North Slope Borough Department of Wildlife Management

SPRING 2014

THE TOWLINE

VOL 6 NO 1

From the Director

Greetings to all North Slope residents! We are thankful for the bounty our communities have enjoyed this past winter and spring from our successful hunters. We are fortunate to have shared in the harvests with our successful whaling crews.

Our department continues to work on behalf of our North Slope communities to ensure that subsistence resources are sustainable and subsistence hunting continues. Our staff represent the NSB in critical discussions, dealing with bowhead and beluga whales, caribou, ice seals, migratory birds, polar bears, walrus and more. It is our privilege to serve the residents of the NSB in this work.

Our science and subsistence research staff are gearing up for the field season and will be collecting samples, gathering data, and making observations while our midnight sun shines down on us. We are pleased to be able to work with college interns during the summer and hope to provide the mentorship and support for these students to become our next biologists and subsistence researchers. Our interns come to us from different colleges, including some from the UA system and the Alaska Native Science and Engineering Program (ANSEP). We are excited to be in partnership with ANSEP and offer these students internships with us.

Please continue to contact us with your questions or concerns regarding subsistence resources. We greatly appreciate the information that we get from our hunters. And, please continue to pass on your valuable knowledge to our young hunters.

Quyanaq,
Taqulik Hepa

Walrus UME Ended as of April 2014

The Unusual Mortality Event (UME) for Pacific Walrus has ended as of April 2014 due to no new cases being seen. The UME for Ice Seals remains open as cases of "healing or healed" sores have been observed from the Bering Straits region, suggesting these seals are survivors of the disease. What began in 2011, as a discovery of skin lesions, including hair loss in ice seals, has not been observed in walrus since that time. A formal report will be released within a year and made available to communities and the general public.

We may never know the cause of the Walrus UME, however, monitoring will continue. As hunters are the first observers of wildlife diseases, please report any unusual observations to the NSB Department of Wildlife Management by calling 907-852-0350. If in the Bering Straits region, call 877-277-4392 or 855-443-2397.

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Health Assessment Sampling

Ice Seal/Walrus Harvest and Stranded Marine Mammal Surveys

This summer the wildlife department will continue to work with hunters in Barrow to examine subsistence harvested ice seals, walrus and hunter concern animals. Subsistence harvested animals will be aged, sexed, and have body measurements taken. In addition, samples from organs and blood from each animal will be taken. As in previous years, we will conduct beach surveys for stranded live marine mammals or carcasses.

Our ongoing harvest monitoring and beach surveys are part of the NSB-DWM marine mammal health research program to establish baseline information about our subsistence species. If you have harvested seals or walrus (or other animals) this summer and would like to participate, contact DWM at 852-0350. Our staff will be surveying beaches, collecting samples and data in Barrow, but we would like to find people who are interested in surveying beaches in Point Hope and Wainwright as well.

Metal tag on walrus carcass found on beach near Barrow

Please contact DWM if you are interested. If you see a carcass with a small, silver metal tag attached to it, then the carcass has already been counted. Please leave the tag attached so that the carcass is not double-counted. Quyanaq!

Teshekpuk Caribou Health Study

Thanks to the hunters, the Teshekpuk Caribou Herd Health Study is progressing well. We continue to examine hunter-concern animals and collect samples from healthy caribou to establish baseline health information. Sampling will continue throughout the year. Please contact the NSB-DWM for more information or if you would like to participate.

Subsistence Harvest Studies

Subsistence Harvest Documentation

This project has been ongoing for many years. However, the need for accurate harvest numbers from all villages continues to be important as we work with state and federal subsistence resource regulators. Our documentation helps enable local control of wildlife management in meeting our nutritional and cultural needs, and this could not happen without the cooperation of hunters across the Slope. The DWM has recently surveyed hunters in Anaktuvak Pass and Kaktovik. We will be reaching all of the villages by the end of this year.

Documenting Subsistence Use with GPS

Identifying geographical areas and travel routes within NPR-A that are important to subsistence users is being done using GPS technology and interviews. In this project, hunters are provided with a GPS unit specifically to gather data on their travel routes and hunting areas. This valuable data from these hunters will be used to develop maps describing the spatial distribution of subsistence use.

Currently, 17 hunters are participating. The DWM would like to have 20 more hunters involved in the project, especially hunters that are very active and travel long distances. At this time, we are focusing on adding hunters from Atqasuk, Nuiqsut and Wainwright. In the future, we hope to work with villages outside of NPR-A as well, and to include marine mammal hunting.

