



Alaska Peninsula/Becharof National Wildlife Refuges

Newsletter - Winter 2010-2011

"The mission of the National Wildlife Refuge System is to administer a national network of lands and waters for the conservation, management, and where appropriate, restoration of the fish, wildlife and plant resources and their habitats within the United States for the benefit of present and future generations of Americans."

National Wildlife Refuge System Improvement Act of 1997



Stacy Pecen, Amanda Boshers, and Marla Greanya observing seabirds.

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Alaska Peninsula/Becharof NWR Vision Statement: The Alaska Peninsula and Becharof Refuges will remain as they are today with healthy, natural populations of fish and wildlife living in primarily unaltered habitats. The Refuges will continue to provide local residents opportunities for subsistence use. The Refuges will be open to all people to engage in a variety of wildlife-dependent activities and to enjoy the spectacular setting and resources. Refuge management and outreach will be a model of effective collaboration among diverse public interests and public and private landowners and managers.

Seabird Study Triggered by Oil Spill Continues

When the Exxon Valdez oil tanker ran aground in Prince William Sound in 1989, it spurred research all along Alaska's coastline. Concern over what the floating oil was doing to bird populations brought observers to seabird colonies. This year's Puale Bay project followed up on the ones begun in 1989: an attempt to evaluate how well the seabird population is doing.

Kevin Payne, field supervisor for the Puale Bay project, led a crew of biology interns. Amanda Boshers took a semester off from University of Wisconsin, Stevens Point, to participate. Marla Greanya (Michigan State University) and Stacey Pecen (Pennsylvania State University) are graduates. Their field season began June 13, after five weeks of extensive training and logistical preparation.

In 1989, many adult murrelets had gathered in springtime rafts (groups) near their nesting sites, and were covered in oil from the spill. Thousands died. Because young birds don't join the adult rafts, they survived; but without adult guidance, it took a few years for them to learn how to lay eggs and raise young, so colony success was low.

In 2010, with the wet, stormy weather of July, the crew expected to see lower rates of success as well. Kevin estimates that about 48% of the common murrelets he observed raised their chicks to fledging stage, and 38% of the thick-billed murrelets. This rate of success is low compared to studies in 2001-2003. (Studies take place about three times in every ten years.)

The original study divided the visible part of the colony into 17 plots. Using viewing scopes, the total number of birds within each plot is counted. This is done by two people, counting and recounting until the numbers are within 5% of one another.

Seabirds continued on next page

Seabirds, cont.

Around 2,000 common and thick-billed murrens packed the narrow ledges this summer. At the beginning of the decade, there were fewer birds: about 1,500. (These are just the birds that can be seen from the top of the cliff; the whole colony is larger.)



Common murrens at nest sites

Murrens do not build nests; they lay large, pointed eggs directly on the ledges, and hold them between feet and belly to keep them warm. The elongated shape of the egg also helps prevent rolling.

Early in the season, each person photographs their assigned plots and circles birds near landmarks, so the birds can be re-found more easily. About every three days, these birds are carefully observed and their behavior recorded. A glimpse of an egg or a chick, or the sight of a bird in a posture that indicates an egg or chick is being sheltered, is noted. These observation tasks might require 12 hour days in the early season. Data are written in waterproof notebooks and entered into the laptop computer at camp in the afternoons and evenings.

The murre colony is not the only one observed at Puale Bay. On a cliff visible from the bluff, red-faced, pelagic, and double-crested cormorants build their messy nests. Populations are counted and nests observed to see how many



Observing cormorant nesting area at Puale Bay.



Observing murre nest sites with spotting scope, roped in for safety, with notes secured against wind

chicks survive to fledge (leave the nest). 143 nests were monitored this year. The numbers of successfully fledged birds were intermediate between studies in 2001 and 2002. Glaucous-winged gull nests are also tracked when they occur in the plots.

An additional project carried out was on plant phenology (life history). Early in the season, the group marked a series of plants with orange flags. Every week, they revisited the plants to see how things had changed. First leaf, first flower, first fruit: the patterns revealed here can tell us about the patterns of seasons and climate, too.



Forget-me-nots in Puale Bay

On September 12, the group flew back to King Salmon, where equipment was cleaned and put into storage. Data was assembled and reports written. In three more years, it will be time to return to the windy shore of Puale Bay and its busy cliffside bird colonies to continue this long term study. By then, the chicks of 2010 will not yet be ready to come home to lay their first eggs. For another year or two more, they will roam the wide Pacific Ocean. May they find safe passage.



