



Alaska Reflections

A Sampler

2001 - 2006

Law Enforcement and Subsistence Waterfowl Hunting

By Jerry Cegelske, Special Agent,
Law Enforcement, Fairbanks

Published Winter, 2001

It's mid-winter. The thermometer outside of the Law Enforcement Office in Fairbanks reads minus 38, and it's falling towards fifty-below. On a day like this it's difficult to believe that spring will ever come. But the days will get longer, and as they do migratory birds will begin their northward journeys. Among these will be ducks, geese and swans heading for their nesting grounds on the vast Yukon/Kuskokwim River Delta. Residents of remote villages, most of them Alaska Natives living hundreds of miles from the state's limited road system, will be

looking forward to the birds' arrival. The migrants are welcomed as a sign that winter is over, to be sure, but also as a source of fresh meat that the villagers have relied upon for hundreds of years. It will be mid-summer before the first barges arrive to resupply local stores.

The enforcement of migratory bird laws has never been a simple thing here in Alaska. The seeds for troubled history were sown in 1918, when the Migratory Bird Treaty Act was passed, prohibiting the harvest of migratory birds between March 10 and September 1. Though well intentioned, this law gave no consideration to the needs of subsistence hunters in rural Alaska, where, by September 1, winter is well on its way and many waterfowl have long since headed south. In short, the very people who most relied upon ducks and geese as critical food sources, were effectively denied any opportunity to legally hunt them.

When Service game management agents attempted to enforce the spring and summer closed seasons, conflict was unavoidable. The "Boston Tea Party" of Alaska migratory bird enforcement began on May 20, 1961, when Fish and Wildlife Agent Harry Pinkham arrested Barrow hunter Tom Pikok for taking waterfowl during a closed season. A little more than a week later, State Representative John Nusngingya

of Barrow was apprehended with a duck in his possession. The following evening 138 Barrow residents showed up at the part-time magistrate's office, each carrying a dead duck in a display of solidarity. All of the protesters



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Under the temporary "closed season enforcement policy" it is illegal to harvest (among other species that are too few in number) emperor geese or their eggs.

willingly signed statements saying that the ducks were taken illegally, but no one was prosecuted. Though this event was a watershed, conflicts continued. Archived reports of early enforcement patrols mention shots fired at agents and patrol aircraft coming back with bullet holes in them. It's a miracle that no one was hurt or killed.

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Real change began to take place in 1975, when the Service established a written policy stating that prosecution of subsistence hunters would not be sought in cases where a demonstrable subsistence need existed. Though a well-intentioned stopgap, this compromise forced the Service to perform a delicate balancing act. How was it to provide for legitimate subsistence needs in rural Alaska while attempting to regulate harvest on a species basis and comply with treaty mandates? It's no wonder that waterfowl managers, Alaska Natives, and law enforcement officials were all often frustrated.

Another step toward cooperation came about, at least in part, as a result of crisis. In the 1980's, with populations of four Alaskan goose species declining and subsistence hunting on the

California, Washington, and Oregon to see where "Alaska's" geese wintered and how they were hunted, managed and protected elsewhere.

Though the overall direction was positive, these meetings were often difficult for both sides. Alaska Natives were concerned that their subsistence traditions and customs would suffer if they were not allowed to harvest waterfowl in the spring. Elders remembered starvation in their villages, and feared its return if this resource was permanently taken from them. Wildlife managers were concerned about the declining populations of the goose species and were convinced that controls were necessary to reverse the decline. They

geese have risen from 90,000 to 340,000.

And now a new day is dawning. In 1999, amendments to the 1918 Migratory Bird Treaty Act authorized the Service to develop regulations for a subsistence hunt during the spring and summer in Alaska. Indigenous inhabitants of Alaska will now have a voice in migratory bird conservation by participating in the control of the resource. Management bodies authorized by the amendments will include Federal, State, and Native representatives, and will be able to develop recommendations that will be submitted to the Service and flyways councils.

One of the vehicles that has been instrumental in bringing about increased communication between Alaska Natives and the Service is the Waterfowl Conservation Committee (WCC). The WCC, part of the

Association of Village Council Presidents, consists of representatives from various Native villages in the Yukon-Kuskokwim Delta. Because the Yukon-Kuskokwim Delta Goose Management Plan is administered during WCC meetings, Service and state representatives are invited to share information and discuss waterfowl management concerns. WCC members then pass this information on to residents of their communities in the most remote corners of the Delta.

The Service has also established Refuge Information Technician (RIT) positions on key refuges. RIT's are Alaska Natives hired from rural villages, usually within the refuges' boundaries. The Yukon Delta National Wildlife Refuge, which employs eight RIT's, has nearly forty villages located within its boundaries. These RIT's help bridge the cultural gaps between wildlife professionals and traditional subsistence hunters.

Until formal regulations for spring and summer subsistence hunting are



Barrow's 1961 "Duck In" protest emphasized the need for change in Alaska migratory bird management.

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increase, the Hooper Bay Agreement, now called the Yukon-Kuskokwim Delta Goose Management Plan, was created. Signatories to the plan included the Service, Native organizations, and state fish and game officials from Alaska, California, Washington, and Oregon. Under the original agreement, subsistence hunting of cackling Canada geese, black brant, Pacific white-fronted geese, and emperor geese was either prohibited or severely restricted.

Service agents, Refuge Managers, and state waterfowl managers visited Native villages in Western Alaska, where numerous meetings were held to discuss and develop the plan. Some wildlife professionals who had never visited an Alaskan village came away with a new appreciation for the subsistence lifestyle. Similarly, Native leaders were able to travel to

argued that, without policies that could rebuild and maintain populations, there would soon be no geese for subsistence hunters to harvest.

Given these conflicting concerns, it's not surprising that the meetings were confrontational. Law enforcement remained a contentious and volatile issue. Threats of violence against agents and refuge officers were not uncommon. But the discussions did result in a gradual increase in mutual understanding and, eventually, a recognition of the need to work together. The lines of communication that were developed during these tough times stayed open, with positive results. Since the Hooper Bay Agreement, there have been dramatic increases in the population of some goose species. For example, cackling Canada geese have increased from 25,000 to 200,000, and numbers of Pacific white-fronted

in place (scheduled for the spring of 2002), the Service's "closed season enforcement policy," which addresses the subsistence harvest of waterfowl during the spring and summer, will remain in effect. Under this policy, Service officers take enforcement action only when confronted by violations that have a serious impact on populations of species that are already too few in number. (This applies only to people in rural areas of Alaska who depend on waterfowl for food during the closed season. In other areas, all seasonal regulations are strictly enforced.)

Currently, the hunting of emperor geese and Aleutian Canada geese at any time is still prohibited under the closed season enforcement policy. Two duck species, spectacled and Steller's eiders, have also been added to the prohibited hunting list because of declining populations.

The taking of eggs of black brant, emperor geese, cackling Canada geese and eiders is prohibited, as well, as are hunting with lead shot, using aircraft as an aid in hunting, and the waste of harvested waterfowl. Finally, the policy prohibits the subsistence hunting of cackling Canada geese and black brant during their nesting, brood-rearing, and flightless periods.

