North Slope Borough Department of Wildlife Management

Sketch by Jean Craighead George

SPRING 2019

THE TOWLINE

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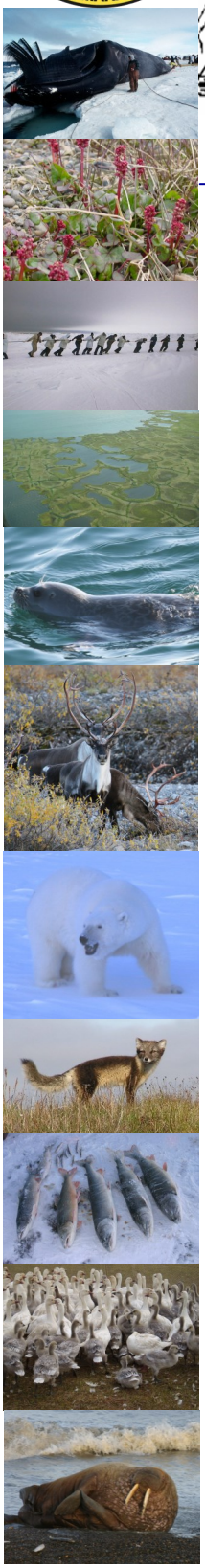

From the Director

The past winter months were spent preparing for the Bowhead Census which has kept our staff busy from the end of February to the end of May. The weather was challenging but bowhead whales and belugas swam past our perch, eiders flew by, and polar bears wandered around the ice. We would like to thank the NSB Mayor Harry K. Brower, Jr., and the National Marine Fisheries Service (NMFS) through the AEWC who provided funding for this project that is so important to the whalers and the people of the North Slope. We continue to assist AEWC in collecting the necessary data to support the bowhead harvest for future generations.

In addition, we report to you here about several other studies addressing residents' concerns, such as harmful algae blooms, and radionuclides in our environment. We provide information on plastics that are eaten by the animals that we hunt. Together we can make a difference on reducing this problem.

As the ducks fly north along the lead edge, and the geese fly north over the land, may you all have a bountiful harvest for your families and communities. Stay safe during your travel inland, as the changes in our climate have led to less predictable conditions.

We thank all of the hunters who provide us with harvest information and residents who relay interesting findings as you travel the North Slope, including new animals and changes in conditions. As always, please call us with any wildlife concerns or questions at 852-0350.

Finally, we'd like to thank Mike Pederson, who retired as our Deputy Director, for his years of service and dedication to working on important subsistence issues. His legacy will remain within our Department and within the hearts of the residents of the North Slope whom he served.

Quyanaq,
Taqulik Hepa

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Co-Management Meetings

- Alaska Nannut Co-Management Council biennial meeting was held on March 20-21 in Anchorage.
- IWC Scientific Committee meetings were held on May 6-24 in Nairobi, Kenya, with Robert Suydam as the Committee Chair.
- Ice Seal Committee meetings will be held on May 29-31 in Anchorage.
- NSB Fish and Game Management Committee meetings will be held on June 19-20 in Utqiaġvik at the NSB Assembly Chambers.
- Inuvialuit and Iñupiat Beluga and Polar Bear Commission meetings will be held on August 20-23 in Anchorage.
- AEWC Convention meetings will be held on July 29-August 2 in Utqiaġvik with all whaling captains attending.

Spring 2019 Bowhead Census Update

NSB Staff and Census Crew. Photo credit: Darren Kayotuk

The previous successful bowhead whale abundance survey was conducted in 2011. In order to meet the IWC requirement of a new estimate by 2021, we are conducting: (1) an ice-based census in spring 2019 (correcting the visual estimate with acoustic data from previous census efforts), and (2) an aerial line-transect survey across the US and Canada Beaufort Sea in summer 2019. The ice-based census has provided very precise estimates in the past but is more challenging and less safe because of thinner and less stable ice conditions due to climate change. Therefore, we are attempting an aerial line-transect survey to increase our chances of having a new estimate by 2021 and initiate a new survey technique (for bowheads) that could be implemented in the future, if other methods fail. Ideally, both surveys will be conducted in 2019, which would allow a comparison between the abundance estimates and confidence resulting from two survey approaches.

