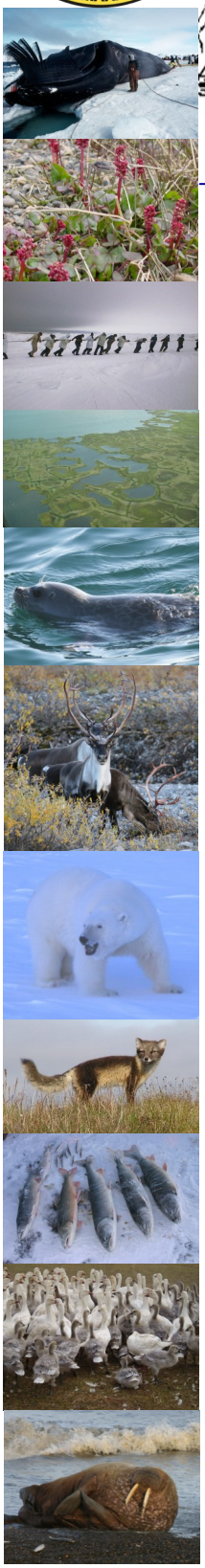
North Slope Borough Department of Wildlife Management

Sketch by Jean Craighead George

SPRING 2017

THE TOWLINE

VOL 9 NO 1



From the Director

The DWM has been traveling to villages to meet with hunters about caribou and polar bear issues (see articles below and on back page). We have three more villages to meet within the coming months. Please contact us if you have anymore questions or concerns about these issues.

We work hard in order to make sure that subsistence resources are being managed in a sustainable manner, and that subsistence resources are healthy and safe to eat. We continue to collect samples from healthy, harvested animals and also to address concerns from hunters. Please contact us any time if you have questions on the health of your harvest, whether a marine mammal, terrestrial mammal, bird, or fish.

We continue to represent and advocate for subsistence hunters of the North Slope at many forums, including the International Whaling Commission, the Alaska Board of Game, Federal Subsistence Board, NPR-A Subsistence Advisory Panel, as well as many Alaska Native co-management organizations.

Quyanaq,
Taqulik Hepa

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Polar Bear Successor Co-Management Organization

In past newsletters, we provided updates on polar bear co-management, focusing on the Chukchi Sea. The U.S. and Russian Federation signed a Treaty in 2000 to manage the Chukchi stock of polar bears that are shared between the two countries. This agreement resulted in a quota for the harvest of polar bears. The former Alaska Nanuuq Commission (ANC) and the U.S. Fish and Wildlife Service (FWS) supported the agreement and quota but had limited consultation or coordination with hunters or subsistence communities that depend on polar bears to meet nutritional and cultural needs. The NSB is concerned that the regulations on polar bear hunting are not supported by robust science nor have communities been adequately involved in decisions.

The ANC no longer exists and a successor organization is being developed by tribal and other local organizations from the North Slope, the Northwest Arctic, and the Bering Straits regions. Discussion between representatives from the three areas began in 2016 about how to develop a successor to the ANC that involves more input and involvement from hunters and subsistence communities. The next meeting of these representatives will occur in early fall 2017. The Indigenous People's Council for Marine Mammals has been facilitating the meetings with funding from USFWS.

Co-management of polar bears must have an organization that represents the views and needs of subsistence communities. FWS recognizes this and has agreed to postpone implementation of a quota until 2020. There is a need for up-to-date information about the population size and location of the boundary between the Chukchi and Beaufort polar bears. The delay in implementation of the quota provides for the development of a co-management organization and updates about the knowledge of Chukchi Sea polar bears.

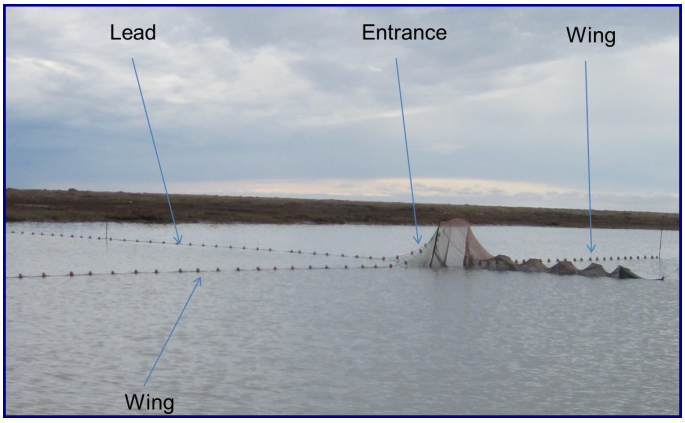
Call Mike Pederson, Taqulik Hepa, or Andy Von Duyke (852-0350) for more information, or let your tribal or traditional council know your thoughts about the new successor organization for the co-management of polar bears.

