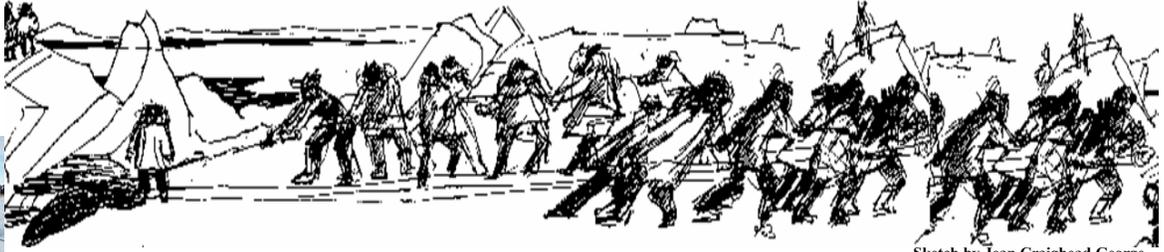




North Slope Borough Department of Wildlife Management



Sketch by Jean Craighead George

FALL 2019

THE TOWLINE

VOL 11 NO 2

From the Director

Congratulations on the successful fall fish and caribou harvests, as well as the fall bowhead harvests in Kaktovik and for the Nuiqsut whalers on Cross Island. As this goes to press, Utqiagvik whalers continue to wait for the bowheads to migrate west, ready and prepared for the “gift of the whale.”

Breaking records for high temperatures during the spring, summer and fall of 2019, along with changes in sea ice, is affecting all of us on the North Slope. Along with the shifting climate come new and rarely seen animals and plants. Please let us know if you

see any unusual mammals, birds, fish or plants. Sending a photo always helps for identification. We keep records of these sightings to monitor the changes.

Remember that your Department of Wildlife Management is here to assist with any questions or concerns on the health of your harvest, whether marine mammal, terrestrial mammal, bird, or fish. You can email photos and/or mail samples to us and we will get the information back as timely as we are able. Please call us at 852-0350.

Qnyanaq, Taqulik Hepa

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Employee of the Month - Larae Agnasagga

Larae Agnasagga, DWM Subsistence Research Assistant in Wainwright, was awarded Employee of the Month for the NSB for October 2019. Larae has worked for DWM since 2017 and is responsible for surveying her community members on their subsistence harvest. She has gone above and beyond her role as a surveyor by tirelessly heading out to harvested bowhead whales in Wainwright to collect important samples and data needed for our bowhead research projects. She makes sure the information collected is complete and accurate and has put in many hours doing this, along with keeping up with her other duties and helping out her own whaling crew.

Throughout the summer, Larae was very helpful in reporting information on wildlife activity in and around Wainwright and checking on wildlife concerns for residents. She is self-motivated, conducts her duties timely and accurately and communicates well with colleagues. Larae demonstrates a willingness to learn, takes the initiative to collect samples, and takes advantage of trainings with biologists whenever possible. She conducts these activities with professionalism in working with whaling captains, hunters and researchers.

We are lucky to have a dedicated employee working with Wildlife in Wainwright. Congratulations, Larae!



Fish Study at TIKIQAQ by Todd Sformo

The NSB-DWM began a baseline fish study in Tikigaq, or Point Hope, in response to requests from Point Hope members of the NSB Fish and Game Management Committee to find out what was happening with the fish in the area. Our main objective was to document what fish use the area as well as collect aquatic habitat data to begin to describe fish use of the ecosystem and their habitats. We also aim to identify primary species harvested by Tikigaq residents and evaluate sampling areas for potential long-term studies.

In August 2018, Todd Sformo, Tariek Oviuk, and Craig George of NSB-DWM and Bill Morris of Owl Ridge Natural Resource Consultants, Inc, set fyke nets in the *Tasiq* at Marryat Lagoon. Overall, we caught nearly 5,000 fish from fifteen species, most 6” or less in length. In August 2019, Todd Sformo, Michael Tuzroyluk, and Leandra de Sousa of NSB-DWM and Marguerite Tibbles of Owl Ridge, set up fyke nets at the same locations and caught over 8,000 fish from nine species. In both years, we fished for approximately four days, and in both years the catch was dominated by *Kakalisauraq* or three-spine stickleback. Below is a table showing the fish caught in both years.