In the course of applying the complex regulations, agents have come to recognize that effective enforcement not only requires traditional patrol methods but also education and outreach; what urban police departments might call "community policing." During off season, agents,

often in conjunction with refuge managers, biologists and RIT's, travel throughout rural Alaska participating in meetings and conducting steel shot training seminars. Their efforts are convincing rural communities in Alaska that reasonable restrictions are important to the future of subsistence hunting.

Come spring, when migratory birds start arriving in Alaska and another traditional hunt begins, agents will be on the ground and in the air conducting basic, hands-on law enforcement, but with the added complications of weather and logistical challenges found nowhere else in the world.

On the Yukon/Kuskokwim Delta, for example, operations are staged out of Bethel, with agents fanning out over thousands of square miles of roadless tundra, marsh and ice-pack. Travel is by air in bush planes equipped with skis, fat tundra tires or floats. Sometimes agents work out of tent camps flown in by helicopter. In May of 1992 a team in such a remote field camp was pinned down for nearly a week by a blinding snow storm that brought all travel in the region to a halt. Several of their expedition-weight tents were ripped to shreds by the near 100 mph wind.

And, despite progress made through outreach and education, law enforcement in bush Alaska can still be hair-raising even when the weather cooperates. When trouble occurs, backup can be a hundred miles away. In one instance, two agents who landed their ski-equipped Super Cubs near a village to check on a couple of hunters found themselves surrounded by an

angry crowd. On another occasion, an agent attending a village meeting was detained because he wouldn't divulge the name of the informant who provided information about illegal hunting.

But law enforcement will always involve risk, and the hard work of the past decades is beginning to pay dividends. Nelson Island, a low rolling point of tundra that extends westward into the Bering Sea, was once a hot-bed of anti-Fish and Wildlife Service sentiment and uncontrolled hunting. Now, not only do the people of Nelson Island support law enforcement, but they encourage agents to stay in one of the island's four villages during the subsistence hunting seasons. And, last year, a respected elder served as a guide and interpreter for agents conducting snow-machine patrols. He insisted that subsistence hunters must work with agents to protect the waterfowl resources that were so important to everyone.

Needless to say, that's the kind of change that would make any Service enforcement officer's day.

And Recently . . .

In July 2003, the first federally recognized spring/summer migratory bird subsistence harvest opened in Alaska. Read about the Alaska Migratory Bird Co-Management Council in *Subsistence is for the Birds* on page 11.

Current information can be found at <http://alaska.fws.gov/ambcc/index.htm>

Partner: Waterfowl Conservation Committee

Kittlitz's Murrelet . . . A Glacier Bird in Retreat

By Kathy Kuletz, Wildlife Biologist,
Migratory Bird Management

Published Summer, 2002

A small diving bird related to puffins, murres, and auklets (the alcids), the Kittlitz's murrelet is one of the rarest seabirds in North America. Most of the world's population occurs in Alaska's waters, migrating between winter offshore and summer inshore regions. Lower numbers are scattered along the coast of eastern Russia. Determining

the size of the world population of Kittlitz's murrelets is complicated by remote geographic areas, limited data, and indications of rapid decline. Today's best estimates range from 8,000 to 20,000 birds.

The size of this variance isn't surprising, because the Kittlitz's murrelet is also one of the least known seabirds. Only 25 nests have been found, and only one of those was observed through a complete season. What we do know of the bird's

breeding distribution has largely been extrapolated from the murrelet's presence at sea. The species' winter range is even less well known, but the small seabirds appear to scatter in mid-shelf waters offshore, and occasionally near shore in a few Southcoastal Alaska locations. The main breeding locations for Kittlitz's murrelets are around the lower Kenai Peninsula, Prince William Sound (PWS), and Glacier Bay in Southeast Alaska. These areas are believed to support most of the existing population of the species, although



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Most of the world's population of this small bird spend their lives migrating between winter offshore and summer inshore regions of Alaska.

substantial numbers may also occur along the "Lost Coast" between the Bering and Malaspina glaciers. In fact, the bird's association with such ancient ice flows has earned it the nickname, "Glacier Murrelet."

Kittlitz's murrelets are one of three species in the *Brachyramphus* genus. These murrelets differ from 98% of all other seabirds in that they don't nest colonially. Rather, they are solitary nesters that rely on camouflage and stealthy behavior to avoid predation. A sister-species, marbled murrelet, nests primarily in old-growth conifers from Alaska to northern California. The Kittlitz's murrelet differs from the marbled in that it apparently nests exclusively on bare rocky ground. A single egg is laid, usually at the base of a large rock on a steep slope. In summer the murrelet wears its breeding plumage, light-colored with tawny or grey streaking, which is perfect for concealing itself in the open among talus and scree. (This coloration also makes the birds difficult to spot amongst the scattered broken ice common in areas where they often forage.) In winter, this murrelet wears plumage similar to that of other alcids, having a dark back and white belly.

In most of its range, the Kittlitz's murrelet seems to nest in rugged mountains near glaciers

or in previously glaciated areas, sometimes up to 75 km. inland. It usually forages near tidewater glaciers and outflows of glacial streams, although it is also found in waters far from glacial influence in the northern Bering Sea. Kittlitz's murrelets feed on forage fish such as Pacific sand lance, capelin and juvenile herring; and zooplankton, especially euphausiids (small, shrimplike crustaceans).

Because it is difficult to find nests, at-sea surveys have provided the best means of monitoring trends in abundance. Reliable data for Kittlitz's murrelets are currently available only for Prince William Sound and Glacier Bay, but fortunately these areas harbor a large proportion of the breeding population. Unfortunately, population studies from both of these sites show steep declines in the numbers of Kittlitz's murrelets. In Prince

William Sound, for example, a 1972 survey estimated the population at approximately 63,000 birds. The next count didn't occur until 1989, when the estimate was about 6,400 birds. A steady decline continued through the most recent survey in 2000, when the estimated population hovered near 1,000 birds. This represents an 84% decrease since 1989 (when populations were apparently already dramatically depleted), equivalent to an 8% decline per year. In Glacier Bay, murrelet studies suggest a decline between 1991 and 1999 of about 60%, again a rate of approximately 8% per year. Less systematic counts within the Kenai Fjords National Park also point to a steady decline in Kittlitz's murrelets since 1976.

Such marine surveys have their limitations, however, particularly in the case of Kittlitz's murrelets, which are

rare and, when they are found, tend to cluster. If one such group is missed, many birds will not be counted, and this lowers the precision of population estimates. Additionally, observers sometimes lump marbled and Kittlitz's murrelets, because it's difficult to distinguish between them. Nonetheless, the downward population trends have been consistent across all areas, and the magnitude of the



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When studying Kittlitz's murrelets, ice is a constant companion.

apparent decline has alarmed Service biologists and the public alike.

The Service was recently petitioned to list the Kittlitz's murrelet as endangered under the Endangered Species Act. Even before the petition was received, however, Region 7 biologists had been gearing up to increase our knowledge about the abundance and distribution of these seabirds. In 2001 the Migratory Bird Management (MBM) and Ecological Services offices (WAES) in Anchorage began work on a status assessment report, and in 2002 they drafted a candidate assessment form (a first step in the listing process) for the Kittlitz's murrelet.

