



United States Department of the Interior

U.S. FISH AND WILDLIFE SERVICE
Fairbanks Fish and Wildlife Field Office
101 12th Avenue, Room 110
Fairbanks, Alaska 99701

May 26, 2015



Memorandum

To: Debbie Nigro, Wildlife Biologist, Bureau of Land Management

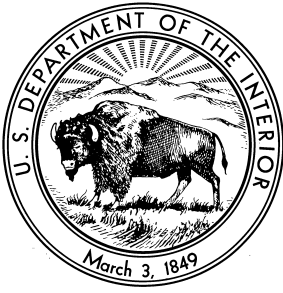
From: Ted Swem, Endangered Species Branch Chief *Ted Swem*

Subject: Programmatic Biological Opinion for Bureau of Land Management permitted activities between June 1 and October 15, 2015 in undeveloped areas of the National Petroleum Reserve-Alaska

This document transmits the U.S. Fish and Wildlife Service's (Service) Biological Opinion (BO) in accordance with Section 7(a)(2) of the Endangered Species Act of 1973, as amended (Act), on the Bureau of Land Management's proposal to conduct or permit helicopter and fixed-wing aircraft landings, scientific studies, and other on-tundra activities, including field camps and fuel depots in undeveloped areas of the National Petroleum Reserve-Alaska (NPR-A). This BO describes the effects of these actions on threatened spectacled (*Somateria fischeri*) and Alaska-breeding Steller's eiders (*Polysticta stelleri*), and polar bears (*Ursus maritimus*).

After reviewing the current status of spectacled eiders, Alaska-breeding Steller's eiders, polar bears, the environmental baseline, effects of the proposed activities, and cumulative effects, it is the Service's biological opinion that the activities to be permitted or conducted by the BLM from June 1 – October 15, 2015 as described in this BO are not likely to jeopardize the continued existence of listed species. A complete discussion of the effects analysis is provided in the Biological Opinion.

A complete administrative record of this consultation is on file at the Fairbanks Fish and Wildlife Field Office, 101 12th Ave., Room 110, Fairbanks, Alaska 99701. If you have any comments or concerns regarding this BO, please contact Shannon Torrence (907) 455-1871.



PROGRAMMATIC BIOLOGICAL OPINION

for the

Bureau of Land Management

Activities between June 1 and October 15, 2015 in

Undeveloped Areas of the National Petroleum Reserve-Alaska

May 26, 2015

Table of Contents

1.	INTRODUCTION.....	1
2.	DESCRIPTION OF THE PROPOSED ACTION.....	2
2.2	Action Area.....	2
2.3	Proposed Action.....	2
2.3.1	Aircraft landings	2
2.3.2	Ground activities.....	3
2.3.3	Polar bear minimization measures	3
3.	STATUS OF THE SPECIES	4
4.	ENVIRONMENTAL BASELINE.....	4
4.2	Spectacled and Alaska-breeding Steller’s eiders	4
4.3	Polar bears.....	4
4.4	Other activities occurring in the Action Area.....	4
5.	EFFECTS OF THE ACTION ON LISTED SPECIES	5
5.2	Spectacled and Alaska-breeding Steller’s eiders	5
5.2.1	Aircraft landings and on-tundra activities.....	5
5.2.2	Loss of eggs across all project components.....	9
5.2.3	Biases in assumptions	9
5.3	Polar bears.....	9
6.	CUMULATIVE EFFECTS.....	10
7.	CONCLUSION	10
8.	INCIDENTAL TAKE STATEMENT	11
9.	REASONABLE AND PRUDENT MEASURES	12
10.	TERMS AND CONDITIONS.....	12
11.	CONSERVATION RECOMENDATIONS.....	13
12.	REINITIATION NOTICE	13
13.	LITERATURE CITED.....	14
14.	APPENDIX 1: POLAR BEAR INTERACTION GUIDELINES.....	16
15.	APPENDIX 2: POLAR BEAR DETERRENCE AND ENCOUNTER PLAN FOR COOPER ISLAND FIELD CAMP – 2015.....	19

1. INTRODUCTION

This document is the U.S. Fish and Wildlife Service’s (Service) Biological Opinion (BO) on the U.S. Bureau of Land Management’s (BLM) proposal to conduct or permit helicopter and fixed-wing (aircraft) landings, scientific studies, field camps, and other on-tundra activities in undeveloped areas of the National Petroleum Reserve-Alaska (NPR-A). This BO describes the effects of these actions on threatened spectacled (*Somateria fischeri*) and Alaska-breeding Steller’s eiders (*Polysticta stelleri*), and polar bears (*Ursus maritimus*) pursuant to section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 et seq.).

Section 7(a)(2) of the ESA, (16 U.S.C. § 1531 et seq.) requires that Federal agencies shall “insure that any action authorized, funded, or carried out by such agency is not likely to

jeopardize the continued existence of any threatened or endangered species.” When the actions of a Federal agency may adversely affect a protected species, that agency (i.e., the action agency) is required to consult with either the National Marine Fisheries Service (NMFS) or the Service, depending upon the protected species that may be affected. BLM’s memo requesting formal programmatic consultation and supplying the necessary information was received on April 22, 2015 by the Service, and formal consultation began on this date. The complete administrative record of this consultation is on file at the Service’s Fairbanks Fish and Wildlife Field Office.

