Welcome

Welcome to the fourth AAOKH news! In these pages we’ll share how local observers in coastal Arctic Alaska describe the rapid changes in their ecosystems. Our recap of sea ice, ocean and air temperatures will help place conditions from summer to fall 2020 in historical context.

AAOKH is excited to introduce new AAOKH students and staff, and share insights from our local observer in Tikiġaq (Point Hope). In addition to documenting local observations, AAOKH conducts several research efforts to better understand changes to the region. For example, two AAOKH observers gather ocean data to understand timing of breakup, AAOKH is partnering on a study of seal activity around summer haul outs, and AAOKH’s whaling trail mapping effort at Utqiaġvik has become a longterm record of local sea ice thickness.

What is AAOKH?

The Alaska Arctic Observatory and Knowledge Hub is a resource for northern Alaska coastal communities. AAOKH (pronounced A-OK) provides tools, resources and scientific information to share local expertise and observations of environmental change. Community-based observations focus on changes in sea ice, wildlife and coastal waters.

Also a knowledge hub for sharing data, AAOKH has three main goals:

• Share and document community observations about changes to the seasonal cycle
• Make wildlife, ocean data and information from scientists accessible to communities
• Provide resources for education and outreach

Cite this publication

**What do the observations say?**

- Close-to-normal spring conditions
- Successful spring and fall whaling
- Close-to-normal summer ocean conditions
- Successful harvesting activities
- More typical wildlife behavior
- Delayed fall freeze-up

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**Tikiq (Point Hope)**

Guy Omnik, AAOKH observer

- **April 24** My captains Russell and Andrea Lane caught the first whale in Point Hope [31 feet 10 inches]. I harpooned the whale on April 22.
- **May 9** Point Hope caught its 12th whale.

**Qikiqtarjuaq (Kotzebue)**

Bobby Schaeffer, AAOKH observer

- **June 25** This Spring was a little like the springs of old. [Sea ice] got to three feet thick and stayed that way the whole winter... it extended our hunting season and hunter success was excellent. And, the 'ugruk' [bearded seal] had nice thick blubber!
- **July 10** The salmon are here but not in large numbers... Local folks are still catching red king crab and in good numbers so they are keeping their pots out longer as the cool temperatures have not heated the water in the Kotzebue Sound like it did last year.... With the cool temperatures, the sea birds are thriving. No reports of dead birds by the locals who have been to the rookeries to harvest sea bird eggs.

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**Utqiagvik**

Joe Leavitt & Billy Adams, AAOKH observers

- **August 25** Quuniq crew is towing a whale! The steady east winds over the past few weeks have moved krill near shore and that led to a successful hunt.
- **September 13** Huge swells on the ocean, six foot [waves], no ice on the ocean, tundra is very wet. Whalers still have two whales to go... No small whales taken this fall, smallest was about 34 feet.
- **September 30** The easterly winds are back and the ocean water, was very brown, is clearing. For the past few years we experienced more west or south winds from early August into October that moved the water around and moved away small ocean life such as krill and other plankton-like critters. This changed some patterns in migratory animals like bowhead whales, which we as Iñupiat have depended on and continue to use for food. There was uneasiness from this as we had to travel much further in these past few years, many dangers and long hours, many days out at sea. The conditions this fall, beginning from August, has come back to normal-like season meaning that the bowheads, other animals like ringed seals, and seabirds have gotten closer to shore to feed on what they need as well as the Indigenous Iñupiat.

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**Kaktovik**

Carla SimsKayotuk, AAOKH observer

- **August 17** Boats out looking for whales, whale landed, whales sighted, whaling ends/quota reached.
- **October 9** Not much snow and the ponds and lakes keep melting.
- **October 15** Not much snow and the ponds and lakes keep melting.
- **October 17** Not much snow and the ponds and lakes keep melting.
- **October 19** Not much snow and the ponds and lakes keep melting.
- **October 21** Not much snow and the ponds and lakes keep melting.

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**Where do AAOKH observations go?**

AAOKH observations focus on sea ice, wildlife and coastal waters. They contribute to, and are stored in, a National Science Foundation-funded database housed by the Exchange for Local Observations & Knowledge of the Arctic database (eloka-arctic.org/sizonet). Since 2016, AAOKH observers have contributed about 4,500 community-based observations. These are combined with the historic Seasonal Ice Zone Observing Network database (2006–2016) for a total of over 9,000 local observations.
Using AAOKH observations in local decisions

Krista Heeringa is the newest staff member at AAOKH. She was born and raised in Fairbanks and holds an undergraduate degree at UAA in Political Science, and a master’s degree at UAF in Rural Development. Krista spent many years working with Tribes in interior Alaska, first as a community planner for Tanana Chiefs Conference and then as the coordinator for the UAF program, Community Partnerships for Self-Reliance. These experiences began an ongoing education on how to see and respect the people and place she was born.

Krista is grateful for the opportunity to learn from the diverse Indigenous communities across Alaska, and is looking forward to working collaboratively with AAOKH observers. Her work will help determine how observations can be used to support local decision makers as they respond to challenges from climate change in their communities.