Puale Bay field camp at sunset

Life in a Field Camp

Reached by a little gravel strip behind grass-covered sand dunes, Puale Bay Field Camp consisted of two WeatherPorts: Quonset-hut-like tents made of curved metal poles and white vinyl. One was a dormitory, the other the kitchen and living room. Between the WeatherPorts was a plywood shower shack, with a water cooler on a shelf for handwashing. Clotheslines ran between the tents for hanging laundry.

The whole compound was surrounded by an electric fence, except for the outhouse, erected on a nearby dune, which had its own little electric fence (hooked up after a bear left its claw marks in the door). All electricity in camp came from solar-powered batteries.

Large Mammal Studies Continue on the Alaska Peninsula

Studies of caribou, moose, and wolves continue on the Alaska Peninsula as part of a partnership between the USFWS and the Alaska Department of Fish and Game (ADF&W). Refuge Biologist Dom Watts described collaring and sampling efforts on each species.

The caribou on the Alaska Peninsula have been in a prolonged decline. Studies using radio collars on Alaska Peninsula caribou began in 1981 and are ongoing. Collars are put on caribou to help locate the herds in order to assess survival and reproduction. Information from collared individuals provides important information for wildlife managers.

The herd's decline is likely due to a variety of causes. Studies from the past decade indicate that the Northern Alaska Peninsula herd may be suffering from diseases and heavy parasite loads. Mineral deficiencies may also have an effect. Rarely is there a simple explanation for anything in nature.

A study of moose was begun two years ago. Moose calves are captured so they can be followed throughout their lives, gaining a picture of how well moose survive and reproduce. The collars used on calves have elastic bands that permit them to stretch while the animals grow. After the first year, the now-adult moose are re-captured and fitted with new, adult-sized collars.

Wolves are also a focus of study. The primary purpose of the wolf study is to



Weighing a caribou.



A newly collared caribou in spring.

gain a general ecological picture of the area. Wolves are opportunists, eating a wide variety of prey, from salmon to caribou to voles, connecting them to every part of the ecosystem.

GPS collars on wolves communicate with a satellite, usually once per day. The satellite collars allow a biologist to remotely track the movements of the animals by downloading data from the satellite. Sometimes there are surprises—an animal might roam farther than expected, or in an unpredicted direction.

Putting on collars is far from the only task when an animal is captured. Hair and whisker samples are collected from all the animals collared, as well as blood samples. Teeth are inspected, measurements taken, and weights recorded. From these collections and observations come greater information not easily gained in other ways.

For example, since 2006, wolves on the Alaska Peninsula have been monitored for common canine diseases, such as distemper, parvo, corona and adeno viruses, and toxoplasma. One parasite is more common in wolves in the interior than in wolves close to the coast. Dom says one likely explanation is tied to cats—in this case, lynx.

Lynx are not as abundant near the coast,

but are common in the interior. Wolves have a special fondness for eating cat scat, especially when frozen. Lynx often carry the parasite; and since wolves eat their scat, it's likely the parasite passes to the wolf from this habit. It could also be introduced from wolves eating the lynx themselves, or possibly from eating moose. Samples from the moose project might shed some light on this.

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Refuge Biologist Dom Watts collaring a moose



Taking hair samples from a wolf

Hair and whiskers can reveal what an animal has been eating. Carbon comes in different forms called isotopes: each carbon atom may have 12, 13, or 14 neutrons in its core, altering its weight. Nitrogen and sulfur, too, have different isotopes. Marine animals tend to have higher concentrations of specific isotopes; and when wolves eat salmon, marine mammal carcasses, or other marine foods, that nitrogen becomes a part of their own bodies, leaving a story to be traced by scientists.

Research supported by USFWS and ADF&G helps us shape a better understanding of the health, habits, and habitat of Alaska Peninsula's large mammals. The mission of places like Alaska Peninsula/Becharof National Wildlife Refuges is to protect wildlife and habitat for the benefit of the American people. That mission is founded on data collected in the field, from the wolves, caribou, and moose that live here.

Hunters and trappers can help with ongoing studies of predators by sending hair and whisker samples. Please contact Dom Watts for more information: (907) 246-1210.

Fish Return to Devastated Water System

Early reports on research from Mother Goose Lake in Alaska Peninsula National Wildlife Refuge this summer are yielding some exciting finds. A volcanic flood left an altered water system now being studied by researchers from the Alaska Volcano Observatory, Anchorage Fish and Wildlife Field Office (AFWFO), and Refuge staff.