BLM conducts and authorizes activities in NPR-A described previously and evaluated in the BO for the Integrated Activity Plan for the NPR-A (IAP BO; USFWS 2013). Annual scientific studies and their associated field camps, compliance visits, and extensive staking and surveying activities involving fixed-wing and helicopter access and on-tundra activities in undeveloped areas of NPR-A that are likely to occur from June 1 through October 15, however, were not evaluated in the IAP BO (USFWS 2013). Thus, the Service and BLM annually consult on these activities. After reviewing the information provided for summer activities proposed for 2015, the status of the species, the environmental baseline, and cumulative effects, the Service concludes that the proposed activities may adversely affect listed eiders but will not jeopardize their continued existence. Provided polar bear interaction guidelines for inland activities and the interaction plan for activities occurring on Cooper Island are followed, no adverse effects to polar bears are anticipated to result from activities described in the Proposed Action below.

2. DESCRIPTION OF THE PROPOSED ACTION

2.2 Action Area

The Action Area includes all BLM NPR-A managed land north of 69.90°N latitude excluding the Barrow Triangle area (defined as the area north of 70° 50' N, between Dease Inlet and the Chukchi Sea).

2.3 Proposed Action

The wide variety of studies and actions would involve people walking across isolated areas of undeveloped tundra in NPR-A. Access to NPR-A would be via helicopter or fixed-wing plane. No facilities or structures would be built, and human presence would be temporary. The project record contains an activity list with estimated number of landings. The timeframe for this project is June 1 through October 15, 2015. We provide a summary of project components below.

2.3.1 Aircraft landings

Helicopters and small aircraft capable of landing on unimproved airstrips, tundra, lakes and rivers, and gravel bars are the primary mode of transport of people and equipment during summer in undeveloped portions of NPR-A. During the period covered by this consultation BLM estimates:

- 500 fixed-wing takeoffs/landings at about 250 field sites during transportation of individuals and equipment in support of ground activities; travelers may spend hours at a given site, and the helicopter would shut down completely;
- 2,916 helicopter takeoffs/landings at about 1,428 field sites during transportation of

individuals and equipment in support of ground activities that do not create “tracks” (see “track” description below); travelers may spend hours at a given site, and the helicopter would shut down completely; and

- 130 helicopter takeoffs/landings at about 65 sites during transportation of individuals and equipment in support of ground activities that are expected to create “tracks” (closely-spaced landings over a small area that, when mapped, resemble tracks or trails); travelers would spend very little time on the ground at each landing site, and the helicopter would not shut down completely.

2.3.2 Ground activities

Ground activities are usually based out of field camp/fuel sites that are either previously developed (which include areas with gravel pads, landing strips, and structures) or undeveloped sites. Both categories may be used as a camp site for ≥ 1 night, and may be repeatedly visited by aircraft for refueling, moving field staff, or resupplying the field camp; however, the camp size, duration, and level of activity vary among camps. The BLM estimates 15 remote camps, 7 developed fuel sites, and 3 remote fuel sites (25 total) would be operating in undeveloped areas of NPR-A in summer and fall 2015. Ground activities based out of field camps/fuel sites may include:

- Wildlife studies;
- Fisheries studies;
- Vegetation studies;
- Lake water quality and quantity studies;
- Stream hydrology and water quality studies;
- Paleontological studies;
- Archeological studies;
- Hazardous materials/legacy well assessment;
- Climatic/weather/soils studies;
- Realty and oil/gas compliance work; and
- Clean up and inspection of winter exploration sites and access routes

These proposed activities must also meet the following requirements:

- 1) Activities must result in disturbance only, not those related to any construction or demolition activities (including filling of wetlands);
- 2) Activities cannot require ESA Section 10 or Marine Mammal Protection Act permits for research on listed species;
- 3) Activities must occur north of 69.9° N but not within the Barrow triangle (defined as the area north of 70°50' N , between Dease Inlet and the Chukchi Sea); and
- 4) Activities must occur between June 1 and October 15, 2015.

2.3.3 Polar bear minimization measures

To prevent impacts to polar bears, the BLM would require permittees operating in NPR-A within 25 miles of the coast to follow guidelines developed in cooperation with the Service’s Marine Mammals Management Office. Additionally, the BLM would require those working on Cooper Island where polar bear encounters have previously occurred to develop an interaction plan.

Implementation of these guidelines or interaction plans should minimize the risk of human - polar bear interactions. The guidelines and interaction plans are provided in Appendix 1 and 2.

3. STATUS OF THE SPECIES

The status of spectacled eiders, Alaska-breeding Steller's eiders, and polar bears is described in the section captioned *Status of the Species* in the Lease Sale 193 BO (USFWS 2015). No significant changes to the status of spectacled eiders or polar bears have occurred since its issuance on March 30, 2015. Thus, the status for these species as described in the Lease Sale 193 BO (USFWS 2015) provides the context to analyze effects of on these species from the proposed action considered here.