In late March 2019, we began cutting trails to the ice edge, building an observation perch and training personnel for the ice-based survey. In the past, we initiated the survey in mid-April. Because there is open water earlier in the year and whales have tended to migrate earlier in the recent decade, we were prepared to count two weeks earlier than normal. However, with the leads closed, we ended up starting around the same time as before, on 14 April. We have counted since then with some interruptions due to high winds and unsafe ice conditions. Between 14 April and 30 April, we observed about 1600 whales, which is comparable to the 2011 survey. Between 1 May and the last day of the survey on 23 May, although lead conditions were often poor, about 800 more whales were added, bringing the total count to slightly more than 2,400.

Baxter Akootchook, Alicia Itta Flores, Stacey Davis and Robert Suydam on the perch counting bowheads. Photo credit: Darren Kayotuk

The total number of whales seen is not the total number of whales in the population but is a known proportion of the whales migrating, as determined from past surveys. The final population estimate will be determined after data analysis has been completed, taking into account bad weather and poor visibility days.

The 2019 bowhead season is a high calf production year with 34 calves observed. We saw more calves in one day than all of the calves observed in 2011. This is consistent with the NOAA aerial surveys over the past five years showing high calf counts.

We are not conducting acoustic monitoring in 2019 to simplify logistics, improve safety, and reduce the cost of the survey effort. Instead, we will correct the visual estimate using an average of the proportion of whales within viewing range from past acoustic monitoring. This approach was endorsed by the IWC Scientific Committee (SC) when it was used previously.

We will attempt an aerial line-transect survey during the summer 2019. This survey will be conducted in conjunction with the Aerial Survey for Arctic Marine Mammal (ASAMM) program, which has flown surveys in this area since 1979. Surveys will be flown between Point Barrow, Alaska, in the western Beaufort Sea to Amundsen Gulf, Northwest Territories, Canada, in the eastern Beaufort Sea. A workshop was held in early April 2018 to discuss methods for ensuring that the survey will result in a BCB bowhead abundance estimate that is as precise as possible and acceptable by the IWC SC. Permissions have been received to fly surveys in the Canadian Beaufort Sea from the Inuvialuit Game Council, the Fisheries Joint Management Committee and the Department of Fisheries and Oceans Canada. The primary funding for these surveys comes from BOEM and NMFS.

In summary, these two approaches should improve our chances of successfully conducting a survey and presenting an abundance estimate to the IWC SC by 2021. Flying line transect surveys may become the standard survey approach in the future due to rapidly thinning ice which makes ice-based censuses more difficult and less safe, as this trend in ice conditions is expected to continue.

Kid's Page

Iñupiaq Matching

Draw a line from the *Iñupiaq* name to the English name for *Qupilġut* or Insect terms

Aurvik	Butterfly
Igutchaq	Bumblebee
Igutchatchiaq	Caribou Botfly
Kiktuġiaq	Dragonfly
Kumak	Hairy Caterpillar
Milugiatchiaq	Housefly
Miluyuuq	Lice or Larvae
Niulġiq	Maggot or Worm
Niviuvak	Mosquito
Piḷġaiyuk	"No-seeums"or Gnats
Qupilġuq	Spider
Taqalukisaq	Warble Fly
Tuggayuk	Wasp or Hornet

Note: *Iñupiaq* name spellings vary between regions.
Reference: Iñupiatun Uqaluit Taniktun Sivunitit. 2014. Compiled by Edna Ahgeak MacLean.

Qupilġut Facts

Did you know that?

- Arctic bumblebees must pupate from the caterpillar stage into an adult in the early summer and reproduce in 1-2 months before they die.
- Arctic butterfly and moth caterpillars need at least 2 years to mature before they metamorphose into the adult phase. The adults live only a few months, enough time to reproduce.
- Woolly Bear or Hairy caterpillars spend about 90% of their life frozen and about 5% of their life feeding during 7 or more consecutive summers. They are the longest-lived caterpillars and are freeze tolerant, as they accumulate glycerol which acts like antifreeze in their tissues.
- Warble flies lay their eggs on the hairs of caribou legs; the larvae hatch and travel under the skin to the caribou's back; after the winter, the warbles emerge and drop to the ground.
- Bot fly larvae are found in the sinuses and back of the throat of caribou.

http://www.north-slope.org/departments/wildlife-management/other-topics/common-invertebrates-north-slope

Qupilġut

Do you know the names for these *Qupilġut* or Insects on the North Slope?
a) *Iñupiaq* name b) English name