During the summer of 2001, WAES funded a study to survey Prince William Sound for these birds, and to conduct a pilot study on the potential effects of boat traffic on this species. I headed an MBM crew (anchored by Karen Brenneman, Liz Labunski, and Max Kaufman) which surveyed the sound specifically for Kittlitz's murrelets. We used 25 ft. whalers, occasionally relying on a support vessel for fuel and lodging in remote areas. Our study targeted 17 fjords and bays where Kittlitz's murrelets were found in the past or that had appropriate habitat. This meant going (often very slowly and carefully!) into ice-choked inner fjords that have only recently been well charted. From this survey we estimated that there were about 2,500 Kittlitz's murrelets in Prince



Slow, careful travel into ice-choked inner fjords is often the only route to Kittlitz's murrelet habitat.

William Sound, but nearly 85% of this population was found in just two fjords in the northwest, and another 10% in three other fjords. With one relatively minor exception, the fjords that contained Kittlitz's murrelets were surrounded by advancing or stable glaciers. Fjords that no longer had Kittlitz's murrelets had receding glaciers, or no direct glacial input.

It has been speculated that the decline in Kittlitz's murrelets is related to the retreat of tidewater glaciers. Most glaciers in Alaska, including many of those surrounding Glacier Bay and Prince William Sound, have been

receding since the turn of the century. The recent survey in the sound appears to support this theory. Exactly how glacier retreat might affect murrelets is unknown. However, studies in other regions have recorded low biological productivity in fjords with receding glaciers, as a result of increased sedimentation and lowered salinity. This could result in fewer forage fish for the murrelets, while sedimentation might reduce the birds' ability to catch prey. These are all untested hypotheses, of course, and we must continue to obtain basic information about Kittlitz's murrelet habitat, foraging behavior, and food requirements to increase our understanding of these birds and improve our ability to determine the reasons for their population decline.

In addition to the global climate impacts on fjord habitats, Kittlitz's murrelets may have also been affected by changes in their available prey species, due to changes in the greater marine environment. We can't monitor reproductive success of Kittlitz's murrelets as we do when studying other seabirds, but some researchers have reported seeing few juvenile birds at sea, and speculate that lack of food has led to poor reproduction for this murrelet. It's possible that murrelets are also affected by marine vessel traffic, or even, perhaps, by helicopter flights in nesting areas. The primary breeding areas for Kittlitz's murrelets - the Kenai Fjords, Prince William Sound, and Glacier Bay - are all experiencing increases in tour operations. The preferred habitats of



Populations of the "Glacier murrelet" may be declining at a rate of as much as 8% a year.

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Kittlitz's are also prime destinations for tour and cruise ships, increasing the potential for disturbance or associated forms of impact.

At least two sources of human-caused mortality for Kittlitz's murrelets have been identified, although their impacts at the population level are not known. These include gillnet fisheries and oil spills. Being small-bodied, nearshore divers, these birds do sometimes get caught in gillnets and drown. The same traits make them highly susceptible to oil spills. Relative to their population, high numbers of Kittlitz's murrelets were killed by the 1989 *Exxon Valdez* spill. Smaller accidents can also be damaging to local concentrations of Kittlitz's murrelets. In 1999, a tour boat went aground in a bay adjacent to Glacier Bay, and, in 2001, two commercial fishing vessels sank and released fuel in northern PWS, near areas used by Kittlitz's murrelets. As vessel traffic increases in Alaska's nearshore waters, such events, while not individually catastrophic for the species, could have cumulative impacts on local murrelet populations.

The Service will continue to study Kittlitz's murrelets in Alaska. Currently planned activities include population surveys in high priority areas and research on the effects of boat disturbance on Kittlitz's murrelets. In 2002, MBM in Anchorage assisted Southeast Alaska Ecological Services in conducting population surveys along the "Lost Coast," in cooperation with Wrangell-St. Elias National Park personnel. This provided trend data along the Malaspina forelands between 1992 and 2002, and included an intensive survey of Icy Bay, 80 km north of Yakutat Bay. Icy Bay was found to have an unusually high density of Kittlitz's murrelets, with an estimated population of about 2,200, equivalent to the populations of Prince



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Tamara Mills displays the height of murrelet-study fashion.

William Sound or Glacier Bay. This region may provide a new area of focus for future efforts to learn more about these birds, and has increased interest in conducting surveys in 2003 along the coast south of Yakutat toward Cross Sound (near the entrance to Glacier Bay). These areas are remote, vast, and exposed to violent gulf weather, making surveys difficult, dangerous and expensive to conduct.

Additionally, the U. S. Geological Survey - Biological Resources Division (USGS-BRD) conducted surveys in the Kenai Fjords in 2002, and hope to undertake surveys in the Aleutian Islands in 2003. USGS will also continue to study Kittlitz's murrelet foraging and breeding biology, and evaluate the effects of vessel disturbance.

We still lack basic information on life history characteristics for Kittlitz's murrelets, but they likely share some traits common to seabirds, such as long life and low reproductive potential. If so, these attributes would make their populations very sensitive to adult mortality. Kittlitz's murrelets also have many unique characteristics which have enabled them to survive global climate changes since the Pleistocene. Their association with glacially affected waters may make them one of the better barometers of climate change, and of the effects of these changes on life in our sub-arctic oceans.

Partners: U.S. Geological Survey and Wrangell-St. Elias National Park

And Recently . . .

In May 2004, the Kittlitz's murrelet officially became a 'Candidate Species' for listing under the Endangered Species Act. This means the USFWS decided current information on the Kittlitz's warrants consideration for listing, but must wait until there are sufficient funds to conduct a more complete assessment. Meanwhile, we are conducting additional surveys and research to improve our knowledge of the species' abundance and resource needs. While candidate status does not confer any additional protection, all federal agencies are obligated to consider the species when assessing long term plans or operations. When appropriate, state agencies are also encouraged to consider the species when planning future projects.

Bridging the Slough . . . North Pole gives itself a present!

By Elaine Gross, Wildlife Biologist, Fairbanks Fish & Wildlife Field Office and Cathy Pearson, Public Affairs Assistant, External Affairs, Anchorage

Published Summer, 2002

Christmas came early to North Pole, Alaska, last year. Citizens and dignitaries gathered on November 6, 2001 to receive

a gift from the community to itself; the opening of Airway Drive Bridge, which replaced the clogged culverts that had prevented fish, and people, from freely traveling the waters below. Red, white and blue ribbons waited to be cut and cars formed a line, ready to parade across the newly installed overpass. Airway Drive had been closed for several weeks, while a recycled logging bridge was placed over the now free-flowing Chena-Badger Slough.

At the heart of the bridge "movement" was Northern Alaska Ecological Services (now called Fairbanks Fish & Wildlife Field Office) biologist, Elaine Gross. After attending her first Chena Slough Neighborhood Meeting in July of 2000, Elaine was inspired to find a way to restore the slough and reopen the waterway to fish passage. In March 2001, she, and other members of the Chena Slough Neighborhood Committee (CSNC), got the present they'd hoped for: the Fairbanks



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Eight months after the bridge was opened, North Pole residents enjoy the now free-flowing Chena-Badger Slough, from above and below.

Ecological Services Office received a \$75,000 grant from the National Fish and Wildlife Foundation. Those funds cleared the way for state and federal agencies, private businesses, and the CSNC to come together as partners and begin the process of restoring the slough.