4. ENVIRONMENTAL BASELINE

Regulations implementing the ESA (50 CFR §402.02) define the environmental baseline to include the past and present impacts of all Federal, State, or private actions and other human actions in the Action Area. Also included are anticipated impacts of all proposed Federal projects in the Action Area that have undergone section 7 consultation and the impacts of State and private actions contemporaneous with the consultation in progress. Please refer to the IAP BO (USFWS 2013) for a full description of the environmental baseline for these species because the Action Area for this consultation is virtually identical to the Action Area in the IAP BO (USFWS 2013). We briefly describe how listed species use the Action Area below.

4.2 Spectacled and Alaska-breeding Steller's eiders

Spectacled and Alaska-breeding Steller's eiders nest and raise broods in the Action Area from May through September, though they occur at low densities and Steller's eiders are particularly rare.

4.3 Polar bears

Transient (non-denning) polar bears can occur in the Action Area, particularly in late summer and fall. Polar bears generally do not occur inland during summer, but field crews working near the coast, particularly on barrier islands, could encounter transient polar bears in summer as sea ice recedes.

4.4 Other activities occurring in the Action Area

Since the 2014 Summer Programmatic BO (USFWS 2014) was finalized, the following additional formal consultations are active or are in preparation in the Action Area:

- The Service's Migratory Bird Management BO for issuance of 2015 subsistence harvest regulations (USFWS 2014);
- Letters of Authorization for take of polar bears as defined by the Marine Mammal Protection Act
- Permits issued for development and operation of Greater Mooses Tooth 1; and
- Proposed planning area documents and permits issued by the U.S. Army Corps of Engineers, BLM, and other agencies for oil and gas exploration and development, including Greater Mooses Tooth 2.

The environmental baseline also includes the effects of climate change on listed species. This BO considers ongoing and projected changes in climate using terms as defined by the Intergovernmental Panel on Climate Change (IPCC). “Climate” refers to the mean and variability of different types of weather conditions over time, with 30 years being a typical period for such measurements, although shorter or longer periods also may be used (IPCC 2007). The term “climate change” thus refers to a change in the mean or variability of one or more measures of climate (e.g., temperature or precipitation) that persists for an extended period, typically decades or longer, whether the change is due to natural variability, human activity, or both (IPCC 2007). Results of scientific analyses presented by the IPCC show that most of the observed increase in global average temperature since the mid-20th century cannot be explained by natural variability in climate, and is “very likely” (defined by the IPCC as 90 percent or higher probability) due to the observed increase in greenhouse gas (GHG) concentrations in the atmosphere as a result of human activities, particularly carbon dioxide (CO²) emissions from use of fossil fuels (IPCC 2007, Solomon et al. 2007). Various types of changes in climate can have direct or indirect effects on most species. These effects may be positive, neutral, or negative, and they may change over time, depending on the species and other relevant considerations, such as the effects of interactions of climate with other variables (e.g., habitat fragmentation) (IPCC 2007).

5. EFFECTS OF THE ACTION ON LISTED SPECIES

This section of the BO provides an analysis of effects of the action on listed species. Both direct effects (i.e., those immediately attributable to the action) and indirect effects (i.e., those caused by the action but which will occur later in time) are considered, as well as interrelated and interdependent effects of the Action.

5.2 Spectacled and Alaska-breeding Steller’s eiders

The proposed activities may cause disturbance of nesting females and broods. Spectacled eiders are more likely to be disturbed than Steller’s eiders because spectacled eiders are more abundant in the Action Area than Steller’s eiders.

5.2.1 Aircraft landings and on-tundra activities

Given an absence of empirical data, it is difficult to estimate the effect of aircraft landings upon nesting and brood-rearing listed eiders. Therefore, our estimates are based on a series of assumptions. We assume a gradient of effect centered on the landing site. A landing close to a nest would likely flush a female and prevent her from returning for as long as the aircraft and associated human activity remain near the nest. The likelihood of a nesting hen flushing and her reluctance to return to the nest likely decreases as distance from the landing site increases. For the purposes of estimating impacts, we assumed that all hens within a 600 m radius of a landing site will be flushed and their nests will consequently be at increased risk of abandonment or depredation. While aircraft landings may affect broods, we assume these impacts are minor and temporary.

After landing, field crews would conduct work over an unspecified area. Some studies involve searching a plot, and it is assumed that all nesting listed eiders on the plot would be disturbed.

Other work would be conducted along transects, potentially disturbing listed eiders over a narrower linear area. Thus, the zone around aircraft land sites used to estimate impacts on listed eiders includes potential disturbance from aircraft landings and takeoffs and on-tundra activities.

5.2.1.1 Effects of disturbance from aircraft landings and on-tundra activities

BLM estimates that aircraft landings and associated on-tundra activities would occur at 500 fixed-wing and 2,916 helicopter landing (3,546 total) sites during the eider nesting season (between June 1 and August 15) in 2015. The number of aircraft landings at each site varies from one to several throughout the season, and duration of activities at each site varies from < 1 hour to 8-10 hours.