Elson Lagoon Fishery: Subsistence and Science by Todd Sformo

Aanaakliq (broad whitefish), qaaktaq (Arctic cisco), pikuktuuq (humpback whitefish), iqalusaaq (least cisco), sulukpaugaq (Arctic grayling), and tittaaliq (burbot) are some of the most important subsistence fish on the North Slope. Even the lowly kanayuq (fourhorn sculpin) is a subsistence fish prized for its liver. Besides these subsistence species, there are other fish that migrate to the waters on and near the North Slope. Our department has been conducting surveys using a fyke net in Elson Lagoon for many years (1996 and 2009 to present) to determine the timing of all of these migratory species of fish.

These sampling surveys are conducted to better understand fish migration, fish life cycles, diversity and changes in species (including invasive species), and to establish a baseline that will be useful in evaluating trends due to climate change and/or impacts of increased development. NOAA recognizes the lack of appropriate data from the Arctic region and has focused on the Natural Resource Damage Assessments (NRDA) requirements for the Arctic. Information developed from the fyke net study, as well as subsistence gill net records, will be valuable in conducting NRDA in the event it is needed.

The fyke net is a "funneling" net system that is secured to the shore with a "lead" net that attaches to a hoop-like net, or "entrance," about 100 feet offshore. The hoop net progressively funnels into smaller nets and finally into a small-mesh catch net known as a fish trap. Two "wings" are attached to the main hoop net. The lead and two wings direct fish into the entrance. The fyke net is checked every 24 hours, and we record species, numbers, and length of the fish. We also take a small sample of fish to the lab for additional measurements.



The fyke net located across from the dock in North Salt Lagoon.

During this multi-year study, the fyke net has caught and released alive over 30,000 fish, consisting of 16 different species. Least cisco and fourhorn sculpin make up the largest numbers in all years. Together, these two species, caught in nearly equal numbers (around 13,000 each), comprise a little over 85% of the fyke net catch. In addition, we have trapped Arctic flounder, saffron cod, three-spine stickleback, rainbow smelt, Arctic cisco, Arctic cod, capelin, Pacific herring, broad whitefish, pink salmon, dolly varden/char and nine-spine stickleback, in order of catch numbers.

UAF student Shelley Woods and 2011 DWM intern Katie Roseberry emptying the fyke net.

What is also interesting is the lack of large subsistence fish caught in this kind of net. Among all years, only 51 aanaakliq have been caught (mostly juvenile size), 26 pink salmon, 8 dolly varden/char, and no chum salmon. This does not mean that larger fish are absent in the lagoon, but that the fyke net does not catch the large fish. The lack of data on larger fish highlights the importance of obtaining subsistence fish records. Since gill nets tend to catch the larger fish targeted for subsistence, we work with subsistence fishers to gather this data. These gill net surveys are invaluable and help round-out our understanding of fish in Elson Lagoon. Please contact Todd Sformo (852-0350) if you are interested in participating in our survey.

This work was funded by National Petroleum Reserve -Alaska (NPR-A) Impact Program issued by the State of Alaska, Department of Commerce, Community and Economic Development and by the North Slope Borough.

Todd Sformo and 2014 DWM intern Lynette Hepa measuring fish.

Kid's Page

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Iñupiaq Matching

Draw a line from the *Iñupiaq* name to the English name for *Natchiqsiuq* or Seal Hunting

Aaġuraq	Hook
Alluaq	Hook for retrieving Seals
Argautit or Kumigautit	Ice Pick
Igalaaq	Ice Safety Tool
Manaq	Ice Scratcher
Natchiñġaq	Kayak
Nauligaq	Knife
Niksik	Paddle
Paaġuti	Rifle, Gun
Qayaq	Seal Net
Savik	Sealing Club
Sikłaq	Sealing Harpoon
Suppun	Seal's Breathing Hole
Unaaq	Sled
Uniaq	Young Hunter's first Seal catch

Note: *Iñupiaq* name spellings vary between regions.

Siqiññiaq

Did you know that?