The original grant proposal included removing three blocked 36" culverts on Airway Road and replacing them with a single, wooden bridge. When Elaine found a source of inexpensive bridges, however, the ultimate goal grew from one bridge to three. The grant paid for a trio of 42-foot long, single-wide bridges, purchased from Koncor Timber Co., and covered the cost of shipping them by barge from Cordova to Valdez and then by truck to North Pole. The funds also covered the removal of a thirty foot section of berm that had blocked the slough since the 1970's. The old culverts were torn out and the bridge



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An Alaska General Contractors' construction crew eases Airway Drive bridge into place.

placed across the slough by an Alaska General Contractors construction crew headed by Steve Guildner. After the initial installation, additional timbers were added to make the new Airway Drive Bridge two lanes wide. (The remaining pair of bargain bridges are earmarked for similar projects this year.)

"The fish like it," Guildner declared at the opening ceremony. "I saw two northern pike swim through just minutes after we removed the culverts and opened the slough." That's exactly what the community was hoping to hear. The passage will also allow people to take canoes and, in season, dog teams and snow machines under the bridge.

Sporting a warm beaver hat and holding a ceremonial pair of scissors in his hands, North Pole Mayor Jeff Jacobson addressed an enthusiastic crowd. "It's exciting!" he said. "This is exactly what we wanted to have happen. Now it's a reality. This was a grassroots effort. It shows that things can happen without spending hundreds of thousands of dollars."

The community gave Elaine the honor of cutting the ribbons that were draped across the bridge. She took the opportunity to praise the many individuals and organizations involved in the project. At a City Hall reception following the ribbon cutting, Elaine was

presented with flowers and thanked by Borough Assemblyman Hank Bartos who said, "North Pole is a vibrant community, and this is a wonderful example of what we can do together."

Jerry Norum, acting chairman of the CSNC, noted that many people thought the project would never manage to go from conception to completion in a single season. "What could have cost several million dollars ended up costing about \$100,000," Norum reported. "Normally a project like this would have been three to seven years just in planning."

The completion of the Chena Slough project proves that, when cooperators work together, what might otherwise be a daunting task can be completed economically and efficiently. And though the bridge project in North Pole was "wrapped" up last November, the gift continued to be "opened" this spring and summer, as more fish, and anglers, took advantage of the free-flowing waters of the Chena-Badger Slough.

Partners: National Fish and Wildlife Foundation and Chena Slough Neighborhood Committee

And Recently . . .

Since the article was published in summer 2002, the towns of North Pole and Salcha have gained 13 more bridges and lost as many non-functioning culverts. Three more bridges replaced undersized culverts on Chena Slough, seven bridges replaced undersized culverts on Piledriver Slough and three bridges replaced culverts on Twenty-three Mile Slough. Funding has come from the U. S. Fish & Wildlife Service Fish Passage Program, the Alaska legislature, the City of North Pole, and private individuals. On Chena Slough, the Doughchee Road Bridge was completed in 2003, Outside Hurst Road Bridge in 2004 and Spruce Branch Road Bridge in 2004. The fish are happier and so are the people who fish and boat along the slough. The Chena Slough Action Committee plans to combine efforts with the Tanana Valley Watershed Association and host a Slough Boat Race Event next summer in North Pole.

The Great Eider Egg Hunt . . . The adventure of conducting field research on the Arctic Refuge

By Gary Wheeler, Deputy Refuge Manager, Arctic National Wildlife Refuge, Fairbanks

Published Fall, 2005

The drone of the Cessna 185 is almost hypnotic. My chin hits my chest and I struggle to fight off the urge to drift into sleep. As we fly northward from Fairbanks over the Yukon River, our pilot Dave motions toward the east. In the distance, a massive plume of gray smoke from a large fire ascends 10,000 feet into the sky and drifts to the southeast. Evidence of a typical summer in interior Alaska, the smoke is from one of a number of lightning-caused fires that burn here almost every year, removing aging stands of 40-foot spruce, recycling nutrients, and stimulating new growth in a patchwork-quilt landscape made up of fire scars of varying ages.

It is July 10, 2003, and we are headed for Demarcation Bay on the northern coast of the Arctic National Wildlife Refuge, only 5 miles west of the Canadian border. Our mission: to complete the first ground-based nesting bird survey of the Refuge's barrier islands in more than 30 years.

There is reason for uncertainty about the long-term future of these islands. They could, for example, be susceptible to increased erosion as a changing climate leaves them without the protection of ice for longer periods each year. Also, considering that two of the eider species known to breed in Alaska have declined to the point where they have been listed as threatened, and given that there is evidence of population declines for common eiders breeding in northeast Alaska and northwest Canada, it is important to the survival of the species that we better understand the dynamics of common eider populations here. Our survey will provide baseline information for future studies and ground truthing of aerial survey counts of common eiders along the Refuge's Beaufort Sea coastline. The crew consists of Arctic Refuge biologist Steve Kendall, Fairbanks Fish and Wildlife Field Office biologist Jim Zelenak, and me.

After months of anticipation, we are anxious to begin work, but first



The upper Kongakut River

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we have to get to the survey site. Demarcation Bay is 375 miles northeast of refuge headquarters in Fairbanks. Furthermore, Federal Aviation Administration regulations for small aircraft require that our pilots be able to see the ground, and all too often trips must be aborted due to ground fog or mountain passes obscured by clouds.

Today, as we continue northward, thunderheads are building on the southern face of the Brooks Range, and lightning flashes to the east of us. I begin to get a little nervous when Dave indicates he intends to continue northward between two billowing pillars of clouds. I have a weak stomach, and I anticipate that we are in for some major turbulence. But as we climb in elevation to clear the peaks below, the clouds seemingly part before us. I take that as a good omen for the rest of our trip.

Our route over the Brooks Range takes us up the Coleen River, over the continental divide, down the Kongakut River and across the narrow coastal plain to the Turner River. As we cross the upper Coleen, I recall a recent study that determined this area to be the most remote spot in the United States; more than 80 miles from the nearest road or village.

After passing the Kongakut, we quickly cross over rolling foothills and a narrow

expanse of coastal plain tundra. We are enroute to the mouth of the Turner River, which spills into our easternmost coastal lagoon, Demarcation Bay. There are no maintained airstrips on the refuge, but a gravel bar at the mouth of the Turner has been used as a bush strip for years. Dave masterfully sets us down on the bar. We have arrived. It is high time that we begin our survey.

Demarcation Bay is separated from the Beaufort Sea by a couple of large sand and gravel barrier islands and a gravel spit. The barrier islands typically parallel the coastline within a mile of the mainland. They tend to be long and narrow, with widths ranging from several hundred yards to 50 yards or less. These islands are largely unvegetated, although in places they support small patches of beach rye grass. One resource they do have in abundance is driftwood, even though they are more than 100 miles north of the treeline. This wood enters the Beaufort Sea after being carried down Canadian Rivers such as the MacKenzie and the Firth. It typically moves westward, carried by the near shore ocean current known as the Beaufort gyre. The driftwood found on the barrier islands is of importance to both humans and wildlife. In years past, Native people would harvest the driftwood for shelters, implements, and firewood. Waterfowl, including eiders and a few other seaduck species, use

the driftwood as cover for their ground nests.

Steve takes the lead in searching, and soon calls out that he has found a nest. He points to a spot about 20 feet ahead, next to a large log. Because the incubating hen is so well camouflaged, it takes a few moments for Jim and me to spot her. The eider hen remains motionless on the nest, her head and neck outstretched and resting on the ground in front of her. She doesn't even blink, knowing that even the smallest movement will reveal her position.