The best information available for estimating lost nesting potential for listed eiders are waterfowl breeding population surveys conducted annually on the Arctic Coastal Plain (ACP Survey), with data on eider density most recently reported in Larned et al. (2012). The estimated average density of listed eiders within the North Slope Eider Strata of the ACP Survey in 2011 was 0.261 spectacled eiders/km² (Larned et al. 2012); and hence we assume 0.1305 nests/km². In 2011, Larned et al. (2012) observed only 1 pair of Steller's eiders during the ACP survey; however, indicated pair density estimates from the north coastal strata during the 1992-2006 North Slope Eider and 2007-2011 ACP surveys averaged 0.0023 Steller's eiders/km² or 0.00115 nests/km² within the North Slope Eider Strata (Larned et al. 2012). These average densities were used to estimate the potential loss of nesting potential, as described below.

The number of hens that may be flushed in a 600 m radius from a landing site was estimated by multiplying the area (1.13 km²) by the number of estimated sites in 2015, and the average nest density for each species, resulting in an estimate of 252 spectacled eider and 2 Alaska-breeding Steller's eider nests:

Sites without tracks:

1,708 (250 fixed-wing + 1,458 helicopter) sites x 1.13 km² = 1,930.04 km² affected

0.1305 spectacled eider nests/km² x 1,930.04 km² = 251.9 spectacled eider nests disturbed at sites without tracks

0.00115 Steller's eider nests/km² x 1,930 km² = 2.22 Steller's eider nests disturbed at sites without tracks

Sites with tracks:

65 helicopter sites x 1.13 km² = 73.45 km² affected

0.1305 spectacled eider nests/km² x 73.45 km² = 9.59 spectacled eider nests disturbed at helicopter sites with tracks

0.00115 Steller's eider nests/km² x 75.45 km² = 0.087 Steller's eider nest nests disturbed at helicopter sites with tracks

We do not expect all nests from which females are flushed would be abandoned or depredated. The likelihood of nest abandonment or depredation resulting from aircraft landings and on-tundra activities presumably varies with the number of aircraft landings during the nesting season and the type and duration of activities at each site. For example, a site visit that includes one helicopter landing and human presence lasting 15 minutes would presumably result in lower risk of nest abandonment than a site visit requiring several landings and 8-10 hours of on-tundra activity; however, the difference is difficult to quantify. Bowman and Stehn (2003) and Grand and Flint (1997) reported that human disturbance at spectacled eider nests on the Y-K Delta reduced nest success by 5.8% and 14%, respectively.

Assuming the effects found on the Y-K Delta roughly approximate effects of human activities on spectacled eider nests in NPR-A, we assume that one disturbance event would reduce nest success by 9.9%. Thus, we estimate that for sites without tracks where travelers could potentially flush hens twice (during takeoff and landing), we estimate the nest failure risk is twice (19.8%; hens flushed during landing may have returned to their nests and could be flushed again during takeoff) that of hens near sites with tracks where hens would likely be flushed only once (9.9%; a hen flushed during landing is likely only flushed once because she is unlikely to have returned to the nest when travelers takeoff).

Nest success varies spatially and temporally. Using Mayfield methods Bowman and Stehn (2003) estimated nest survival for spectacled eiders on the Y-K Delta in 1994-2002 to be 0.678. At Barrow, Safine estimated spectacled eider nest survival to be 0.19 (95% CI 0.11-0.34) in 2009 and 2010 (Safine 2011), and 0.72 (95% CI 0.27, 0.92) in 2011 (Safine 2012). In light of this variation for the purposes of this evaluation, we assume nest success in the absence of human disturbance is 50%. Thus, we can calculate the following:

Sites without tracks:

251.9 spectacled eider nests at sites without tracks x 0.50 = 125.95 successful spectacled eider nests at sites without tracks

2.22 Steller's eider nests at sites without tracks x 0.50 = 1.11 successful Steller's eider nests at sites without tracks

Sites with tracks:

9.59 spectacled eider nests at helicopter sites with tracks x 0.50 = 4.80 successful spectacled eider nest at sites with tracks

0.087 Steller's eider nest nests at helicopter sites with tracks x 0.50 = 0.042 successful Steller's eider nests at sites with tracks

We can then estimate the difference between nest success in disturbed and undisturbed nest success to estimate the potential effect of disturbance upon nests of listed eiders. We assume nest success that includes disturbance impacts at sites without and with tracks is 30.2% (50% - 19.8%) and 40.1%, (50% - 9.9%), respectively.

Sites without tracks:

251.9 spectacled eider nests at sites without tracks x 0.401 = 101.01 successful spectacled eider nests at sites without tracks

2.22 Steller's eider nests at sites without tracks x 0.401 = 0.89 successful Steller's eider nests at sites without tracks

Sites with tracks:

9.59 spectacled eider nests at helicopter sites with tracks x 0.302 = 2.9 successful spectacled eider nest at sites with tracks

0.087 Steller's eider nest nests at helicopter sites with tracks x 0.302 = 0.026 successful Steller's eider nests at sites with tracks

We therefore estimate that **27 spectacled eider nests** (25 nests at sites without tracks + 2 nests at sites with tracks; 125.95 naturally successful nests – 101.01 with disturbance = 24.94 at sites without tracks and 4.80 naturally successful nests – 2.9 with disturbance = 1.9 nests at sites with tracks) **would fail due to disturbance at aircraft landing sites**. We expect no Alaska-breeding Steller's eider nests to fail due to disturbance at these sites.