We had the opportunity to measure water conditions near *Siiṃa*, the single opening of Marryat Lagoon. Saltwater makes its way into the lagoon from the Chukchi Sea, while Kuukpak River water flows toward the sea, all mixing in the brackish lagoon. In 2018, we recorded the classic example of sea water layering or “stratification” due to difference in density whereby freshwater ‘floats’ on top of saltwater. At the surface, the water temperature was about 50°F, and salinity was 4.2 parts per thousand (ppt), which is basically fresh-



FISH DISSECTIONS BEING CONDUCTED IN TIKIQAQ IN 2018 WITH TODD SFORMO, BILL MORRIS, AND TARIEK OVIUK (LEFT TO RIGHT).

water. Approximately, 10 to 12 feet below that surface, water temperature was still 50°F, but salinity jumped to 27 ppt, much closer to pure seawater (which is about 35 ppt). This was not the case in 2019. The water temperatures remained near 50°F; however, due to the heavy rains, we recorded salinity of about 1.5 ppt at all depths, indicating that the water column was mixed, not stratified or layered. Changes in water temperature and/or salinity could affect the presence of some species of fish.

A method of shoreline fishing is unique to Tikigaq as the water is quite deep just off the beach near the village. A long pole with a float at the end, called a *kiammutaq*, is used to thrust a weight attached to a line for pulling the net offshore. The line runs through a swivel on the weight allowing the fisher to pull his net some 50 feet offshore into deeper water. The net is secured at an angle in part to resist the strong current. We hope to include subsistence fisher surveys in the future to document species used for subsistence in that area.

We presented our results to the community of Tikigaq at the NSB Fish and Game Management Committee meeting this September and asked for feedback and questions from the residents. We hope this study will become long-term in order to follow the trends in the Tikigaq fishery.

Type of Fish Caught		Number of Fish Caught	
Iñupiat Name	English Name	2018	2019
Nataaḡnaq	Arctic flounder	136	147
Tiipuq	Bering cisco	1	0
Iqalukpik	Trout/Char	4	0
Kanayuq	Fourhorn sculpin	15	3
Pikuktuuq	Humpback whitefish	1	0
Uqsruqtuuq	Pacific herring	2	0
Iqalusaaq	Least cisco	80	3
Kakalisauraq	Nine-spine stickleback	28	6
Amaqtuuq	Pink salmon	22	1
	Pond smelt	167	6
Ilhuaḡniq	Rainbow smelt	19	9
Siuluraq	Sand Lance	10	0
Uugaq	Saffron cod	283	2391
Nataaḡnaq	Starry flounder	3	0
Kakalisauraq or Kakiljasak	Three-spine stickleback	3951	6022
Total Fish Caught		4,722	8,588



AT PT. HOPE IN 2019 WITH MARGUERITE TIBBLES, MICHAEL TUZROYLUK, LEANDRA DE SOUSA, AND TODD SFORMO (LEFT TO RIGHT).

Iñupiaq Matching

Draw a line from the *Iñupiaq* name to the English name for *Snow Terms*

Agniq	Damp Snow for Snowballs
Apun	Dry Snow Storm
Apuyyaq	Falling Snow
Auksalaq	Firm Snow for Snow House
Illuksi	Hard, wind-blown Snow
Immaktinniq	Ice Crystals in the air
Irriqutit	Low blowing Snow
Masallak	Rapidly melting Snow
Natigvik	Slushy, wet Snow
Nuturuk	Snow Blindness
Piqsiq	Snow Block Shelter
Qannik	Snow Drift
Qimuagruk	Snow Knife
Saviuraqtuun	Snow on the Ground
Silliq	Wet Snow Storm

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

Apun

*Can you draw a picture of these types of snowdrifts?
 Read the description, and draw the snowdrift as if
 you were looking at it from the side.*

1 **Qayuqłak** or Sastrugi: snowdrift that looks like a ripple on the surface of the snow; usually about 3 feet long. Show the prevailing wind when navigating.