As we approach within about 10 feet, she flushes from the nest in a sudden, explosion of sound and motion. She lunges forward, flapping her wings, squawking loudly, and running at full speed until she gets airborne after 20 to 30 feet. She circles us, flying just above the ground at a distance of about 100 yards, and then lands in the lagoon. With the hen off the nest, we quickly collect the necessary data: nest location; distance from water; elevation above the water; amount of down in the nest; number of eggs; and size and abundance of driftwood near the nest.

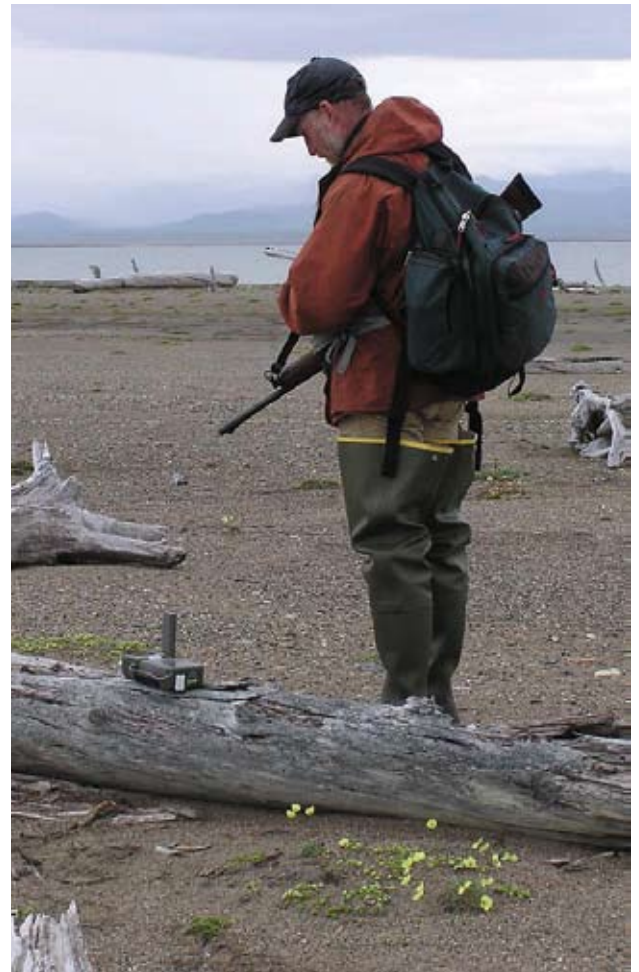
We briefly float each of the large light-olive green eggs in the shallow, calm waters of the bay. By observing how high the eggs ride in the water, and at what angle, we can estimate when incubation began and when the eggs will hatch. That done, we return the eggs to the nest and cover them with down to insulate them against the cool afternoon temperatures

and to hide them from predatory gulls and jaegers. After five minutes we finish recording our data and begin searching for additional nests. The hen remains on the water as we depart, but she will return to her eggs after we've moved a few hundred yards down the beach.

Eider nests are sparse on the eastern end where the island is only about 50 yards wide. As we move to the west, however, the island widens to a few hundred yards, and small ponds dot

the landscape. The terrain varies more in height and in the amount of driftwood present. All of these factors increase the difficulty of the survey. We use landmarks, such as large or uniquely shaped pieces of driftwood, to mark the boundaries of our searches, and I shuffle my feet in gravel to mark my trail. As the width of the island and the complexity of its terrain increases, so do the number of nests that we find. In addition to common eiders, we occasionally find nests of arctic terns, glaucous gulls, long-tailed ducks and snow buntings. Finally we reach the western end of the 2-mile-long island, and our first day's survey is complete.

After another night that seems far too short, we



(Top) The location of each nest, its distance from water, its elevation above the water, and other data are collected. Notice the shotgun for bear protection: standard operating procedure for Alaska.

(Middle) A female eider almost disappears as she hunkers atop her nest amid a tangle of driftwood.

(Bottom) Down helps insulate the eggs and hide them from view.

USFWS photos

are up early to pack up camp and move to the west. Our first challenge is to fit ourselves and all our gear into the boat. We have 25 gallons of fuel, six dry bags of gear, two 30-gallon bear-proof barrels filled with food, a 5-gallon water jug, two storage boxes, a cooler, a tool box, three survival suits and three people, all wearing floatation suits. Every bit



of this needs to fit into our 14-foot boat. By the time we finish loading, we look like the Beverly Hillbillies going to sea! With all the gear aboard, our boat rides considerably lower in the water than it did the previous day. As a result, I must haul the boat further through the shallows before we reach water deep enough to clear the propeller. Finally, a hundred yards from shore in water nearing the tops of my hip waders, the prop clears the mud bottom and we're off.

We resume our survey on an island on the west side of the main channel into Demarcation Bay. Here – we see remnants of Native occupation: driftwood log foundations set below ground level and driftwood spruce trees set into the ground on end with their roots extending skywards. Later we learn that this was a seasonal fish camp and that the poles set into the ground served as vertical supports for fish drying racks.

After four hours of nest searching, it's time for lunch. We break out the pilot bread, sausage and cheese. As we eat I notice a lone shorebird feeding along the water's edge. This is the first shorebird we've seen on the trip. I point it out to Steve, who is an excellent birder and always quick and accurate with his identifications. After raising his binoculars, he pauses. "I'm not certain, but I believe it's a red knot," he says. Jim and I scramble for our binoculars, cameras, and a field guide. Sure enough, after a quick consultation with the field guide, there can be no

doubt, it is a red knot, the first of this species any of us have ever seen! After taking a few photos we return to our lunch, pleased to have seen a bird that is rarely seen in this part of the arctic.

After lunch we continue searching westward over the island. Unfortunately, before we can cover much ground, the wind picks up from the west and rain begins to fall. With rain pelting our faces, searching the island becomes a challenge. By the time we complete the task, I'm soaked and chilled by the wind. We agree it would be a good idea to quit early and find a place to camp. On the mainland, just west of Demarcation Bay, a small tundra stream empties into the coastal lagoon. Glad for a convenient source of fresh water, we decide to give it a try.

Our landing site on the mainland consists of a low gravelly spit that rises to a tundra-covered coastal bluff 30 feet above the lagoon. On the bluff lies a structure of three wooden poles bolted together that once supported a coastal navigational aid. The 20-foot wooden tower is now lying on its side. We decide that this is a suitable campsite, except there is no protection from the west wind that buffets us with frigid blasts right off the Beaufort Sea ice pack. We are also concerned that we may not be able to cook a meal in this wind. After some discussion, we decide that we may get some relief by using our inflatable boat as a lean-to windbreak. It works like a charm! In no time at all we have the water boiling on the backpacking stove. It lifts our spirits to drink hot tea

and chocolate, huddled around our little stove behind our makeshift windbreak! At 11:00 pm to the northwest of us, the sun emerges below the cloud, and Jim and I can't pass up the opportunity to venture out and admire the meandering stream and the abundant wildflowers that carpet the tundra.



USFWS

The remains of a Native dwelling look out upon an unrestricted view of miles of sea.