5.2.1.2 Effects of ground activities at field camps and fuel depots

The BLM estimates 15 remote camps, 7 developed fuel sites, and 3 remote fuel sites (25 total) would operate in undeveloped areas of NPR-A in summer and fall 2015. Each field camp would have differing effects on nesting listed eiders; camps vary in size, number of field staff, duration, and number of aircraft landings required, therefore some camps may be more likely to cause nest failure than others. However, the extent of disturbance resulting from activities at these camps is difficult to quantify. Therefore, we assume on-going activities and repeated aircraft landings at camp sites would lower the potential for listed eider hens to successfully nest in a 600 m radius (1.13 km²) from the camp. Thus, estimate that activities associated with camps or fuel sites would disturb approximately 28.25 km² in 2015 (25 sites x 1.13 km² = 28.25 km²), potentially reducing nest success within this area.

To estimate the number of nests near camps and depots, we multiplied the affected area (28.25 km²) by the estimated density of listed eiders in that area. In the previous programmatic BOs we used spectacled eider densities derived from GIS kernel analysis of data collected during annual North Slope breeding population aerial surveys from 1993 – 2005 (Service data, unpublished). However, the location of some field sites is based on particular study objectives (i.e., presence of the study species or site characteristics); therefore, exact site locations are unknown for many activities at the time of consultation. Because camp locations are dispersed across the landscape, we use the average density of listed eiders across the North Slope calculated from the Larned et al. (2012) aerial eider survey (0.261 spectacled eiders/km²) and 0.0023 Steller's eiders/km², Larned et al. (2012).

Using these methods, the estimated number of nests near camps and depots was estimated as follows:

$0.261 \text{ spectacled eiders/km}^2 \times 28.25 \text{ km}^2 = 7.37 \text{ spectacled eiders} \div 2 = 3.69 \text{ spectacled eider nests}$

$0.0023 \text{ Steller's eiders/km}^2 \times 28.25 \text{ km}^2 = 0.065 \text{ Steller's eiders} \div 2 = 0.0325 \text{ Steller's eider nests}$

We assume that only 50% of the nests (1.8 spectacled and 0.016 Steller's eider nests) near camps and fuel depots would be successful in the absence of disturbance. We assume nest success within the 600 m radius around camps and fuel depots would be zero because activities at these locations could occur continuously or very frequently, whereas activities at takeoff and landing sites, where we estimated disturbance would decrease nest success by 9.9% or 19.8%, occur only once or infrequently. Thus, we assume the failure of 2 spectacled eider nests and no Alaska-breeding Steller's eider nests.

5.2.2 Loss of eggs across all project components

Nest failures would result in loss of eggs. Based on an average clutch size of 3.9 eggs for spectacled eiders (Petersen et al. 2000, Bart and Earnst 2005, Johnson et al. 2008), **we estimate up to 113 spectacled eider eggs could be lost due to nest failure.**

$3.9 \text{ eggs} \times 29 \text{ nests (27 at landing sites} + 2 \text{ at camps or fuel depots)} = 113.1 \text{ spectacled eider eggs lost}$

5.2.3 Biases in assumptions

Our assumptions in this analysis contain a number of biases, likely contributing to an inflated and very conservative estimate of the number of eggs lost due to disturbance. First, our estimate of the number of nests within 600 m of aircraft landing sites, camps, and depots is based on the assumption that each pair sited during the ACP nests; an unknown proportion of these pairs, however, likely do not nest. Thus, our initial estimate of nest density is likely biased high. Second, the area impacted by helicopter takeoffs at aircraft sites without tracks is likely smaller than the 600 m zone used in this analysis. The 600 m zone includes potential nest disturbance from travelers walking across the tundra; this area would be reduced once travelers return to the helicopter for takeoff. We expect the helicopter takeoff would only disturb hens (potentially a second time) within a much smaller, but unknown radius, around the takeoff site. Thus, we likely overestimated the number of nests potentially disturbed at sites without tracks. Third, we based our estimates of how disturbance may decrease nest success on studies in which researchers intentionally flushed eiders from nests; but in the Proposed Action, personnel would likely attempt to avoid flushing hens. Therefore, we likely overestimated impacts of nest disturbance. We thus believe we have overestimated impacts from disturbance.

5.3 Polar bears

Polar bears occasionally use the coastal margins of NPR-A in summer and fall, but encounters are anticipated to be infrequent and affect few individuals, particularly for activities occurring inland. If field crews in transit via aircraft encounter polar bears, aircraft noise may cause minor behavioral changes in polar bears (e.g., may look at aircraft or depart the area). However, to minimize effects field crews will divert their flight path to a minimum of 2,000 feet above ground level or ½ mile horizontal distance from the observed bear(s) whenever possible. A

slight possibility exists that field crews on the ground may encounter and disturb transient polar bears during the Proposed Action in inland areas. We expect disturbances, however, would be minor and temporary because transient bears would be able to respond to human presence or disturbance by departing the area. Field crews working in coastal areas such as Cooper Island may encounter polar bears at a higher frequency than crews working inland. The BLM would require all permittees to follow interaction guidelines, and would require persons working on Cooper Island, where the likelihood of encountering polar bears is greater, to develop an interaction plan. Because (1) the density of polar bears in the Action Area generally is low; (2) encounters with polar bears are expected to be infrequent; (3) behavioral effects to transient bears are not expected to result in injury or death of the bear; and (4) mitigation measures would minimize potential impacts in the event that transient polar bears are encountered, we expect effects of the Proposed Action on polar bears would be insignificant.