We also welcome hunters that already have their own GPS unit to participate. Having representation from all areas and hunting locales is ideal. **All information and data gathered from this study, as well as the harvest documentation project, is kept <u>strictly confidential</u>.** Contact Qaiyaan Harcharek if you are interested in participating in either project at qaiyaan.harcharek@north-slope.org.

A Friendly Reminder: KEEP YOUR GPS <u>ON</u>!!
Quyanaq!

Kid's Page

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Iñupiaq Matching

Draw a line from the *Iñupiaq* name to the English name for these Hunting Terms!

Aġra	*Boat, sealskin*
Aŋuun	*Bullet*
Avataqpak	*Chipper for ice*
Kattaqsruun	*Darting Gun*
Kuvraq	*Fish hook*
Manaq	*Float*
Nauligaun	*Gunpowder*
Naulik	*Ice axe*
Niksik	*Kayak*
Qaġruq	*Net for fishing*
Qayaq	*Paddle for boat*
Sikłaq	*Retrieving hook*
Tuuq	*Whaling bomb*
Umiapiaq	*Whaling harpoon*

Note: *Iñupiaq* name spellings vary between regions.

FUN FACTS

Did you know that?

… the sun stays above the horizon during the summer for about 50-80 days, depending on where you are on the North Slope.

… pregnant caribou females keep their antlers longer than the males and the non-pregnant females.

… it takes about three years for sea ice to "lose its salt" and become freshwater ice, or "piqaluyak," which is used for drinking water.

…you can tell the age of whales by looking at chemicals in the lenses of their eyes.

Subsistence ACTIVITIES

JUNE - *Iġñivik*

Caribou calves, or nuġġaq, are born
Nalukataq in whaling communities
Seal hunting, natchiq and ugruk
Fishing on rivers and lakes begins
Egg gathering begins

JULY - *Iñukkuksaivik*

Animals raising young
Ugruk and aivik hunting
Drying meat and making seal oil
Preparing ugruk skins for boats
Beluga, or sisuaq, hunting

AUGUST - *Tiŋŋivik*

Waterfowl migrate south
Caribou hunting for prime skins
Fishing with nets
Berry picking

SEPTEMBER - *Amiġaiqsivik*

Caribou lose antler velvet
Duck hunting and fishing at camp
Moose and caribou hunting
Fall bowhead whale hunt

OCTOBER - *Nuliaġvik*

Caribou rut near end of month
Fall whaling continues
Ice fishing on rivers and lakes and along coast for Iqalugaq, or Arctic cod

NOVEMBER - *Nippivik*

Sun goes down
Polar bear and seal hunting on coast
Traditional Thanksgiving feasts

The NSB-Shell Baseline Studies Program

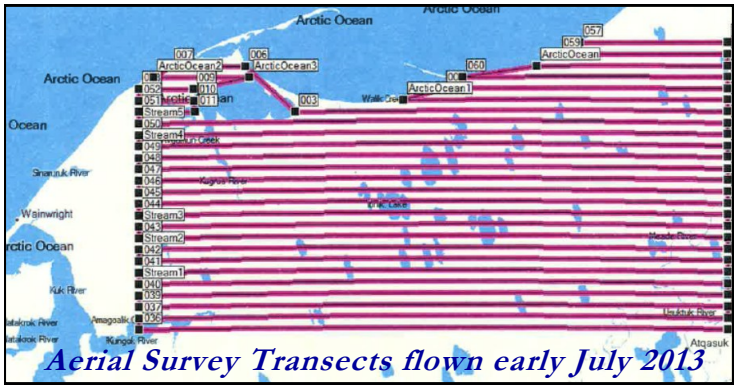
The NSB-Shell Baseline Studies Program was created to help collect baseline data onshore and offshore of the North Slope. This data will be used to help inform decision makers about oil and gas related activities, develop appropriate mitigation measures to protect subsistence hunters and resources, and provide information for North Slope residents to use to help guide decisions about industrial activities. The program is guided by a Steering Committee consisting of NSB village representatives, independent scientists, and representatives from the NSB and Shell. Below are updates on some of the current projects.

Aerial Surveys: Caribou and Arctic Fox

Potential oil development in the Chukchi Sea may result in an onshore pipeline that would extend across the National Petroleum Reserve Alaska (NPR-A) and connect with the Trans-Alaska Pipeline System (TAPS). At this time, the exact route of such a pipeline is unknown but possible onshore landings include the vicinity of Wainwright. There is a need for baseline information about caribou calving and subsistence use in the area between Wainwright and Atqasuk. That information will be helpful in placing a pipeline in a location that would have the least amount of impact to caribou and hunters.