In 2005, an acidic lake in the summit of volcanic Mount Chiginagak burst out of the crater, and a flood poured down the slope of the volcano. The water mixed with debris, forming a lahar (an Indonesian word describing volcanic debris flows). The lahar raced down Volcano Creek, sweeping into Mother Goose Lake, dumping not only debris but highly acidic water. Tests carried out in August by AFWFO and Alaska Volcano Observatory staff showed pH levels between 3-4.5 in Volcano Creek, Mother Goose Lake, and King Salmon River where it exited the lake. Fish prefer a fairly neutral pH of 6-8.

Alaska Department of Fish and Game staff found no salmon in the lake in August 2005, and aerial surveys later in the year continued to show no signs of adult salmon. Probably all the fish in the lake and Volcano Creek died from the

acidic flood.

Staff from AFWFO spent a part of this summer looking for fish and invertebrates both in Mother Goose Lake and in tributary and outlet systems that had not been acidified, such as Needle Lake. They hoped to see whether salmon had been cut off from access to the sea and stayed as residents in places like Needle Lake. Their research might show how Mother Goose Lake could be recolonized.

Ten species of fish were found above the outflow of Mother Goose Lake to King Salmon River. Seven species were found in the lake itself, five resident species and two Pacific salmon species. And in Needle Lake, adult sockeye and chum salmon were found, all smaller and greener than fish from the river. The ones in Needle Lake likely were cut off after the lahar, unable to enter the toxic water downstream. Otoliths (ear bones) from the salmon show the difference between the ones from the King Salmon River that had lived in the ocean, and those trapped in Needle Lake.

Continued work this winter on water and invertebrate samples will help shed light on the recovery of the Mother Goose Lake system.



Normal fish on the left compared with trapped Needle Lake fish on the right. Needle Lake fish are smaller and greener.

Swans Studied for Flu

In July 2010, Refuge Biologist Susan Savage led efforts to capture tundra swans in the Northern Alaska Peninsula. Izembek NWR led the effort on the Southern Alaska Peninsula. These handsome birds have been studied here since 2006 because of concerns about influenza.

Birds from southeastern Asia that are infected with Asian Avian Influenza virus (HPH5N1-AI) contact eastern Asia bird populations, where some Alaskan tundra swans may visit. It is possible that Alaskan swans might pick up the disease. Tundra swans also share habitat with northern pintails which are even more likely to contract H5N1 in their Asian wintering locations.

To find out whether or not Alaskan tundra swans might be carrying AI, four offices joined together to do field research: the Alaska Peninsula/Becharof National Wildlife Refuges, the Izembek National Wildlife Refuge, Region 7 Migratory Bird Management office, and the US Geological Survey-Alaska Science Center.

Since the birds were to be captured, a variety of other research could occur. Banding, blood samples, and feather samples help to create a picture of where swans go on their migration routes, whether one population breeds with another, what levels of lead and mercury the birds have been exposed to, and whether the birds carried AI.

Actually catching the birds is a tricky bit of work. Early efforts were hampered by timing: too early in July and the birds have not yet molted their flight feathers. In 2010, based on past observations of bird presence, the field crew showed up July 18. Using a helicopter, birds without cygnets (chicks) were spotted. The aircraft landed nearby to drop off 2 or 3 crew members with large salmon nets. They hid behind bushes or other cover while the helicopter attempted to drive the birds towards the concealed nets.

If the fleeing bird spotted a person, it changed course; and chasing swans on foot over tussocky tundra generally does not result in a captured bird. When the hunt met with success, the helicopter landed, and the banding and sampling began.



Refuge Biologist Susan Savage with a collared tundra swan.

210 swans were caught in 2010. It took four days to catch the first 104 on the Northern Alaska Peninsula; and 5 days for the remaining 106 in the Southern Alaska Peninsula. This was two days ahead of schedule, even with poor weather and other delays. The project also came in under-budget.

Collaring and banding the birds has been very productive in the earlier years of the study. About 68% of the birds have been reported again, often more than once. While most were seen again in Alaska, others were reported from Washington, California, Oregon, British Columbia, Montana, Idaho, and Alberta.

In four years of sampling, only 6 swans carried AI, but none had H5 or N1 (the variants that have caused illness and death in humans and domestic birds). Anyone who spots a bird with a collar or leg band is encouraged to report the sighting to Susan Savage at Becharof National Wildlife Refuge; or to the Banding Lab at <http://www.reportband.gov/>.



Collared swans await processing.