6. CUMULATIVE EFFECTS

Under the ESA, cumulative effects are the effects of future State, tribal, local, or private actions that are reasonably certain to occur in the Action Area considered in this BO. Future Federal actions that are unrelated to the Proposed Action are not considered because they require separate consultation under the ESA.

The possibility exists that some private citizens may disturb listed species as they travel in the area while hunting, camping, etc. Most of the Action Area is remote, and these effects would be very low.

7. CONCLUSION

After reviewing the current status of spectacled eiders, Alaska-breeding Steller's eiders, polar bears, the environmental baseline, effects of the proposed activities, and cumulative effects, it is the Service's biological opinion that the activities to be permitted or conducted by BLM from June 1 – October 15, 2015 described in this BO are not likely to jeopardize the continued existence of listed species. In evaluating the impacts of the proposed project to spectacled and Steller's eiders, the Service concludes that direct effects could result through disturbance of nesting females from proposed activities.

- Stehn et al. (2006) developed a North Slope-breeding population estimate of 12,916 (95% CI, 10,942–14,890) based on the 2002–2006 ACP aerial index for spectacled eiders and relationships between ground and aerial surveys on the YK-delta. If the same methods are applied to the 2007–2010 ACP aerial index reported in Larned et al. (2012, p. 20; 5,987 indicated spectacled eiders, 4,436–7,537 95% CI), the resulting adjusted population estimate for North Slope-breeding spectacled eiders is 11,254 (8,338–14,167, 95% CI); therefore, the estimated loss of 113 eggs is not expected to have a population-level effect.
 - Additionally, the loss of eggs is of much lower significance for survival and recovery of the species loss of adults. We expect that only a small proportion of spectacled eider eggs or ducklings on the North Slope would survive to maturity. Using methods described in the IAP BO (USFWS 2013, pg. 69-70), we estimate that at most 24 adult spectacled eider adults (at three years of age) would be

produced from an estimated 29 nest failures. Considering the most recent population estimate for North Slope-breeding spectacled eiders is 11,254, we would not anticipate population-level effects as a result of aircraft landings and on-tundra activities.

- The Service expects this level of lost egg production would not significantly affect the likelihood of survival and recovery of spectacled eiders.
- No lethal impacts or lost egg production of Alaska-breeding Steller's eiders is anticipated.

8. INCIDENTAL TAKE STATEMENT

Section 9 of the ESA and Federal regulations pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened species without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct. "Harm" is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. "Harass" is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, but not the purpose of, carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered a prohibited taking provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement (ITS).

As described in *Effects of the Action*, the activities described and assessed in this BO may adversely affect spectacled and Steller's eiders through disturbance from aircraft landing, people working on the tundra, and activities at field camps.

We anticipate the following incidental take for **spectacled eiders**:

- Loss of production of 113 eggs

We do not anticipate any **Alaska-breeding Steller's eider** nests would fail; thus, no incidental take of Steller's eiders is anticipated.

The measures described below are non-discretionary, and must be undertaken by the BLM so that they become binding conditions of any grant or permit issued to an applicant, as appropriate, for the exemption in section 7(o)(2) to apply. The BLM has a continuing duty to regulate activities covered by this incidental take statement. If the BLM (1) fails to assume and implement the terms and conditions, or (2) fails to require any applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse.

9. REASONABLE AND PRUDENT MEASURES

These reasonable and prudent measures (RPMs) and their implementing terms and conditions aim to minimize the incidental take anticipated from activities described in this BO. As described in Section 8 – Incidental Take Statement, activities conducted or authorized by BLM are anticipated to lead to incidental take of spectacled eiders through disturbance of nesting or brood rearing females.

RPM A - To ensure all effects of proposed activities have been considered, prior to authorizing or conducting activities, BLM must provide the Service with project descriptions.

RPM B - To monitor implementation of this programmatic BO and evaluate its effectiveness both in terms of protecting the species and improving administrative efficiency, BLM and their agents are required to record and report the location, time, and date of all aircraft landings.

10. TERMS AND CONDITIONS

To be exempt from the prohibitions of Section 9 of the Act, BLM and their agents must comply with the following terms and conditions, which implement the RPMs described above. These terms and conditions are non-discretionary.

RPM A - To ensure all effects of proposed activities have been considered, prior to conducting or authorizing activities, BLM must contact the Service providing project descriptions.

Prior to conducting or authorizing a project, BLM will contact the Service with a description of proposed activities. The Service will review this information to ensure the activities are within the scope of this programmatic BO.

RPM B - To monitor implementation of this programmatic BO and evaluate its effectiveness both in terms of protecting the species and improving administrative efficiency, BLM and their agents are required to record and report the location, time, and date of all aircraft landings.