2 **Aniuvauraq** or Barchans: snowdrift with a sharp downwind side and a more gradual incline on the upwind side; usually about 6 feet long or so.

3 **Agiuuraq** or Whaleback: snowdrift in the shape of a whale back; usually about 30 feet long.

4 **Aniuvak** or Snowbank: snowdrift filling a gully; could be used by a female polar bear as a den.

Apun Facts

Did you know that?

- ◆ Snow cover forms a “blanket” to keep plants and small mammals such as lemmings warm during the winter. Lemmings live in the snow layer just above the ground, digging tunnels, and making nests and food caches. Snow cover also protects plants from drying out.
- ◆ Caribou have wide hooves and wolves have wide paws in order to run over the top of snow drifts.
- ◆ Snowflake crystals are always hexagonal-shaped.
- ◆ Snow cover insulates the sea ice - slowing its formation, and slowing its melting.
- ◆ *Pukak* is granular snow found under hard packed snow, and it is good to melt for drinking water.

Reference: Sturm, Matthew. 2009. *Apun, the Arctic Snow*. University of Alaska Press, Fairbanks, AK.

Indigenous Knowledge and Western Science for Ice Seals

As the climate warms, Alaskan Native peoples in the Arctic face changes in access to culturally and nutritionally important subsistence species—potentially impacting community health. Indigenous Knowledge (IK) contains a wealth of information gained by Alaskan Native peoples over generations through daily interactions with and observations of animals and their habitats. Though wildlife management agencies are starting to require that IK be considered alongside western science in the decision making process, it has been a challenge to meaningfully integrate these two systems of knowledge.

This project, carried out by University of British Columbia student Rowenna Gryba, NSB-DWM biologist Andy Von Duyke, and social scientist Henry Huntington, is developing an analytical framework that combines IK with western science to characterize animal behavior and habitat use. As a case-study, we are merging both IK interview data and satellite tracking data on ice seals in Alaskan waters. Our ultimate goals are to improve the understanding of ice seal biology and to demonstrate the value of integrating IK with western science.

In order to meet these goals, we will:

- Document IK on ringed, bearded, and spotted seal movements, habitat use, and behavior.
- Use Bayesian statistics to combine IK with western science into more fully informed biological models.
- Assess how well this new approach works based on feedback from IK holders.

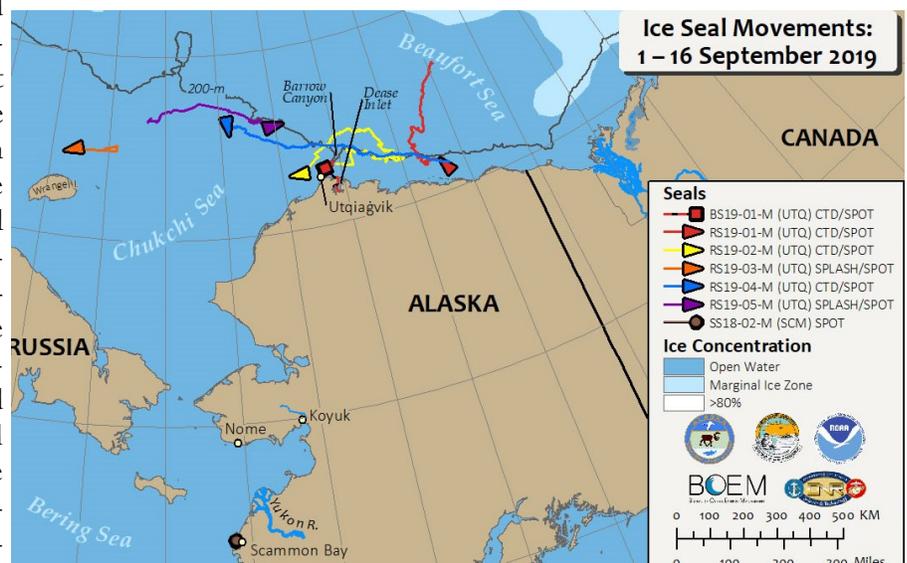
IK holders will be interviewed using a conversational style that focuses on seal behavior and habitat use. The information shared by the hunters will then be combined with western science to develop more fully informed models of ice seal movements, habitat use, and behavior. Finally, verification by IK holders will be sought to ensure that the understanding and use of their information was done correctly, and that it fully reflects their shared knowledge. Results will include maps of seal habitat use and behavior that were created by incorporating IK and science.