The sun rose on May 10th, 2017, marking the "Midnight Sun" summer which will continue until the next sunset on August 2nd. These dates can be confusing because of the lingering light in the sky before sunrise and after sunset, known as **twilight**. On the North Slope, twilight can last 10 hours or more, leading to LONG sunrises and sunsets! Even more confusing, light tends to "bend" around the Earth as it travels through our atmosphere, and sometimes we can "see" the sun even though it is below the horizon.

Here are the three types of twilight:

Civil Twilight is when the sun's center is up to 6 degrees below the horizon. It ends at sunrise and begins at sunset, when the top edge of the sun touches the horizon, marking the beginning and end of day time. There is still light in the sky, enough for vision, but the sun is below the horizon.

Nautical Twilight is when the center of the sun is between 6 and 12 degrees below the horizon. Bright stars are becoming visible which helps for navigation at sea.

Astronomical Twilight is when the center of the sun is between 12 and 18 degrees below the horizon. Most stars can be seen but astronomers still cannot observe distant ones. It's end marks the beginning of night time.

Ice Seals

Do you know the names for these Ice Seals on the North Slope?

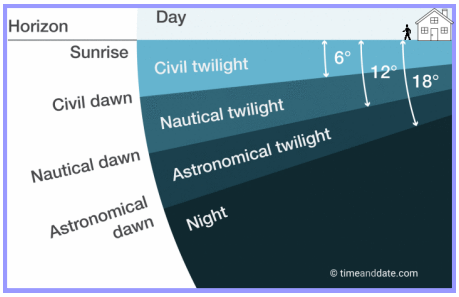
1) *Iñupiaq* names **2) English names**

1_____ 2_____

1_____ 2_____

1_____ 2_____

1_____ 2_____

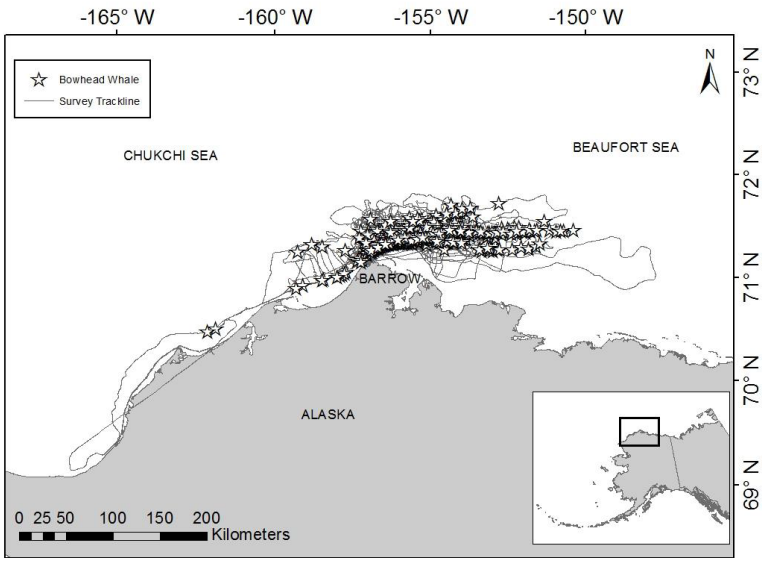


This graphic illustrates the angle of the sun below the horizon during **twilight**.
Source: timeanddate.com

Check our website for the correct answers! Go to www.north-slope.org/departments/wildlife-management/dwm_newsletters

Coastal Impact Assistance Program

In 2005, the U.S. Congress passed the Energy Policy Act. The Act mandated that a portion of Federal revenues from offshore oil and gas activity be made available to coastal municipalities, such as the North Slope Borough (NSB). This program became known as the Coastal Impact Assistance Programs (CIAP). Funding had to be used for the conservation, protection, or restoration of coastal areas (including marine waters) or mitigation of damage to fish, wildlife or other resources. The NSB Department of Wildlife Management received funds to conduct several major studies from 2010 through 2016. Those studies were primarily focused on important subsistence animals and their prey. We also received funding to help reduce impacts to the tundra.



This map shows the aerial survey tracks and bowhead whale sightings (stars) during the 2011 spring survey.

Projects undertaken by NSB-DWM under this program include: Bowhead Whale Mark-Recapture Photo Identification Study, Acoustic Monitoring of Marine Mammals, Marine Mammal Health Assessment, Ikpikpuk Biotic and Abiotic Controls, Biological and Physical Oceanography of the Chukchi Sea, and the Hardened Trail. The Hardened Trail project was described in the Fall 2016 DWM Newsletter article "Legos on the Tundra." In this issue, we discuss the Bowhead Photo Identification Study. The other projects will be discussed in future DWM Newsletters.