Report Deformed Bills in Birds

Chickadees, Northwest crows, and other birds appear to be afflicted with a disease that causes deformation. Deformed bills, claws, and feathers, as well as skin lesions, are increasingly being seen throughout North America.

It's possible the problems are being caused by a fungus. Researchers are working to reveal the cause.

Please report any observations of deformed bills or other issues in birds to Susan Savage, (907) 246-1205; or to http://alaska.usgs.gov/science/biology/landbirds/beak_deformity/observerreport.html.

Historic Route to Become Recreational Trail

The old route connecting the abandoned village of Kanatak on the Pacific Coast with Becharof Lake is also receiving attention this year. Paul Boskoffsky, one of two former residents of Kanatak still living, is enthusiastically assisting Refuge staff to designate the route as an official trail.

Trips are planned to the site to relocate the route and clear brush to make it safer and easier to hike. Three low-key signs are planned to mark the trail. Development will be limited to keeping the trail clear and providing outhouses to reduce human waste issues.

The route leads over a pass that affords spectacular views of Becharof Lake, Mt. Peulik, and the Pacific Ocean. Interpretation of the site and its history will ultimately be found on the Refuge's website. For more information about the project, contact Julia Pinnix, Visitor Services Manager, (907) 246-1211, Julia_Pinnix@fws.gov.

Vessel Is Readied for 2011

The Refuge's recently acquired 63-foot vessel is undergoing preparations for the summer research season in 2011. Formerly known as *Caroline*, the *Arlluk* ("killer whale" in Alutiiq) is at harbor in Kodiak.

Some repairs, including a full fiberglassing, need to be done to ready the boat. Joe Gay of Girdwood, Alaska, has been hired as captain on a permanent-subject-to-furlough basis, with a 6-month season of operation expected.

Plans for the boat in 2011 include continuing to cooperate with the U.S. Geological Survey on eelgrass studies in Chignik and Izembek lagoons. A partnership with the National Park Service to begin a study of marine life along the Katmai shore is in the works, targeting near-shore benthic invertebrates (such as worms and shellfish). A similar study along the coast of the Refuge may be attempted as well.



The "Caroline" before being renamed "Arlluk"



View of Kanatak Trail route from Portage Bay

Chignik Lagoon Eelgrass Surveys Ongoing

Under the program lead of USGS scientists, surveys were conducted in Chignik Lagoon during June to establish a baseline for abundance and distribution of eelgrass, seaweeds, and associated life forms. Status and trends of eelgrass (*Zostera marina*) are largely unknown for southwestern Alaska, yet this plant is a dominant marine species and an important reason for the rich diversity of marine and terrestrial species that characterizes the region.

Not a seaweed and not a grass, eelgrass is a flowering plant. It keeps the sea bottom intact, slows currents, and protects the shore from erosion, providing a vital food source for birds like emperor geese, black brant, and Steller's eider. Eelgrass beds are great habitat for fish and invertebrates.

Long term monitoring programs are needed to track changes in the condition of ecosystems in southwestern Alaska. The findings from the eelgrass study might reveal ways to use eelgrass trends as measures of overall ecosystem health.

Refuge Gains New Shop

On November 19, 2010, Refuge Manager Bill Schaff and other staff members were taken on a much anticipated walk around the new shop facilities. Koman, Inc., began construction began this spring, once the weather was warm enough to work the ground.

The new shop building will be the maintenance nerve center, says Schaff. Four large, high-ceilinged rooms and large garage doors allow the Refuge's heavy equipment to be brought inside. Auto repair, welding, woodworking, and storage of field equipment are the primary uses for the structure. There is a new auto lift and 240 amp hookups for heavy electrical equipment.

The new shop has in-floor heating, so heat is kept low where it is needed. Another project in the works involves the installation of wind turbines. Once this project is completed next summer, the new shop's heat will come directly from the wind.



Refuge staff inspect new shop equipment

The old, smaller shop will be converted for biological and law enforcement projects. There will be a wet room for a dive locker, a compressor for refilling tanks, a shower and eye wash station, space for processing field collections, and storage for Search and Rescue equipment.

