planning -** Our office of Science Applications continues to collaboratively address the challenges of a rapidly changing environment. We have five active LCCs in Alaska (Arctic, ABSI, Western, NW Boreal, and Pacific NW) that are fostering diverse partnerships that include the state of Alaska, federal agencies, Tribal organizations, research institutions, non-governmental organizations, and communities. Of interest to the BOG is the LCC work that brings together science to inform wildlife management decisions such as our work in the Togiak/Bristol Bay region to establish new sightability indices for moose monitoring under low or no snow conditions. With ADFG, we are hosting a workshop in conjunction with the Alaska Chapter of The Wildlife Society next spring to discuss approaches and methodologies under our changing winter conditions. (meshes well with Governor Walkers recent Climate Change Strategy and Task Force initiative)
  - In support of the President's proposed budget for FY18 the LCCs are exploring options to continue the good work of the partnerships without USFWS funding. Last week, the Alaska Conservation Foundation hosted about 75 attendees to a visioning session to discuss alternative funding scenarios and the next steps to maintain collaborative conservation.
- **Wildlife & Sport Fish Restoration Program:**
  - The WSFR Program is collaboratively worked with ADF&G Wildlife Conservation Division to implement 19 grants involving 141 projects and $68 million to manage species and habitats; and provide hunting and shooting opportunities.
  - Wood bison were successfully reintroduced in Interior Alaska, with over 120 of these icons thriving in the wild. This collaborative success with the State and 60 other partners has been featured in multiple national, regional and social media outlets.
  - To fulfill the Secretary's priority of utilizing our natural resources, we funded 24 Sport Fish Restoration grants ($11 million) that provide boating and fishing access throughout Alaska, including the newly renovated Statter Harbor Boat Launch serving Juneau residents. We also funded 3 Wildlife Restoration grants ($5 million) that are creating and improving 16 areas for hunter access statewide.
  - Annual Wildlife Restoration Apportionments to Alaska have more than doubled over the past five years. In 2017, $33 million was apportioned to Alaska for Wildlife Restoration and Hunter Education
- **Refuge's Partnering with State on NWRs:** There are many examples from all NWRs where State and Federal staff are working together: a) to educate kids about hunting and fishing; b) partnering to cover LE enforcement needs; c) collaborating to get wildlife surveys completed; d) sharing resources and time to cover priority conservation needs (invasive species). I continually hear from our staff at NWRs that we have a very healthy relationship between FWS and ADFG. (A few examples include: a) Tetlin NWR collaborating on moose surveys, caribou harvests, caribou management plans, and sharing equipment; b) Selawik Refuge, National Park Service, and ADF&G jointly held "Caribou Hunter Education Workshops" in 4-5 villages in GMU 23 to discuss and answer questions about recent changes in state and federal caribou hunting regulations; c) Yukon Delta NWR works cooperatively with local ADF&G wildlife biologists to obtain moose survey data and fish data for in-season management purposes. d) Kenai NWR works cooperatively with the State and many other partners to combat **invasive species like Elodea**.
- **Invasive Species Programs:** Working closely with many partners, especially the DNR, to eradicate Elodea in multiple locations including: Potter Marsh, South Central AK, Yukon River – Chena Region; Alexander Lake, and Kenai Peninsula. Service is working with DNR, Canada and many other

partners to conduct outreach on best management practices to reduce the introduction of invasive species from vehicles entering at the Alcan Highway border crossing.

- On a final note we are in our second year of monitoring for Unalag Island, in the Aleutian chain, where invasive foxes were successfully eradicated in 2016. Monitoring indicates a positive response in nesting sea bird production.

- MISC TOPICS THAT MAY COME UP
  - b5 DP (and not responsive)