1a _____ 1b _____

2a _____ 2b _____

3a _____ 3b _____

4a _____ 4b _____

5a _____ 5b _____

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

Plastics Awareness on the North Slope

During the summer of 2018, many Utqiaġvik residents became concerned about plastic garbage blowing across the snowy tundra towards the beach. Efforts were made to clean up the garbage before the ice melted and the garbage would float off and sink into the ocean. Wildlife interns Doreen Leavitt, Kimberly Pikok, and JakyLou Olemaun asked about working on a plastics awareness poster for the NSB. The interns gathered information to use in the poster. They also gathered information for student lessons on plastics which were taught at the NSB summer youth camp at HMS in 2018. With the encouragement of the AEWC, the poster (see below) was finalized and printed over the winter, and sent to each NSB village liaison office. You may see them hanging in your community, and if you would like one, please call us at 852-0350.

The DWM has found plastics and other garbage in the stomachs of marine and terrestrial mammals. To date, Raphaela Stimmelmayr has found plastics in the stomachs of 14 out of 53 polar bears examined and one out of 29 wolverines examined (piece of plastic likely from a sled), and Craig George has found plastics in the intestines of four bowhead whales.

In the spring of 2017 two bowhead whales were harvested with fishing gear wrapped around their mouth, flippers and flukes. Our studies show that 12% of all harvested whales carry entanglement scars. The DWM, AEWC and the Alaska Bering Sea Crabbers have been working together to help eliminate "ghost" fishing gear, or fishing gear swept away and lost, to reduce the entanglements of whales and other marine mammals.

We can all do our part to help eliminate plastics and other garbage from the environment. Clean-up yards and roadsides as the snow melts to remove the garbage buried by the snow during the winter before it blows away. Reduce your use of plastics whenever possible and practical, switching to paper or biodegradable alternatives. Dispose of garbage appropriately, with loose household garbage bagged before throwing in dumpsters to prevent it from blowing away. Place your cigarette butts in fireproof containers. When traveling by boat, snowmachine or 4-wheeler, tie down or pack light items and carry your garbage back to town with you. Find alternatives for balloon release ceremonies, such as, releasing virtual balloons online, giant bubbles, flowers or petals to float on the water, or flying reusable flags, banners or kites in remembrance of loved ones. Finally, sharing information with others and educating everyone about the problems with plastics will ensure a safe plastic-free environment.

Plastics Awareness on the North Slope

Why are PLASTICS bad for our environment?

- Plastic takes **hundreds of years to decay or decompose**
  - Anything that was ever made of plastic still exists today
- Half of those plastics are single use and end up being thrown away - some ends up in trash, some doesn't.
- A majority of plastics end up in lakes, rivers, and oceans
  - About 1 million sea birds and 100 thousand marine mammals are killed by consuming or being trapped by plastic each year
  - Plastic in the ocean breaks down into tiny particles called **microplastics** which are consumed by fish and other small marine animals
- Plastics can drift and float for years forming patches like the **Great Pacific Garbage Patch,** located off the coast of California, which is two times bigger than the state of Texas

***Above:**. Plastic bags and other garbage along road near Utqiaġvik*

***Left Top:** Polar bear at garbage dump in Canada in 2013 (photo credit: Leo Ikakhik, Arviat)*
***Left Bottom:** Plastic found in stomach of harvested polar bear near Utqiaġvik, 2018*

***Top**: Commercial fishing gear wrapped around mouth and flipper of bowhead harvested near Utqiaġvik, 2017*
***Bottom**: Mostly plastic bottles floating on lagoon*

Most Common Trash

- Cigarette Butts
- Plastic Bottles and Caps
- Food Wrappers
- Plastic Grocery Bags
- Plastic Lids and Straws
- Glass Bottles
- Styrofoam Food Containers

Deadliest Ocean Trash

- Ghost Fishing Gear
- Plastic Bags/Utensils
- Balloons
- Cigarette Butts (filters)
- Plastic Bottle Caps