Similar to caribou calving, there is little information on the density of Arctic foxes in the same region. We know that fox density in the oil fields at Prudhoe Bay are higher than in undeveloped areas, possibly because animals have access to artificial dens and scraps of human food. Increased numbers of foxes in the oil fields may have negative impacts on geese, eiders, and other tundra nesting birds. We are collecting baseline data about foxes in the area between Wainwright and Atqasuk to try to limit the expansion of foxes in the event of pipeline development.

An initial aerial survey for calving caribou and fox dens occurred in 2013 with funding from the NSB



Aerial Survey Transects flown early July 2013

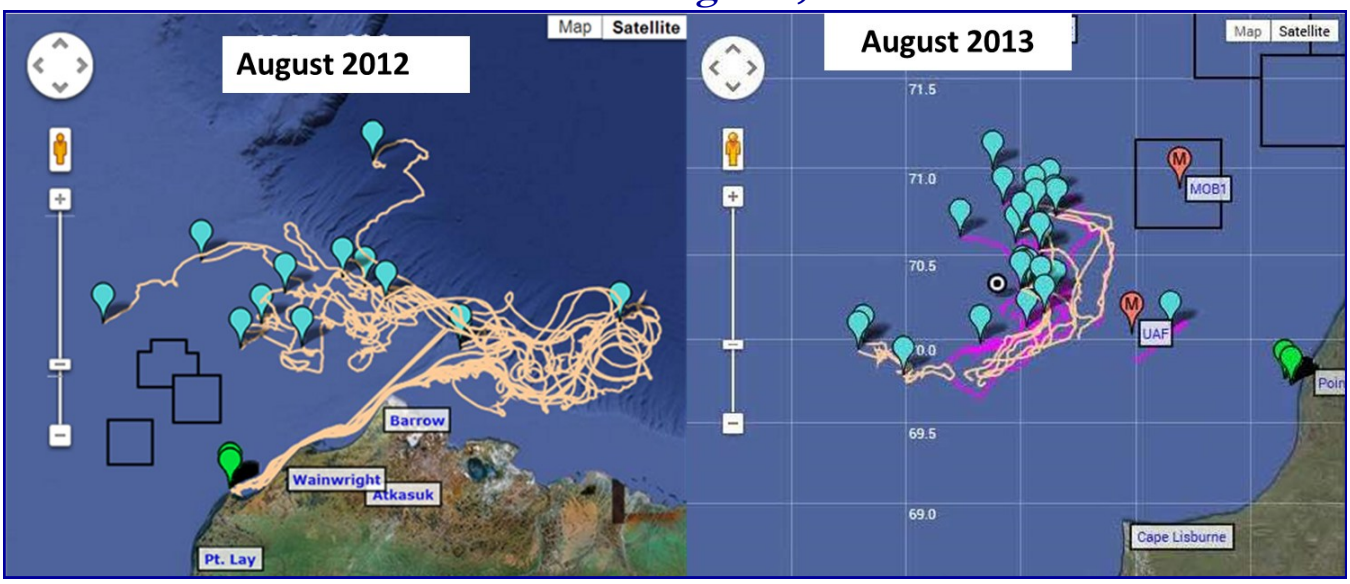
DWM. Preliminary results from that study indicate that about 8% of the caribou cows had calves. Continuing aerial surveys for cow/calf pairs during the calving seasons of 2014 and 2015 could help identify potentially important calving areas for animals from the declining Western Arctic and Teshekpuk herds. The fox den survey documented 76 dens in 2013. A single Arctic fox could potentially cache 2,000-3,000 eggs during the breeding season. Further, arctic fox have a high incidence of rabies and increased densities may result in public health concerns. NSB-DWM biologist Ryan Klimstra will conduct the caribou surveys in early June and the fox surveys in early July of 2014.

Tracking Surface Ocean Currents

With increased industrial activity in the Arctic, there is a need to understand where spilled oil might go and how quickly it will get there. The DWM collaborates with the University of Alaska Fairbanks (UAF) using satellite-tracked surface drifters to better understand the nearshore surface flow of the Chukchi Sea. The data collected will help improve oil spill trajectory models and our understanding of why certain areas are important for marine mammals.