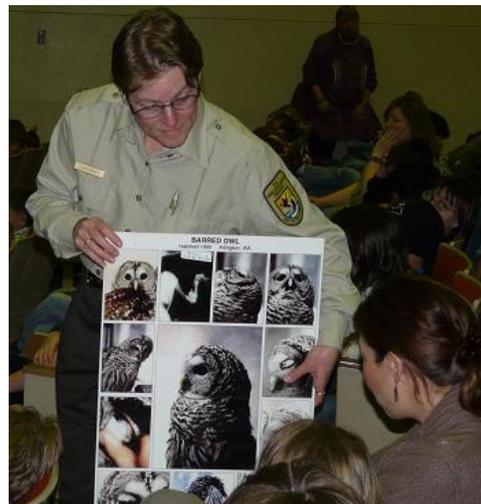
For more information about any of the articles in this issue, or to order a free printed or electronic copy, please contact Visitor Service Manager Julia Pinnix. Julia_Pinnix@fws.gov. (907) 246-1211. P.O. Box 277, King Salmon, AK, 99613.

COASST Survey Continued at Puale Bay

The Coastal Observations And Seabird Survey Team (COASST) is a volunteer organization that collects data from surveys along the Northwest Coast and Alaska for entry into a national database. This project began in response to the 1989 Exxon Valdez oil spill. During the spill, over 100,000 oiled bird carcasses washed onto the beaches of Puale Bay alone. A beached bird survey was developed at the time to measure the impact of the spill. The survey continues now with a focus on natural mortality.

Ten surveys were completed this summer by the Puale Bay crew, using transects from the original study. 2010 had the highest count of dead birds on the beach since the oil spill, with 12 found. Cold, wet weather or high winds may have been a factor. None of the carcasses showed evidence of petroleum or entanglement.

New Visitor Services Manager Joins Refuge Staff



Alaska Peninsula/Becharof NWR welcomes Julia Pinnix to the position of Visitor Services Manager. Julia arrived from Mount Rainier National Park, WA, August 19. Julia oversees operations at the King Salmon Visitor Center. Her other duties include producing publications, working on special projects related to visitor services, and developing an education and outreach program to serve the communities of the Alaska Peninsula.

Science Camp Weathered Out

The 2010 Science Camp, scheduled to be held at Ivanof Bay, had to be cancelled due to bad weather. In 2011, Science Camp will take place at Becharof Lake in newly refurbished cabins. The cabins were unusable in 2010 while assessment for contaminants was being carried out. The cabins will be cleaned and repaired in early summer.

Each year the Refuge works to provide an opportunity for hands-on learning for local students about management issues, resources, and an ever changing environment. Sessions bring both traditional knowledge and western knowledge philosophies together in a unique and educational way in a natural outdoor classroom for students from the two regional school districts.

The success of this program has been possible with the partnerships and contributions from Lake and Peninsula Borough and School District, Bristol Bay Borough and School District, Alaska Geographic, and the US Fish & Wildlife Service.

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Rare Wolf Attack Triggers Multiple Responses

The USFWS issued two Special Use Permits in 2010 to allow Alaska Department of Fish and Game (ADF&G) to pursue wolves onto federal land if needed. The first was in response to the death of teacher Candice Berner in the community of Chignik Lake.

The second Special Use Permit was signed December 10. Villagers of Port Heiden had reported seeing many wolves near and in town from August to December, and a few dogs were killed by wolves. Six wolves were shot by residents since August, and 14 more were killed by ADF&G employees from Dec. 9 to 10. No wolves were taken on federal land under either permit.

Wolf attacks in North America are rare. Only two documented deaths, including Berner's, have occurred since 1940. Refuge Biologist Dom Watts notes: "The number of fatal attacks in North America indicate that wolves are not a major threat to refuge visitors." Wolves regularly attack domestic dogs, coyotes, and other wolves. In several cases the aggression was focused on humans, and

the wolves were driven away by other people present during the encounter. "Wolf aggression towards people isn't new," says Lem Butler of ADF&G.

Refuge Ranger Orville Lind points out, "Animals are just doing what they do normally. We're the intruders." Most wolf encounters are peaceable, but in the rare event that you meet an aggressive wolf, return the aggression. Stare directly at the wolf, and don't run. Running can trigger a natural chase response. Yell and clap your hands; swing a walking stick or tree limb. Back away slowly while keeping an eye on the animal. If attacked, fight back.

Wolves in North America were traditionally admired and respected by many native groups. More recently, wolves have been regarded as enemies. They were killed in very large numbers in the U.S. up until the 1930s, partly for bounties; and in smaller numbers since then. Research in the past century has taught us that wolves play an important role in the ecosystem. On-going research in the Refuge adds to our understanding

and appreciation of this animal. Lind and Visitor Services Manager Julia Pinnix are preparing an educational kit on wolves to increase awareness in Alaska Peninsula schools and communities.



Gary Kramer/USFWS