HENRY HUNTINGTON INTERVIEWING HUNTER QAIYAAN HARCHAREK.

This project fills an important gap in efforts to better understand animal movements, habitat use, and behavior. This approach also lends itself toward application to other animal and plant species throughout Alaska and globally. By seeking to improve the information on which management decisions are made—such as including IK in a meaningful way—this work acknowledges the value of the information held by Alaskan Native users of the resource.

Our team will travel to Point Hope on November 4-5, and is seeking help from active seal hunters to participate in this project. Individual participants will take part in a preliminary interview and a follow-up interview to document their knowledge of ice seal movements, habitat, and behavior. All participants will receive an honorarium. The results of this project will be available in a future report to NSB residents. This project is funded mostly by the North Pacific Research Board and partly by the U.S. Marine Mammal Commission.



RECENT MAP OF TRACKS FROM SATELLITE-TAGGED ICE SEALS.

Arctic PARS or Port Access Route Study

The US Coast Guard put out a call for public comment on how to manage commercial shipping in the Chukchi and Beaufort Seas. These guidelines are intended to help them manage large vessels going through the Arctic, ensure safety for our communities, and mitigate impacts to subsistence hunting. The measures are to specify where ships should go and regulate the traffic by establishing measures such as areas to be avoided, no anchor areas, and speed limits. We need your help and input on thinking about specifying ship routes and other measures you would like to see for shipping to protect subsistence hunting areas and places/times important to the health of animals.

We, the North Slope Borough Department of Wildlife Management and the Alaska Eskimo Whaling Commission, would like your input to

develop comments to the US Coast Guard. We are visiting all coastal North Slope communities this fall. If we have already visited your community we encourage you to submit the questionnaires presented at the meeting if you have not already. You can submit your comments to Nicole Kanayurak by calling 852-0350. Below are dates of PARS meetings (proposed for November):

Point Lay: September 5, 2019

Point Hope: September 24, 2019

Wainwright: October 10, 2019

Nuiqsut: November 5, 2019

Kaktovik: November 14, 2019

Please see the link below for more information on the Arctic Port Access Route Study.

<https://www.federalregister.gov/documents/2018/12/21/2018-27604/port-access-route-study-alaskan-arctic-coast>

Below: PARS Meeting in Point Lay in September 2019



Traditional/Indigenous Knowledge Panels

An important guiding principle for the DWM is to use Traditional Knowledge or Indigenous Knowledge (IK) and science together. IK and science come from different perspectives but together they are very powerful. For example, IK and science were used together to improve how bowheads were counted. When the DWM took over the bowhead census from NOAA, whaling captains told us that we were not counting all of the whales, that we were not doing it right. We needed to figure out how to count whales that were swimming under the ice and those that were beyond visual range. By listening to the whalers, the DWM biologists and others were able to develop a useful approach, using underwater microphones or hydrophones, to listen to and reliably count bowhead whales. The results of that work have scientifically supported what the whalers always knew, and it helped to justify the AEWK's quota requests at the International Whaling Commission.