In 2012 and 2013 we deployed a total of 110 drifters near Icy Cape, Wainwright and Point Lay with the help of several hunters. The drifters behaved differently between 2012 and 2013 because of varying wind and ocean current conditions. In 2012 drifters moved north and east towards Barrow Canyon and then east towards the Beaufort Sea shelf/slope or northwest towards the Chukchi Sea slope. In 2013 drifter trajectory was predominantly westward and south drifting around Herald Shoal and finally beaching along the Siberian coast. The information from the

The NSB-Shell Baseline Studies Program, continued



Maps of drifter tracks deployed off Icy Cape in 2012 (left) and off Point Lay in 2013 (right)

NSB-DWM nearshore drifters, and the offshore drifters deployed by UAF near the Hanna Shoal area, has already provided us with an improved understanding of the movements of surface ocean water.

In 2014, this project will expand. We expect to again work with hunters to deploy drifters at Point Hope, Point Lay, Wainwright and Kaktovik. Deployments will be made within 15 miles from the coast. Contact Leandra de Sousa for more information (leandra.sousa@north-slope.org).

Monitoring Stress Levels and Calving Intervals in Bowheads using Baleen

Many people are concerned about potential impacts to bowhead whales from oil and gas activity, climate change, and other stressors. We know that bowheads move away from sounds made by people, including sounds from seismic surveys, ships, and drilling. In addition to their movement, the whales' stress levels likely increase as well.

To better understand the changes in stress levels of bowheads, we are measuring levels of the stress hormone cortisol in different tissues including urine, blood, feces and blubber. The level of cortisol in those tissues represents what the whale has experienced in the past few hours, days, or maybe longer. Because baleen (see picture below) can represent 15 to 20 years in a whale's life, we have started a pilot project, working with the New England Aquarium, to see if we can measure cortisol in baleen.

Preliminary findings confirm that baleen contains measurable levels of the hormone cortisol and also progesterone, a female pregnancy hormone. We are interested in looking at progesterone for two reasons. One, when a female is pregnant, her stress hormone levels are also high. We want to be sure we take into account any possible pregnancies when we evaluate how stress levels in bowheads may have changed over time. Two, we may be able to tell how frequently a female has a calf. Both of these questions are important for monitoring the health of bowheads.

This new approach could be a great way to compare stress levels measured in bowhead baleen from the past (i.e. during commercial whaling) with today and into the future. We are hopeful we can assess stress impacts from climate change and increasing human activity in the Arctic. This information was presented to the AEWC at the 2014 mini-convention and a short paper has been submitted and accepted for publication. We are currently preparing a new proposal to obtain future funding to continue this promising research.

The NSB-Shell Baseline Studies Program, continued

Ringed Seal Tagging

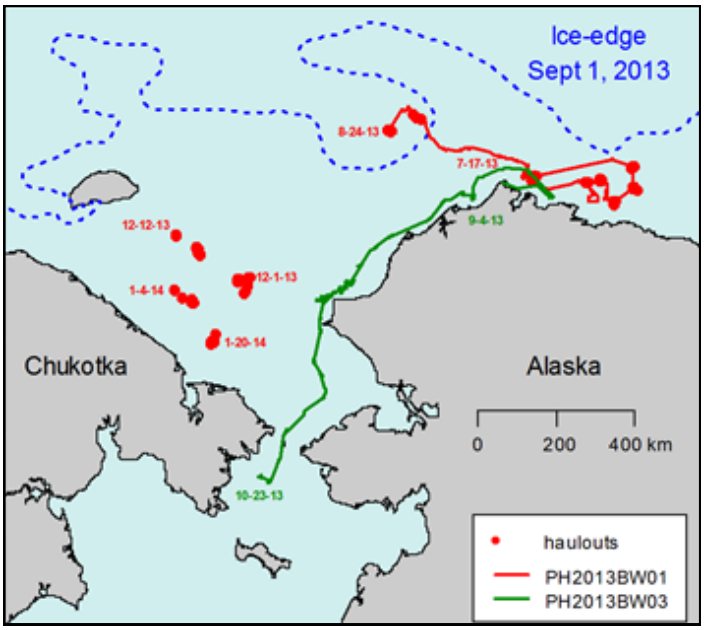
Ringed seals are an important subsistence resource on the North Slope. Yet very little is known about how these seals spend most of their lives when they are not visible or accessible from shore. Furthermore, ringed seals have been listed as "threatened" under the Endangered Species Act which requires the designation of critical habitat. We are studying the movements and habitat use of ringed seals to increase our understanding of their basic ecology. The results will not only add to our understanding of habitat use, range, and distribution, but will also provide data that are useful for protecting them as a subsistence resource and for ensuring that their population remains healthy.