BLM is required to report the location (latitude and longitude) of all helicopter landings in undeveloped areas of NPR-A for activities authorized by this BO. The date and time of landing and take-off should be described. Data should be provided in decimal degree form, in Microsoft Excel™ spreadsheets, with the latitude and longitude in separate columns. These data should be provided to the Service by November 30, 2015, where it will be used to:

- Assist in determining if the programmatic consultation adequately assessed effects (e.g., if activities are concentrated in specific areas then a more region specific density estimate may have been appropriate); and
- Determine if the number and types of activities that actually occurred was accurately estimated and help evaluate the benefit of a programmatic approach for BLM and the Service in terms of work load and responsiveness to applicants.

11. CONSERVATION RECOMENDATIONS

Section 7(a)(1) of the ESA directs federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a Proposed Action on listed species or critical habitat, to help implement recovery plans, or to develop information.

BLM is encouraged to:

- Schedule compliance inspections, surveys, and other work to avoid the nesting period, especially in areas of NPR-A known to support high densities of listed eiders;
- Communicate with applicants, and request they consider planning future work such that high use areas and/or the nesting period are avoided;
- Continue to support research that may provide information to strengthen our understanding of Steller's and spectacled eiders, the reasons for their decline, and assist in focusing and conducting recovery efforts; and
- Facilitate coordination of field efforts to reduce duplication of trips and efforts in the same areas.

In order for the Service to be kept informed of actions affecting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

12. REINITIATION NOTICE

This concludes formal consultation on the actions outlined in the BLM's letter requesting consultation and supplemental materials pertaining to aircraft landings, on-tundra activities in remote areas, and field camps/fuel depots in undeveloped portions of NPR-A June 1 to October 15, 2015.

As provided in 50 CFR 402.16, re-initiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if:

- 1) The amount or extent of incidental take is exceeded;
- 2) New information reveals effects of the action agency that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion;
- 3) The agency action is subsequently modified in a manner that causes an effect to listed or critical habitat not considered in this opinion; or
- 4) A new species is listed or critical habitat is designated that may be affected by the action.

Thank you for your cooperation in the development of this biological opinion. If you have any comments or require additional information, please contact Ted Swem, Endangered Species Branch Chief, Fairbanks Fish and Wildlife Field Office, 101 12th Ave., Fairbanks, Alaska, 99701.

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14. APPENDIX 1: POLAR BEAR INTERACTION GUIDELINES

These Polar Bear Interaction Guidelines (Guidelines) were developed to ensure that activities are conducted in a manner that avoids conflicts between humans and polar bears. Polar bears are protected under the Marine Mammal Protection Act (MMPA), and were listed as a threatened species under the Endangered Species Act (ESA) in 2008. The MMPA and ESA both prohibit the “take” of polar bears without authorization. Take includes disturbance/harassment, as well as physical injury and killing of individuals.

In addition to sea ice, polar bears use marine waters and lands in northern Alaska for resting, feeding, denning, and seasonal movements. They are most likely to be encountered within 25 miles of the coastline, especially along barrier islands during July-October. Polar bears may also be encountered farther inland, especially females during the denning period (October-April). Polar bears may react differently to noise and human presence. The general methods for minimizing human-bear conflicts are to: 1) avoid detection and close encounters; 2) minimize attractants; and 3) recognize and respond appropriately to polar bear behaviors. These Guidelines provide information for avoiding conflicts with polar bears during air, land, or water-based activities.

Unusual sightings or questions/concerns can be referred to: Susanne Miller or Craig Perham, Marine Mammals Management Office (MMM Office), 1-800-362-5148; or to Sarah Conn (907) 456-0499 of the Fairbanks Fish & Wildlife Field Office (FFWFO).

When operating aircraft:

- If a polar bear(s) is encountered, divert flight path to a minimum of 2,000 feet above ground level or ½ mile horizontal distance away from observed bear(s) whenever possible.

When traveling on land or water:

- Avoid surprising a bear. Be vigilant—especially on barrier islands, in river drainages, along bluff habitat, near whale or other marine mammal carcasses, or in the vicinity of fresh tracks.
- Between October and April special care is needed to avoid disturbance of denning bears. If activities are to take place in that time period the MMM Office should be contacted to determine if any additional mitigation is required. In general, activities are not permitted within one mile of known den sites.
- Avoid carrying bear attractants (such as strongly scented snacks, fish, meat, or dog food) while away from camp; if you must carry attractants away from camp, store foods in air-tight containers or bags to minimize odor transmission until you return them to “bear-resistant” containers.*