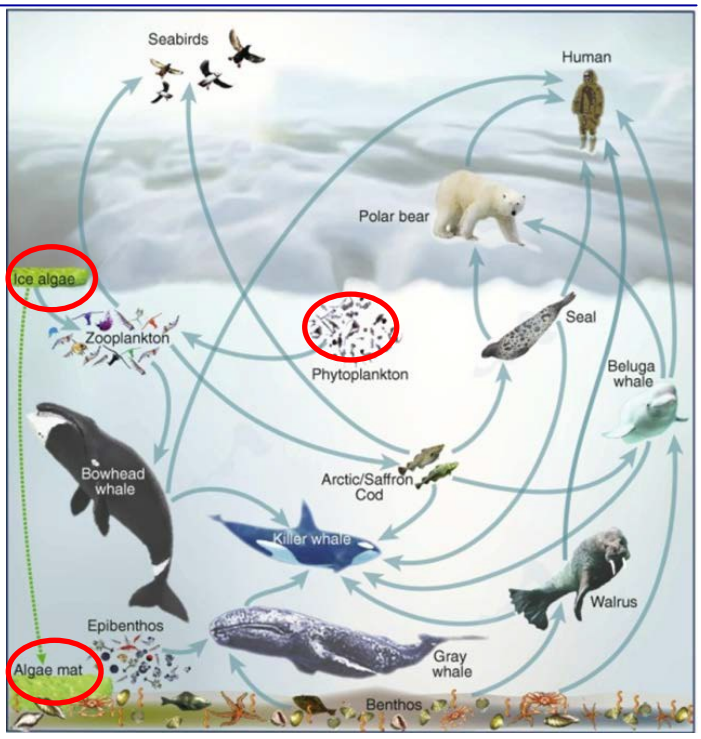
What can YOU do?

- **REDUCE** Choose "plastic-free" disposables, like paper plates and cups, paper straws, wooden stirrers
- **REUSE** Use reusable containers
- **RECYCLE** Sort recyclables
- **PROPER TRASH DISPOSAL**
  - Put trash in trash containers
  - Participate in community Clean-Ups
- **EDUCATE** Talk to family and friends
  - Community initiatives

Harmful Algae Blooms or HABs

The NSB-DWM collected fecal samples from bowhead whales harvested in 2006-2011 and from ringed and bearded seals in 2007-2016 to be tested for evidence of Harmful Algae Biotoxin, or HABs, exposure. These findings were part of a statewide effort to better understand the prevalence of algal toxins in Alaskan marine mammals. The biotoxins domoic acid (DA) and saxitoxin (STX) are produced by algae and transmitted through the food chain. A large amount of biotoxin can enter the environment and be taken up into the food chain during algae "blooms." Some blooms are visible as "red tides," and blooms often occur as the water is warming in the spring or summer when nutrients and sunlight "suddenly" become available.

Very small quantities of DA and STX were found; however, the amounts were far below the FDA limits and are NOT a food safety concern. Levels of DA were slightly higher in ringed seals than in bearded seals which is probably due to the difference in diets, as they feed more on fish. Both levels were below FDA limits and not a safety concern. Another interesting finding was a very small level of DA found in a mummified ice seal from the 1940s, indicating that these biotoxins are not new.



Arctic food chain showing ice algae, benthic (bottom) algae mats, and free-floating algae (phytoplankton). (from Moore and Stabeno, 2015)

The effect of these algal toxins on bowhead whales is not known, and we are trying to better understand trends in these biotoxins over seasons and years. As the ocean warms, increases in algae blooms are expected, and we will continue to monitor biotoxin levels in marine mammals as the climate continues to change.

For more information, you can go to our website (www.north-slope.org/departments/wildlife-management/studies-and-research-projects/health-assessment-of-subsistence-resources/other-health-studies#HAB) or contact our office.

Radionuclides and Fukushima

In response to NSB residents' concerns after Japan's Fukushima disaster in 2011, we have been collecting muscle (meat) from subsistence-harvested and stranded marine mammals, and have been testing them for man-made radionuclides, or radioactive elements. The common long-lived, man-made radionuclide found worldwide is Cesium 137 (with a half-life of 30 years) , as compared to the short-lived Cesium 134 (with a half-life of 2.5 years). Both radionuclides were released during the Fukushima nuclear plant accident; however, a detection of Cesium 134 is an indicator for Fukushima contamination. We tested for both forms of Cesium in subsistence meats as well as store-bought ground beef.

Dave Ramey placing sample in the Food Guard Screening System.

Cesium 134 has NOT been detected in any of the marine mammals tested. Cesium 137 has been detected at very low levels, ranging from 2.9 to 5.5 Bq/kg (Bq = Becquerel, or unit of measure for radioactivity); however, Cesium 137 is a very common radionuclide found worldwide. For comparison, Cesium 137 was detected in store-bought ground beef from 7.28 to 8.67 Bq/kg. So, the common Cesium 137 levels in marine mammals are lower than store-bought beef, and are much lower than the USDA food safety level of 1200 Bq/kg and the Japanese food safety level of 100 Bq/kg.