Seals tagged and tracked in 2011 and 2012 were reported in previous newsletters. Between July and September of 2013, three ringed seals were netted and outfitted with satellite tracking tags. In addition to location data, these tags also record information about diving behavior, and water temperature. One tag failed after three days. However, we collected a substantial amount of data from the other two tagged seals.

Analysis of satellite data collected from 2011-2013 has offered some interesting information about ringed seals. Most dives were less than 250 feet deep and about 7 minutes long. Dive depth and duration changed with the time of year. The deepest dives, up to 1500 feet deep, occurred from August to October and were over 22 minutes long! During the open water season, ringed seals travelled north to the pack-ice edge over the Arctic Basin where they spent time hauled-out and foraging. Data from 2011-12 showed that ringed seals tagged near Barrow in summer travelled south through the Bering Strait for the winter. However, in 2013 one tagged seal wintered near Wrangell Island in Russia.

Ringed seal tagged in 2013: (left) Jordan Kippi assisting; (top right) tag glued on head; (bottom right) tag on flipper

In 2014, this project will continue. We attempted to catch seals this spring, but ice conditions made this difficult task even more challenging. We will continue to try to catch seals throughout the summer and early fall. Contact Andy Von Duyke (andrew.vonduyke@north-slope.org) for more information. This work is conducted under NMFS Permit #15324.



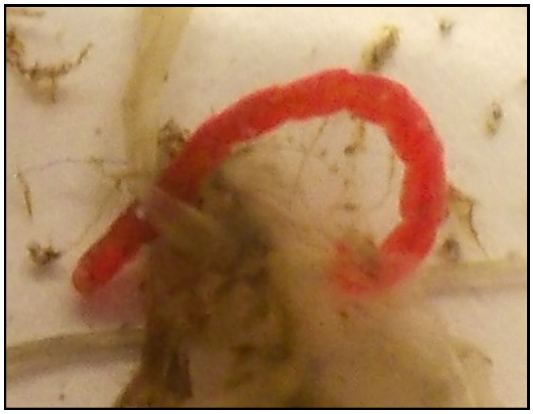
Map of two Natchiqs tagged near Barrow in 2013, with travel routes (lines) and haul-out locations (dots)

Besides the projects discussed above, the Baseline Studies Program is also funding work on (1) bowhead and beluga hearing, (2) bowhead scarring from ropes, ships and killer whales, (3) contaminants and biomarkers in belugas, and (4) workshops in Barrow and Wainwright on traditional knowledge and science of sea ice and ocean currents. Other studies that are expected to begin in 2014 include: assessment of forage fish (i.e. beluga and seal food), tidal fluctuations, use of Camden Bay by bowheads and propagation and impact of industrial sounds in the area, documentation of subsistence use areas in Wainwright, impacts from helicopters to subsistence hunters and resources, and possibly others. Funding for this Baseline Studies Program comes from Shell and the NSB. For more information, contact the NSB representatives Robert Suydam or Craig George.

NARL HISTORY: FOSSIL AIR by Todd Sformo

Staring into pans of melting tundra on my table, all I see among the icy white bubbles, blackened moss, and dried grasses are three tiny U-shaped things resembling bits of dead plants. I'm looking for bright red bloodworms, tiny aquatic larvae of midges (non-biting flies) to commemorate an event that occurred in Barrow sixty-six years ago this past January at the Navel Arctic Research Lab (NARL).

In 1948, Joseph Ahgeak, Clay Kaigelak, and Dr. Per Scholander chopped blocks of ice from a pond near NARL to understand how bloodworms come back to life after being entombed in ice for months. Why commemorate this event? The scientific work on these insects in Barrow directly led to the technique of analyzing gas bubbles in glacial ice cores for their ancient atmosphere—the study of climate change began right here on the North Slope.



Bloodworm, or midge larvae, about 6 mm long

Ahgeak, Kaigelak, and Scholander thawed their tundra samples and found bloodworms turned bright red due to hemoglobin, a substance that gathers oxygen and is similar to that in our blood cells. But does oxygen move through ice? To determine this, many experiments were conducted, including floating thin sections of ice on top of mercury and injecting a bubble of gas of known concentration under the ice. By sampling the gas at different times, Scholander and Edvard Hemmingsen found no change in composition. This remarkably meant that gases trapped in polar ice could remain stable for thousands of years. For me, it's been four hours since I began melting the pieces of tundra, but I see no bloodworms.