- If a polar bear(s) is encountered, remain calm and avoid making sudden movements. Stay downwind if possible to avoid allowing the bear to smell you. Do not approach polar bears. Allow bears to continue what they were doing before you encountered them. Slowly leave the vicinity if you see signs that you've been detected. Be aware that safe viewing distances will vary with each bear and individual situation. Remember that the closer you are to the animal, the more likely you are to disturb it.
- If a bear detects you, observe its behavior and react appropriately. Polar bears that stop what they are doing to turn their head or sniff the air in your direction have likely become aware of your presence. These animals may exhibit various behaviors:
 - *Curious* polar bears typically move slowly, stopping frequently to sniff the air, moving their heads around to catch a scent, or holding their heads high with ears forward. They may also stand up.
 - *A threatened or agitated* polar bear may huff, snap its jaws together, stare at you (or the object of threat) and lower its head to below shoulder level, pressing its ears back and swaying from side to side. These are signals for you to begin immediate withdrawal by backing away from the bear. If this behavior is ignored, the polar bear may charge. Threatened animals may also retreat.
 - In rare instances you may encounter *a predatory* bear. It may sneak or crawl up on an object it considers prey. It may also approach in a straight line at constant speed without exhibiting curious or threatened behavior. This behavior suggests the bear is about to attack. Standing your ground, grouping together, shouting, and waving your hands may halt the bear's approach.
- If a polar bear approaches and you are in the bear's path—or between a mother and her cubs—get out of the way (without running). If the animal continues to approach, stand your ground. Gather people together in a group and/or hold a jacket over your head to look bigger. Shout or make noise to discourage the approach.

If a single polar bear attacks, defend yourself by using any deterrents available. If the attack is by a female defending her cubs, remove yourself as a threat to the cubs.

When camping:

- Avoid camping or lingering in bear high-use areas such as river drainages, coastal bluffs and barrier islands.
- Store food and other attractants in “bear-resistant” containers*. Consider the use of an electric fence as additional protection. Do not allow the bear to receive food as a reward in your camp. A food-rewarded bear is likely to become a problem bear for you or someone else in the future.
- Maintain a clean camp. Plan carefully to: minimize excess food; fly unnecessary attractants out on a regular basis (i.e. garbage, animal carcasses, excess anti-freeze or

petroleum products); locate latrines at least ¼ mile from camp; and wash kitchen equipment after every use.

- If a polar bear approaches you in camp, defend your space by gathering people into a large group, making noise and waving jackets or tarps. Continue to discourage the bear until it moves off. Have people watch the surrounding area in case it returns later, keeping in mind that polar bears are known to be more active at night. Additional measures to protect your camp, such as electric fences or motion sensors can be used.

Harassment of polar bears is not permissible, unless such taking (as defined under the MMPA) is imminently necessary in defense of life, and such taking is reported to FWS within 48 hours.

*Containers must be approved and certified by the Interagency Grizzly Bear Committee as "bear-resistant." Information about certified containers can be found at <http://www.igbconline.org/html/container.html>.

FOR DEPARTMENT OF INTERIOR EMPLOYEES ONLY

Use of Deterrents

In addition to following the Guidelines above, all U.S. Fish and Wildlife Service (Service) employees must have completed the Department of the Interior's (DOI) Bear and Firearm Safety Training course and be current in certification before engaging in field activities. Service staff must practice with and know how to use deterrents prior to conducting field work. If working in bear habitat, Service staff must anticipate and plan for possible scenarios of encountering polar bears, and identify appropriate responses, prior to initiating field work. Use of non-lethal polar bear deterrents by Service staff is only permissible if it is done in a humane manner and is for the purposes of protection or welfare of the bear or the public. Service staff has the right to use lethal methods to protect the public from polar bears in defense of life situations, and may do so when all reasonable steps to avoid killing the bear(s) have been taken.

Notification of Use of Deterrents

The Department of the Interior Bear Incident Report Form will be used to record and report polar bear-human interactions that require use of deterrents. These incidents will be reported to the MMM Office. This information will be used to track interactions over time and improve polar bear conservation and management.

15. APPENDIX 2: POLAR BEAR DETERRENCE AND ENCOUNTER PLAN FOR COOPER ISLAND FIELD CAMP – 2015

General bear deterrence of the Cooper Island cabin and campsite

While on Cooper Island we live in an 8'x12' wooden cabin. The cabin is of sturdy construction and (based on claw marks on its sides) has withstood attempts by polar bears to gain access to the inside in winter. We store our food in the cabin and our minimal trash (paper products but not food items) in garbage bags. Trash is taken back to Barrow on any boat or aircraft that visits the island.

The cabin and adjacent Weatherport are encircled by an electric fence with a solar charger on the fence energizer. The fence is comprised of an electric net with dual polarity, which is specifically made for dry ground and poor grounding conditions. The fence has demonstrated its effectiveness in deterring polar bears from entering the Cooper Island campsite.

Training of field crew

George Divoky has been on the island since 1975 and has extensive experience with shotguns and since 2002 has seen and avoided polar bears on the island almost every summer. Others who will be on the island have had gun safety training and extensive training on how to respond should they see a polar bear on the island. All personnel carry a 12-gauge shotgun with them at all times – both in the field and cabin.

Plan for human safety when a bear is encountered on the island

Since there is typically at least a half mile of visibility on Cooper Island, we are usually well aware of a bear shortly after it arrives on the island. We use handheld VHF radios to communicate in the field and when a bear is seen all camp personnel are notified and return to the cabin. The electric fence is energized when all personnel are back at camp. Bears typically walk westward down the north beach and we remain in the cabin until the bear is at the west end of the island, where they enter the water.

Intentional take authorization from USFWS

We do not have an intentional take authorization from the U.S. Fish and Wildlife Service.