As we hike westward across the coastal bluff we discover the remains of a Native dwelling. The design is simple, consisting of a single room. The walls were constructed by standing driftwood logs on end, and the flat sod roof was supported by driftwood logs extending the width of the dwelling and resting on the walls. The structure was excavated into the ground perhaps a couple of feet, as deep as the permafrost layer would allow, and sod was stacked high against the exterior walls for additional insulation. The dwelling was sited near the coast and, with the elevation provided by the bluff, it allowed its inhabitants an unrestricted view for miles out to sea. I reflect that the people who once lived here may never have had a hundred dollars to their name but still they had a million-dollar view of this spectacular country.

After an hour-long trek across the tundra, I bid Jim a good night, but still can't force myself into my tent. The midnight sun is out in full force, and all of nature seems to be taking advantage of the exceptional evening



(Above) A little tundra stream meanders its way toward the coast. (Right) A red knot, a rare visitor to the coastal plain, was spotted.



USFWS Photos



USFWS

A flock of long-tailed ducks, estimated to include some 1,500 birds, can be seen in the distance under evening light.

weather. As I scan the horizon, I notice a large flock of long-tailed ducks in the coastal lagoon not far below the bluff. I creep to the edge of the bluff, as close to the flock as I can get without raising alarm, sit down, and begin counting the birds. It is an impossible task. I decide to estimate the flock size by counting a portion of it and then replicating that portion until I have covered the entire flock. I count a hundred birds and estimate that the flock contains some 1,500.

Over the next eight days we walk and boat westward toward Kaktovik, completing our foot survey of all the barrier islands in this part of the Beaufort Sea. Along the way we experience nearly every kind of weather imaginable: rain, fog, heavy

winds, freezing rain, even a July 15th snowstorm; as well as a few rare and memorable hours when the winds die down, the clouds part, and the barrier islands and mainland tundra are lit up in an ethereal glow of transcendent beauty that can only be witnessed in the Arctic. On several occasions we see impressive views of the *Fata Morgana*, a sort of northern mirage in which bending light plays tricks on the eyes, transforming ice floes that are only a few feet high into glacial cliffs. Along the way we also see other wildlife, including loons, phalaropes, rufous-necked stints, sandhill cranes, scoters, white-fronted and Canada geese, peregrine falcons, arctic foxes, arctic ground squirrels, and even a polar bear.

After eight days, we reach the end of our journey, at the Native village of Kaktovik, with a mixture of relief and sadness. We each know how fortunate we have been to spend time in a part of the world which few will experience. Never in my wildest dreams did I, while growing up in Chicago, imagine that I would someday be boating in the Arctic Ocean, walking barrier islands virtually untouched by civilization, and searching for eider nests on the last sliver of land between the Alaska coast and the North Pole!

And Recently . . .

The Arctic Refuge staff conducted a complete bird nesting survey of the refuge (Beaufort Sea) barrier islands during the period July 10-20, 2003, (Canada border to Kaktovik) and July 8-13, 2004, (Kaktovik to Canning River). A total of 460 nests were observed. Common eider was the most abundant nesting species, accounting for 341 nests, followed by glaucous gull (92 nests), arctic tern (20), long-tailed duck (6), and black guillemot (1). We found a total of 198 active or successful common eider nests during this survey as compared with the previous ground survey conducted in 1976 which found 14 active nests. Relative species abundance was similar and nest densities were within the temporal and spatial range of densities found by ground surveys of other islands in the Beaufort Sea.

Subsistence Is For the Birds! . . . Or: What is the AMBCC and how is it making history in rural Alaska?

By Donna Dewhurst, Wildlife Biologist, Alaska Migratory Bird Co-Management Council

Published Summer, 2003

In July, 2003, the first federally recognized spring/summer migratory bird subsistence harvest opened in Alaska. This first harvest season opening was rescheduled from April 2, 2003 due to delays in publication of

the Final Rule in the Federal Register. The result of more than two years of work by the Alaska Migratory Bird Co-Management Council (AMBCC), this subsistence harvest recognizes the customary and traditional uses of migratory birds, and provides a mechanism to develop annual regulations to be included within the continental system of migratory bird management.

Why was this all necessary? In the

early 1900s, bird hunting in North America was not federally regulated and commercial market hunting took a heavy toll on the populations of some species. The 1916 Migratory Bird Treaty with Canada sought to stem some of these rapid declines by eliminating commercial hunting and limiting the sport hunting season to September through February of each year. The traditional spring/summer harvest of migratory birds by northern peoples was not taken fully into

account during the legal negotiations for the Canada and Mexico treaties. This harvest, which had occurred for centuries, was necessary to the subsistence way of life in the north, and thus it continued despite the closed season.

To remedy this situation, the United States negotiated protocols amending both the Canada and Mexico treaties to legally recognize the spring/summer subsistence harvest of migratory birds in Alaska. The U.S. Senate ratified the amendments to both treaties in 1997. The amended treaties with Canada and Mexico allow indigenous inhabitants of villages within subsistence harvest areas, regardless of race, to continue harvesting migratory birds between



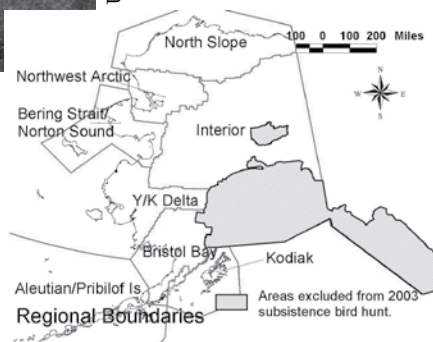
The traditional spring/summer harvest of migratory birds is necessary to the subsistence way of life for many northern people. (Right) Map showing eligible subsistence harvest areas for 2003.

April 2 and September 1. Eligible subsistence harvest areas for 2003 include lands north and west of the Alaska Range and within the Alaska Peninsula, Kodiak Archipelago, and the Aleutian Islands.

Conservation is a key component of the management of this newly legalized harvest. The treaty amendments clearly state that this subsistence hunt should not significantly increase harvest levels relative to the continental populations. An emergency closure authority is the initial tool available to deal with any perceived area increases in harvest. Also a 30-day harvest closure, occurring mostly in June, has been implemented to protect nesting birds. Ninety-seven bird species (waterfowl, seabirds, shorebirds and owls) are eligible for subsistence harvest in 2003. Four species are explicitly protected from all harvest (spectacled eiders, Steller's

eiders, emperor geese and Aleutian Canada geese), and gathering the eggs of cackling Canada geese and black brant is also specifically prohibited.

These 2003 harvest regulations were developed under a new co-management process through the AMBCC. Formed in 2000, the AMBCC includes representatives from the Alaska Native community, the Alaska Department of Fish and Game, and the U. S. Fish and Wildlife Service, all acting as equal partners. The council, presently chaired by Doug Alcorn (U.S. Fish & Wildlife Service), was formed with the specific goal of developing "recommendations related to the spring/summer subsistence harvest of migratory birds." The Service supplies support staff for the council, with Fred Armstrong serving as the Executive Director, assisted by Bill Ostrand, Donna Dewhurst, Cynthia Wentworth and Student Intern Jeanne Ballanger. The duties of these staff members include managing related federal grants, drafting federal regulatory



language, designing outreach strategies, and managing a system of harvest surveys.