The DWM is working with the Bureau of Ocean Energy Management (BOEM) to further expand situations where IK and science are being used together. BOEM has provided funding to the NSB to develop IK Panels to improve scientific studies that are important for an improved understanding of oceanography, biology, subsistence and possibly other topics on the North Slope.

We are beginning by setting up a panel to inform a nearshore ecology study in the eastern Beaufort Sea near Kaktovik. Dr. Ken Dunton, from the University of Texas, has been working with Kaktovik for years on several of his studies. His recent study near Kaktovik will gather data to better understand how the ocean influences the biology of coastal areas. We anticipate a panel will meet during the winter, spring and summer of 2019/2020 to discuss how Indigenous Knowledge can improve Dr. Dunton's study. For more information about the panels please contact Robert Suydam at 852-0350.



**North Slope Borough
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 Deputy Director: Nicole Kanayurak



**ECRWSS
BOXHOLDER**

CHECK OUT OUR
NSB-DWM [WEBSITE!](#)

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

FIND NSB-DWM
ON [FACEBOOK!](#)

Dr. Craig George Retires!

Dr. John Craighead “Craig” George has worked as a Wildlife Biologist, and later Senior Wildlife Biologist, with the North Slope Borough Department of Wildlife Management in Barrow for nearly four decades. Craig earned a B.S. in Wildlife Biology from Utah State University in 1976 and came to Barrow to work at the Naval Arctic Research Lab (NARL) as an animal caretaker in 1977. Hired by NSB in 1982 to work full time with Dr. Tom Albert, Craig worked on and later coordinated the bowhead whale ice-based population count near Point Barrow. He conducted many examinations of harvested whales, collecting measurements and samples and, most importantly, learning from whalers such as Harry Brower, Sr., Ralph Aveoganna, Nate Neakok, Burton Rexford, Warren Matumeak, Ben Ahmaogak, Amos Lane, Rossman Peetok, Kenneth Toovak, Malik Ahkivgak, and many others.

His work, which led to the completion of his Ph.D. from University of Alaska Fairbanks in 2009, on bowhead whale energetics, age estimation and morphology was shaped by the traditional knowledge that was communicated to him during his time spent with the elder whaling captains. His professional publications include a number of papers on his bowhead work, ranging from evidence of killer whale predation to structural anatomy to population biology. Craig also worked on fish studies on the North Slope, learning much about subsistence fishing from elders such as Sadie Neakok, Martha Aiken, Arnold Brower, Sr., Mollie and Noah Itta, Mary Lou Leavitt, Oliver Leavitt, Warren Matumeak, Sam Taalak and Sarah Kunaknana, and others.

Craig has attended IWC meetings supporting the AEWC since 1987,

focusing mainly on aboriginal whaling management procedures and assessments and population estimation. His contributions of knowledge and numerous publications have been especially helpful in managing the subsistence hunt of bowhead whales at local, national and international levels. His studies have produced estimates of bowhead population abundance that have been critical for setting sustainable quotas that also meet the nutritional and cultural needs of many subsistence communities. At the International Whaling Commission, the bowhead science program and management of the hunt is recognized as the Gold Standard. This standard was established due to many people, but Craig and his contributions are at the top of that list.

Working and living in the Arctic and among Iñupiat hunters, Craig has helped establish a meaningful process, combining traditional knowledge and western science, improving our understanding and management of both marine and terrestrial environments. His respectful listening to elders and hunters and the incorporation of that knowledge into his studies has set a standard that will be hard to equal.



A young Craig in 1988

Because of Craig’s commitment we know more about bowhead whales and how they use the ocean than just about any other marine mammal in the world. His lifetime commitment to this process and learning from Iñupiat hunters and elders has resulted in knowledge being available to make informed decisions about many difficult topics, but especially those related to the ocean. Because of his almost 40 years of dedicated service, Craig knows more about bowhead whales than any other non-Inuit.

Craig and his wife, Cyd Hanns, raised their two sons, Luke and Sam, in Utqiagvik, sharing their life with friends and making this their home. Craig, thank you for your service to the NSB and the communities of the North Slope!