To recap, there has been no detection of contamination by Cesium 134 from the Fukushima disaster, and only the commonly found Cesium 137 at very low, safe levels. Meat consumption is safe according to the USDA and you may follow your customary and traditional practices.

As of March 2019, Fukushima radiation has been detected in the northern Bering Sea waters, although in very small quantities, well below any safety concerns. You can read more about these results here: www.nomenugget.net/news/slight-uptick-cesium-137-heralds-arrival-fukushima-plume-northern-bering-sea. We continue to monitor marine mammals in our region for radionuclides. Please call NSB DWM at 852-0350 if you have any questions.

North Slope Borough
Department of Wildlife Management
P.O. Box 69, Utqiaġvik, Alaska 99723
Phone: (907) 852-0350 Fax: (907) 852-0351
www.north-slope.org/departments/wildlife-management
Director: Taqulik Hepa
Deputy Director:

CHECK OUT OUR NSB- DWM WEBSITE!

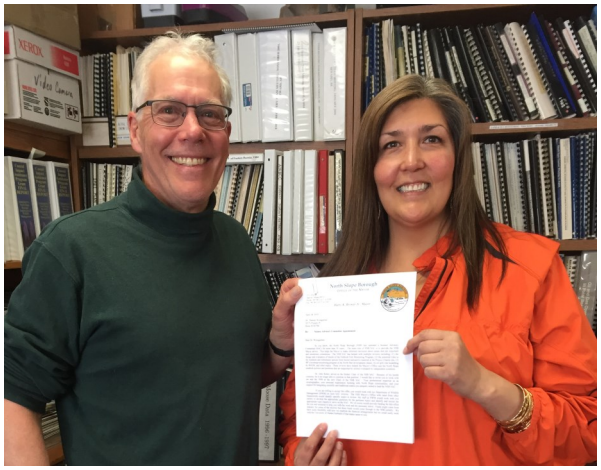
We thank the NSB Assembly and Mayor Brower for their continued support. ***Quyanaqpak!***

BECOME AN NSB-DWM FACEBOOK FAN!

Renewed Science Advisory Committee for NSB

The North Slope Borough's Science Advisory Committee (SAC) has recently been re-invigorated. The SAC serves at the discretion of the NSB Mayor and has provided independent scientific advice to the Mayor for many years on a variety of topics. These topics included: monitoring impacts on important subsistence fish species from the Endicott Causeway, evaluating possible impacts from radioactive waste buried at the Project Chariot site, reviewing plans for monitoring impacts to bowhead whales from activities at the Northstar Development Island, and a variety of other topics.

Dr. John Kelley, professor emeritus at the University of Alaska Fairbanks, served for many years as the SAC Chair but needed to recently step down. Therefore, Mayor Harry K. Brower, Jr. has appointed Dr. Thomas Weingartner to be Chair of the NSB SAC. Tom spent most of his professional career at UAF as an oceanographer. He contributed in many ways to our understanding about the currents and water movements of the Chukchi and Beaufort Seas. That information has provided important insights into how water movements affect the animals living here. He also served as an independent scientist on the steering committee for the NSB/Shell Baseline Studies Program. Tom recently retired from UAF but will be partially supported by UAF as he takes on the role of SAC Chair. Pictured is Dr. Weingartner receiving his Mayoral appointment letter from Director Taqulik Hepa. We thank John for his many years of service and thank Tom for his willingness to step into the role as Chair.



Tom Weingartner and Taqulik Hepa with Tom's NSB Mayoral appointment letter.

There are several topics that the SAC may review next, including monitoring at Northstar, air quality monitoring across the North Slope, or how to assess cumulative impacts.

Welcome to Wildlife and Congratulations!

A big welcome to our new employees Jonathan Aiken, Jr., Subsistence Research Coordinator; Hattie Aishanna, Subsistence Research Assistant for Kaktovik; Larinda Danner, Executive Assistant; JakyLou Olemaun, Subsistence Research Assistant for Utqiaġvik; and Michael R. Tuzroyluk, Subsistence Research Assistant for Point Hope.

We also have some changes for current employees. Congratulations to Carla Kayotuk, our new Subsistence Research Coordinator. Carla oversees the Subsistence Documentation Program among other duties. We also congratulate Nicole Kanayurak as our new Deputy Director. Nicole has been and will continue to be instrumental in assisting with co-management organizations and subsistence policy.