Science at NARL in the late 1940s focused on a central topic: how arctic organisms survive low temperatures. Remember this was the Cold War period when the U.S. military assumed it was headed for a nasty war with the Soviet Union in arctic conditions. They examined species of all kinds: mammals (polar bears, seals, wolves, and weasels), birds (snow buntings, snowy owls, glaucous gulls, and ravens), plants (lichens, moss), and fish (including asking the important question why Arctic and Antarctic fish don't freeze?). Eight hours now since collecting my tundra samples, the room is filling with a boggy odor, and I still see no bloodworms.

Some people may think studying insects such as bloodworms to be unimportant, especially compared to larger animals; however, the mindset of the early science years at NARL was unrelenting pursuit of ideas. It was Dr. Laurence Irving, the first director of NARL, who described their work as "expeditionary physiology" for establishing a western science program in America's most northern city, studying a wide range of organisms in the field and the lab, and the multidisciplinary work that involved not only western scientists but also the first naturalists of the Arctic, the Inupiat. Many scientific questions and studies at NARL, as well as today at the NSB-DWM, began with Alaska Native expertise and time-honored observations.

Not until the next morning, twenty hours later, as I pulled trays of tundra from my refrigerator that I saw my first wiggling red bloodworms. Success! A modest success for me, but sixty-six years ago, this same fieldwork had far-ranging implications. A quick on-line search shows that over 2,000 research papers in 2013 alone name the gas-bubble method developed here for current climate research and analyses. Who would have predicted that the study of these meager creatures and small bubbles in pond ice would have such an impact? It is clear we owe a huge debt to Ahgeak, Kaigelak, and Scholander for their work on the humble bloodworm.

North Slope Borough
Department of Wildlife Management

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We thank the NSB Assembly and Mayor Brower for their continued support. ***Quyanaqpak!***

BECOME AN NSB-DWM FACEBOOK FAN!

North Slope Caribou in Decline

Recent data collected by the Alaska Department of Fish & Game show that the Western Arctic Caribou Herd (WAH) and the Teshekpuk Caribou Herd (TCH) populations have declined. The WAH declined from a peak of 490,000 in 2003 to 235,000 in 2013, and the TCH declined from a peak of 64,000 in 2008 to 39,000 in 2013. Calf survival has decreased and female caribou mortality is on the rise in both herds.

What is the reason for the decline? Biologists are not sure, but it may be due to several factors, including an increase in the number of predators, changes in the caribou's winter range, and climate change effects in summer and winter. The poor forage and weather conditions make the caribou more vulnerable to the increased number of predators.

If these population trends continue, the ADF&G will need to reduce harvest levels, which would be the first restrictions on caribou hunting on the North Slope in 30 years. Possibilities include changes in seasons and/or bag limits, herd-wide quotas, or community quotas; however, none of this has yet been implemented.

The NSB-DWM will be traveling to the most impacted communities on the North Slope during the next few months to come up with local solutions to this problem. Our hope is that the residents of the NSB can decide what is best for the caribou and for subsistence, without the State of Alaska coming up with solutions with little community input.

What can we do now? Maintain respectful hunting practices. Take only what your family needs. Make sure your shots are good, which will help to prevent any loss of injured animals and/or wanton waste. Teach young hunters and pass on the Iñupiaq value of Respect for Nature, or ***Qiksiksrautiqaġniq Iñuuniaġvigmun.*** Quyanaq!

Food Security in Action!

In November 2013 the NSB-DWM participated in a North Slope Food Security Workshop held by Inuit Circumpolar Council (ICC)-Alaska in Barrow. An Inuit definition of food security and a useful document to help stress the importance of the relationship we have with subsistence and the Arctic is being created. Among the topics discussed were the importance of elder-youth communication and the health of wildlife. With spring here and as summer approaches, hunters are gearing up to enjoy warmer weather and more daylight on the nuna and taġiuq. This is an important time to remind ourselves of the knowledge we have learned from our elders and mentors as we begin harvesting food.

What does Food Security mean to You?

The traditional knowledge we learn from our elders includes how to determine what food is safe to eat and how to prepare it from first observation to consumption. This knowledge has been developed over generations. Knowledge of the health of wildlife in the area and having experience in preparing the food is important. There is always risk involved in any food we eat whether it is store-bought hamburger or subsistence-harvested seal meat. In rural Alaska, diets that contain subsistence foods are often more nutritious than diets without traditional foods.

Please continue to respectfully practice your customary and traditional ways of preparing food. And for the youth, we encourage you to learn from your elders and mentors this season!