Many have asked how this program relates to the Service's Office of Subsistence Management and the Federal Subsistence Board which oversees the subsistence harvest of mammals and fish on federal lands in rural Alaska. The answer is pretty simple. Other than the fact that they both serve subsistence users, the two programs are entirely separate. The AMBCC is legally guided by the Migratory Bird Treaty Act Amendments, and the Office of Subsistence Management is guided by Title VIII of the Alaska National Interest Lands Conservation Act (ANILCA). The Federal Subsistence Board makes final decisions regarding harvest regulations, while the AMBCC makes recommendations on regulations, with the final decision authority resting with the Secretary of the Interior.

If you'd like additional information about this new subsistence harvest season, you can find the full text of

the Final Rule, as well as the Public Harvest Booklet and other outreach documents, at (<http://alaska.fws.gov/ambcc/index.html>). Printed copies are available from the AMBCC staff office, located at 1011 E. Tudor Rd, 1st Floor, in the offices of Migratory Bird Management.

Partners: Alaska Department of Fish & Game and Native Alaskans

And Recently . . .

Since the initial publication of our first spring/summer subsistence harvest regulations in July 2003, the Office of the Alaska Migratory Bird Co-Management Council has accomplished quite a few milestones. Thirteen new communities located in excluded areas demonstrated having a customary and traditional use of migratory birds in the spring/summer and were included into the harvest program. These new communities are located in the Upper Copper River Region, Cook Inlet and southeast Alaska. The communities in southeast Alaska are restricted to gathering glaucous-winged gull eggs only. A lack of evidence of prior customary and traditional use prompted the Co-Management Council to expand the Fairbanks-North Star Borough Excluded Area to also exclude the communities of Delta/Delta Junction, Ferry, Healy and McKinley Park/Village. This expansion was based on a state study conducted in 1992 which found that no subsistence harvesting had occurred in the region.

In the conservation arena, residents of the Yukon-Kuskokwim Delta worked with the Pacific Flyway Council to institute measures to conserve black brant through subsistence harvest restrictions. Five brant colonies were completely closed to all harvest, which minimized disturbance, and the brant harvest period was shortened to protect the species from the onset of egg laying to the fledging of goslings.

In addition, subsistence harvest surveys were expanded statewide in 2004, including many new areas not previously surveyed.

Many are Cold, but a Few were Frozen: Participants in a northern Alaska polar bear den site study overcome obstacles to increase our understanding of these nomads of the north.

By Scott Schliebe, Supervisory Wildlife Biologist, Marine Mammals Management Office and Tom Smith, Research Wildlife Ecologist, USGS

Published Fall, 2004

Since 2002, the Service and the U.S. Geological Survey (USGS) have conducted spring polar bear den emergence studies in northern Alaska. There is little information available about Alaska polar bear behavior, or about the way these animals react to encounters with humans when leaving their dens. Although studies on the behavior of polar bears at den sites have been collected in Norway on Kongsøya Island, and though additional information exists from Russian accounts at Wrangell and Herald islands, most of what we know about denning polar bears' responses to humans is based on anecdotal observations made by different sources in different locations at different times of the year and under variable conditions. We do know, however, that polar bears *are* susceptible to disturbance

during the denning period, and that human development and exploration activities have been expanding on the North Slope during the past 30 years. It is important, then, that we try to understand this developing situation better; in part because young polar bear cubs are entirely dependent on their mothers, are unable to leave the den after birth for 2-3 months, and would die if abandoned.



Young polar bear cubs are helpless without their mothers, and die if abandoned.

USFWS

In 2002 we had a unique chance to study Alaska polar bear behavior, and particularly their responses to human activity. At the time Exxon Oil was beginning to clean up a waste reserve pit that had been capped and buried since the 1970s. The pit was located on Flaxman Island, a known polar bear denning area. Working in conjunction with the Service's Incidental Take program, our office of Marine Mammals Management, and the USGS Polar Bear Project, Exxon took advantage of this opportunity to undertake and support a number of projects to increase our knowledge of the ecology of denning bears. These included an acoustics study to evaluate how sounds transmitted through snow, ice and air are detected within artificial dens; a project designed to determine the efficiency of using trained dogs to locate den locations by scent; and, lastly, the study summarized below, documenting the behaviors of bears emerging from dens and their reactions to human presence.



Close-up of a 2-man observation tent

USFWS

The objective of this study was to systematically collect baseline behavioral data on family groups emerging from dens. A secondary goal was to observe the reactions of bears to human disturbance events, and to see if their behavioral patterns changed as a result.

In order for the work to be logistically practical, den sites had to be reachable via the Prudhoe Bay road and facilities system. Possible sites were located by satellite and conventional radio collar tracking, as well as through the use of forward-looking infrared thermal (FLIR) images collected from the air. Blinds or observation posts were placed within .5 km of dens and reached by snowmachine, Tucker over-snow tracked vehicles, or – in one instance – by pickup truck. Observations occurred when bears were out of the den, and adult behavior was recorded continuously using Noldus Information Systems Observer® software and hand-held data loggers. Cub behavior was recorded using 5-minute scan procedures.

Tom Smith of USGS has been the principle investigator and catalyst for the project from the beginning. Other members include: Steve Partridge (USGS), Steve Amstrup (USGS), and Scott Schliebe with the U. S. Fish & Wildlife Service (USFWS). The study involved 2-person teams which were camped near dens during 2002-2003, and based out of Badami, Oliktok industry housing. Teams were housed at the Milne Point Processing Facility in 2004. Since as many as four den sites were observed each year, personnel requirements were considerable and



Some of the blinds were reached by snowmachines. Riders often had to pick their way around pressure ridges or broken ice.

USFWS

the following individuals pitched in to help: Terry DeBruyn, Michael Tetreau, Ian Martin, and Missy Epping with the National Park Service (NPS); James Wilder, formerly NPS now with USFWS; Krystin Simac, USGS; and Kelly Proffitt, John Bridges, and John Haddix with USFWS. Tent camping in the arctic is physically and mentally demanding. Winds up to 50 mph, and temps to minus 40 degrees F with wind chills reaching minus 70 degrees F, were encountered. To coin a phrase, you could say that those participating were the “chosen frozen.”



USFWS

A “snow fort” blind surrounds this two-person observation camp.

Four den sites were monitored in 2002 and 2003; while three were observed in 2004 (all of the latter were located by FLIR). Dens were occupied and family groups were available for observation in 2002 and 2003. In 2004, however, family groups were never observed. Furthermore, these sites were examined, after the den emergence period was over, with den scenting dogs that did not respond to the suspected den sites. This would seem to indicate that these dens had never been occupied, that the bears had departed long before the study, or that the FLIR signatures gave us false positives.

In 2002 and 2003, the observers watched den sites on 51 days for 459 hours during 40 observation sessions. Information regarding the bears’ date of emergence, their activity prior to departure, the time spent and activities conducted around the den site before departure, and their daily timing and frequency of emergence was collected. The total amount of time spent by polar bears outside the den during the visible period was 37.5 hours. The number of days spent at the den site after first coming out ranged from 1.2 – 14 days. Usually the family groups emerged from dens daily, and some came out several times per day (1-5). Two den sites located at the Eskimo Islands were within 100 m of each other. In this instance family group interactions were not observed, and often bears did not emerge. Weather conditions during this year were persistently cold, however,

with blowing winds that may have limited the amount of time the family groups spent outside. The analysis of the data collected is near completion, and a manuscript on the results will soon be submitted to a journal.

Eight incidents of disturbance or reactions of bears to noise were recorded, all during the first two years of effort. Responses of bears to human activity, aircraft, heavy equipment, and vehicles ranged from slight to significant, and varied both among bears and in relation to the weather conditions existing at the time of disturbance.