We invite Whaling Captains to send us photos of scars on their whales!

Bowhead Whale Mark-Recapture Photo Identification Study

The primary goal of this project was to estimate the population size of the Bering-Chukchi-Beaufort Seas (BCBS) bowhead whale population based on a mark-recapture analysis of aerial photographs taken during the spring 2011 abundance survey near Point Barrow, Alaska. Additional goals included estimating the proportion of calves, the proportion of feeding whales, the proportion of various scar types and the fishing gear entanglement rates.

During the 2011 aerial photography survey, conducted by NOAA's Marine Mammal Laboratory and NSB-DWM, a twin-engine Aero Commander flew over the region near Utqiaġvik/Barrow for a total of 160 flight-hours over 49 days (see map with survey tracks). The crew took a total of about 4,600 photographs containing 6,800 images of bowhead whales!

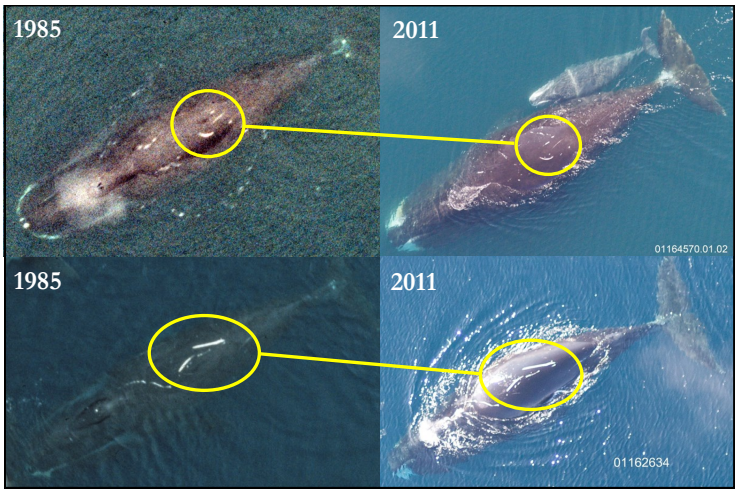
The matching of photographs began in February 2013. Photographs were cropped and labeled in preparation for analysis. To be used for identification, or to be "marked," images should clearly show white patches on the chin and other white scar markings. Scars can be caused by rubbing on ice, killer whale bites, polar bear claws, and even walrus tusks. They can also be caused by man-made activities, or anthropogenic causes, like ship strikes (i.e. propeller scars) and fishing gear entanglement (i.e. rope or line scars). The presence of calves and feeding behaviors was also noted.

"Marked" images were then compared within days, between days and between years to identify "recaptures" or repeat photographs of the same individuals. For the between years matching, 465 unique marked bowhead whale photographs from 2011 were compared to thousands of bowhead photos from several surveys dating back to 1985. Interestingly many matches were found between 2011 and 1985, in part because bowheads live so

Bowhead Whale Mark-Recapture Photo Identification Study (cont.)

long. These matches between years are helpful for all sorts of interesting science and management questions, including how much a whale has grown over the years, where it has traveled, and other questions.

Using the matched photos, the abundance and survival rate of the BCB bowhead population in 2011 was estimated. The analysis was completed and the **estimate of 18,797** is very close to the ice-based survey done in 2011 which was **estimated at 16,820** whales. Comparing these two data sets within the same year provided a remarkable opportunity to test two independent methods. As the warming Arctic makes it more difficult to conduct ice-based surveys, aerial survey methods may become increasingly important as another tool for abundance estimation.



Here are two examples of photo matches from 1985 (on left) and 2011 (on right). You can see the unusual scars on the backs. Also note, the whale on the top is accompanied by a calf in 2011. Photos taken under NMFS Permit #14245.

Obtaining an accurate estimate of BCBS bowhead whales at 10 year intervals is a requirement for the Alaska Eskimo Whaling Commission, along with harvest data, in setting harvest quotas by the International Whaling Commission (IWC). The NSB-DWM has been involved in helping to collect this data since 1981.

Hundreds of mother-calf pairs have been photographed over the years. This information suggests, as we suspected, that calving is variable but most mothers have calves at 3-4 year intervals or possibly longer during years of low food supplies.

In the 2011 feeding analysis, a total of 694 individual whales were identified. The majority of the photos were of "muddy whales" and eleven had open mouths. The estimated frequency of feeding of 33% may be high based on stomach analysis. Landed whales examined by NSB-DWM in spring 2011 had empty stomachs suggesting it is possible whales are getting muddy for reasons other than feeding near the sea floor.

Whales in 2011 with line entanglement scars made up 12.6% of the usable photographs, which is very similar to the 12.2% of harvested bowhead whales found with entanglement scars. Two 2011 whales were seen with fishing gear still attached and seven whales had ship-inflicted scars.

Killer whale rake scars are relatively common and seen on about 12% of harvested bowhead whales, especially large whales greater than 50 feet. Photographs showed only 2.9% with killer whale scars, which is partly due to the fact that scars on flukes can be difficult to view in aerial photographs.

The DWM acknowledges and appreciates the support of the AEWC on this project. We will continue comparing scar photos between years to estimate population size, entanglement rates and other questions. We are also trying to match aerial photos to photos of scars on landed whales. One match has been found so far between an aerial photo from 2005 and a landed whale in Barrow in 2011. We invite Whaling Captains to send us photos of scars on their whales! Contact Craig George for more information at 852-0350.

Above: Rope scars on whales landed in Kaktovik, 2013, and Barrow, 2011. Below: Propeller scars, Point Hope, 1976; Killer Whale scars, Barrow, 2011.

North Slope Borough
Department of Wildlife Management

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CHECK OUT OUR NSB- DWM WEBSITE!

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

BECOME AN NSB-DWM FACEBOOK FAN!

Alaska Board of Game Changes

In January, the Alaska Board of Game (BOG) passed a proposal that requires hunters in Unit 26A to complete a registration permit if they plan to hunt caribou. The NSB-DWM and the NSB Fish & Game Management Committee opposed this proposal and provided testimony at the BOG meeting in Bethel. The Board passed the proposal because they wanted the Alaska Department of Fish and Game (ADF&G) to obtain harvest data since three of the four herds that calve on the North Slope are either in decline or are stabilizing after recent declines. Biologists do not believe harvest is the cause for caribou declines but are concerned that if the declines continue harvest may become part of the problem.

In our testimony the NSB-DWM offered to collect caribou harvest data through our subsistence harvest program and we argued that the data that we collect would be more accurate than the information the State will gain through the registration permit. We also attended a Board of Game meeting in February to offer our opposition to the Board's January decision and again offered to collect the information; however, we were informed that the regulation had already been adopted into law and that it would become effective beginning July 1, 2017. We also learned that hunters in Unit 26B and C are required to complete a harvest ticket if they hunt caribou. This requirement has actually been in place for the past two years.

The NSB-DWM has been holding hunter meetings in NSB communities to get direction from hunters. What we have heard is that hunters prefer that we continue to collect harvest information and that we submit a proposal to the BOG to no longer require a registration permit or a harvest ticket for hunters on the North Slope. We intend to do this at the next regulatory meeting in 2020 where we will compare our harvest numbers to those collected through the permit process. If you have questions about acquiring permits, please contact the ADF&G at (907) 459-7278.

"Passing on the Knowledge"
PHOTO CONTEST
Take photos demonstrating **Knowledge of Subsistence Resources** being passed on to the **Younger Generation**!
Submit your photos to NSB-DWM by **August 31, 2017.**
Email to leslie.pierce@north-slope.org or call 852-0350
12 winners will be chosen for our Subsistence Calendar

Billy Adams — Employee of the Month

Billy Adams was recognized by NSB Mayor Harry K. Brower, Jr., as the NSB Employee of the Month for May 2017. Billy has worked as a Subsistence Research Specialist in 1986 for several years before moving on to a variety of experiences, including Marine Mammal Observer. In 2008, he came back to the DWM as Subsistence Research Coordinator.

Billy is, without question, one of the most experienced whale, seal and polar bear hunters on the North Slope and a recognized sea ice expert—and he brings that knowledge to the DWM when working with our biologists. He is a key participant in the AEWC's Weapons Improvement Committee, helping to improve the effectiveness of whale hunting tools and training other whalers in the use of the new penthrite projectile.

As the Mayor says, Billy, "your unfailing good humor, knowledge of our land and seas and willingness to share that knowledge to help your community is greatly appreciated. Quyanaqpak!"