In order to minimize the influence of



USFWS

When researchers realized they had no way of knowing if the cameras were running within their insulated containers, a stethoscope solved the problem.

observers on the behavior of the bears, time-lapse video cameras were tested successfully during the spring of 2004. This system used video cameras housed within large insulated cooler containers. The units included long-life batteries for the cameras and ½ watt bulbs to heat the insulated containers. This camera protection system was designed by Tom (aka “McGyver”) Smith, and required a lot of experimental modification along the way. We tested the prototype in the minus 70F freezer in the lab, but still found that actual field conditions posed additional problems: drifting snow blocked the lens ports, the transport of containers via snowmachine/sleds was always an iffy business, foxes scent-marked the units, and we found it challenging to come up with a means of confirming that, once sealed in their containers, the cameras continued to operate.

During the spring of 2004 more than thirty satellite collars were fitted on female polar bears in the Beaufort Sea by USGS researchers. Many of these animals should den this fall, increasing the number of known den

locations available for observation next year. In 2005 we plan to continue to test the remote time-lapse units, and perhaps evaluate a system to transmit video streams from remote locations to a receiving location, most likely Milne Point or an alternative location in Prudhoe Bay. The number of video units deployed and their location will depend on the availability of known and confirmed dens and their proximity to land based staging points.

Despite their ferocious reputations, polar bears prefer to avoid possible threats to their welfare by retreating. When denning bears are disturbed, the consequences can be significant to the cubs; particularly if they’re abandoned before they’re able to survive alone in their arctic environment.

In its initial stages, this study has collected valuable baseline information on the behavior of denning polar bears at emergence. In the future it is expected to gather data that will help us understand the role of environmental factors and behavior patterns in the lives of polar bears after they leave their winter dens, as well the responses of such animals to disturbance and the potential consequences of these acts.

Partners: U. S. Geological Survey and BP-Exploration

And Recently . . .

This project continued in 2005 and 2006 using time lapse cameras. Data continue to be analyzed. Karelian bear dogs were used successfully to verify dens and forward-looking infrared thermal hot spots in 2006. Some equipment modifications were implemented that allowed testing cameras, taking the internal temperature of the housing units, viewing images, and focus. All were accomplished remotely without opening the camera housing units.

Tom Smith, the U.S. Geological Survey lead for this project, has taken a new position outside of Alaska, so the details for future work are uncertain.

Experience is the Best Teacher . . . Partners Program Interns Gain Knowledge, Skills

By Maureen Clark, Public Affairs Specialist, Subsistence Management Office

Published Summer, 2004; in *From Land and Water*

Ask the interns with the Partners for Fisheries Monitoring Program about how they spent their summer and you will hear about salmon surveys, sampling techniques, stream ecology, fish genetics and harvest calendars. They can tell you about the workings of weirs, counting towers, sonar, aerial surveys, radio telemetry and archaeological excavation. And when

in the program, serving as interns with the Tanana Chiefs Conference, Bristol Bay Native Association, Council of Athabaskan Tribal Governments, Kuskokwim Native Association and Native Village of Eyak. Four additional interns with the Bristol Bay Native Association were jointly funded by the Partners Program and the Tribal Colleges and Universities Program.

They brought their enthusiasm and curiosity to their work at field projects and, by the end of the summer, they had gained knowledge and skills that will serve them well in their careers.

more than 30 rural Alaska villages have had an opportunity to work on fisheries research and monitoring projects and to explore careers in resource management through the internship program. In addition, interns can now receive college credit for their internship through the University of Alaska Fairbanks School of Fisheries and Ocean Sciences.

And Recently . . .

During the last three years, interns have been placed through our Partner organizations at the Association of Village Council Presidents, Tanana Chiefs Conference, Council of Athabaskan Tribal Governments, Kuskokwim Native Association, Native Village of Eyak, and the Bristol Bay Native Association. The expanding intern program has benefited over 60 students from 30 rural communities; receives a strong 50% matching funds through the National Science Foundation; and has reduced the need for hiring technicians on Monitoring Program projects, enabling more projects to be funded. We are now seeing intern graduates moving into natural resource careers and enrolling into master of science degree programs.



USFWS

Kuskokwim Native Association Intern Samantha Ephook inserting a radio transmitter in a whitefish. "When you do all this stuff you have to be serious about it," she said.

they mention their training in note taking, cultural awareness, ATV safety, first aid, bear safety, watercraft safety and outboard motor repair, you realize they have had a very full summer, indeed.

Every year, the biologists and anthropologists who work with the Partners for Fisheries Monitoring program mentor interns to promote understanding of fisheries biology, fisheries management, the importance of subsistence in rural Alaska, and the role of traditional ecological knowledge in fisheries management. The internships also provide these young people with a chance to explore careers.

This summer, six students participated

This summer has been a great learning experience," said Kay Larson-Blair, a student at the University of Alaska Anchorage.

Valli Peterson, a student at the University of Alaska Southeast, agrees and credits those who mentored her. "Each one of the people that you work with, they kind of take you under their wing."

The Partners for Fisheries Monitoring internship program has grown since it began in summer 2004. More than 60 young people from



USFWS

Bristol Bay Native Association Interns Violet Apalayuk (left) of Manokotak and Laura Sorensen (right) of Dillingham learned about the medicinal properties of local plants from Elena Gumlickpuk (center) of New Stuyahok.

Reflecting . . .

. . . on the past five years. That's what this edition of *Alaska Reflections...A Sampler 2001-2006* is all about. When we embarked on this project we knew it would be difficult to choose which stories (there were over 50!) to publish because there were so many great stories to choose from. In the end, we selected stories from the north, south, and southwest about fish, birds and polar bears. These stories reflect the diversity of the wildlife, people, and U.S. Fish and Wildlife Service activities in Alaska.

In some ways these pages are snapshots in wildlife management time. Each story is republished here as it first appeared one to five years ago. To update you on each article's subject, we have asked authors to write about the current status of each project in *And Recently...* Articles represent the work of different Service programs – National

Wildlife Refuges, Law Enforcement, Fisheries and Ecological Services, Marine Mammals, Migratory Birds, Subsistence, and the Alaska Migratory Bird Co-Management Council. The Subsistence article is republished from that program's newsletter, *From Land and Water*.

Finally, partnerships and local community involvement are the cornerstones of resource management success. Each story illustrates how wildlife management really works. When people focus on the same goal – healthy fish, wildlife and plants for Alaska – success is the result. Our thanks to all the past, present and future partners that help us in this important work.

Alaska Reflections has been in print for many years. In 2006, it joined the world of cyberspace and will in the future be published electronically. As

we periodically add new articles, you will find them at <http://alaska.fws.gov/external/publications/index.htm>.

Visit often!

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1011 East Tudor Road
MS101
Anchorage, Alaska
99503

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Regional Director - Tom Melius

Assistant Regional Director, External Affairs - Larry Bell

Editor - Cathy Rezabeck, 907/786 3351, cathy_rezabeck@fws.gov

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Alaska Reflections welcomes manuscripts on a wide range of topics related to the FWS mission in Alaska. We are particularly interested in news about research, conservation, and cooperative ventures. Please contact the editor for guidelines before preparing a manuscript. We cannot guarantee publication.