An update from AAOKH’s students

Mik’ (Elizabeth) Lindley (left photo) is a graduate student studying salmon in the UAF College of Fisheries & Ocean Sciences. She is Yup’ik from Bethel and grew up on the Kuskokwim River.

Mik’s research explores questions about the increasing number of Alaska salmon moving into Arctic waters. Through AAOKH, she hopes to understand salmon ecology and how Arctic communities perceive salmon trends.

She is interested in hearing salmon observations and any questions or concerns community members have about salmon. This input helps Mik develop a more holistic understanding of Alaska’s salmon, and ensures she captures community values and priorities in her research.

Kimberly Kivvaaq Pikok (right photo) is a UAF undergraduate student studying Wildlife Biology and Conservation. She loves spending time at her family’s cabin up in Utqiagvik, learning about the land, vegetation, and wildlife from her dad and brother. She is interested in outreach and environmental education and hopes to encourage more Indigenous youth to be involved in STEM (Science, Technology, Engineering and Mathematics) programs and careers.

AAOKH’s graduate student Roberta Tuurraq Glenn, introduced in the spring 2019 newsletter, continues to study coastal erosion. She was recently mentioned on ABC news saying, “the environment is changing and our people are intimately familiar with that change, our livelihoods depend on being able to navigate these changes every day. And that’s what we do and that’s what we’re going to continue to do.”

Studying seal haul outs

In summer and fall, spotted seals come out of the water and rest on sandbars, spits and islands between multi-day foraging trips. This behavior is known as “hauling out.” In August 2020, AAOKH’s Donna Hauser partnered with Andrew Von Duyke and others at the North Slope Borough-Department of Wildlife Management to place game cameras overlooking two spotted seal haul outs near Smith Bay and Dease Inlet, both east of Utqiagvik. The cameras will help explain how often and how many seals haul out. This information, along with weather stations at each location, may show if seals are more likely to haul out during certain weather conditions.

This research is conducted under National Marine Fisheries Service General Authorization No. 23546 and Bureau of Land Management Land use permit FFG97621. These permits ensure that appropriate actions are taken to reduce impacts to marine mammals and lands during research.

Observer corner

Guy Omnik has been an AAOKH observer in Tikigaq (Point Hope) since 2019. He describes himself as an avid outdoorsmen. “I love to hunt and was fortunate to have people to teach me from a very young age.”

How did you get involved with AAOKH?

Guy learned about AAOKH through the Facebook page. He enjoyed seeing how the observations from other communities compared to changes he observed while fishing and hunting near Point Hope. “[We’re seeing a] big change in temperature, change in freeze-up, coastal erosion... we started seeing the whales earlier and earlier every year.” When AAOKH’s observing position in Point Hope came open, Guy contacted AAOKH about becoming the next observer.

Why is this work important?

Guy emphasized that the observations recorded by AAOKH are an important tool for the future. “We can look back on these observations in years to come... [we can] compare if there are any dramatic changes.”

Something you might not know about Guy?

Guy loves to take pictures that document the changes he observes in Point Hope. Many of his photos are shared on the AAOKH Facebook page and throughout this newsletter.

Guy was recently interviewed on Native America Calling. He said, “global warming is happening. It is affecting different villages in different ways.”
Sea ice extent 2020

Sea ice melt was slower this spring than 2019, but still earlier than the historical average. While there was open water as far north as Point Barrow by the start of June, high concentrations of ice persisted until mid-month. Unlike 2019, early summer saw Chukchi Sea sea ice retreat far to the north of Alaska, but Beaufort Sea ice held and extended more than 100 miles northeast of Kaktovik.

Air temperature

Air temperatures in late spring and early summer were generally above normal, followed by six week of cool weather from late June into early August. Sustained above normal temperatures (compared to the long term average) prevailed again during late summer and through the autumn. This pattern was consistent across Arctic Alaska and can be seen in this graph showing when temperatures at Qikiqtarjuaq and Utqiagvik were above or below normal.

Ocean temperature

In early summer, ocean surface temperatures were a patchwork, with warm and cool areas (relative to the long term average) mostly in response to the timing of sea ice melt. As typically happens, during the course of the summer the warm and cool pockets evened out. By late summer most of the Bering and southern Chukchi Seas were warmer than average, but significantly cooler than 2019. Kotzebue Sound was one of the warmest (compared to normal) areas. In contrast, sea surface temperatures were close to normal near Kaktovik as well as around Saint Lawrence Island north to the west side of the Bering Strait.

Ocean & sea ice data

Salinity and breakup

These graphics are known as water profiles. They are created based on numerous water samples gathered by AAOKH observers in Qikiqtarjuaq (Kotzebue) and Wainwright in spring 2020. These profiles help us understand the timing of breakup by showing how the salinity of the ocean changes as the sea ice and nearby rivers break up in spring.

1. A science instrument called a CTD sensor is used by the AAOKH observers to sample the water. The sensor measures the temperature and salinity from the surface of the ocean down to the seafloor.
2. In winter the CTD sensor is lowered through a hole in the ice or off the edge of the shorefast ice.

Qikiqtarjuaq (Kotzebue)

Water sampled by Vincent Schaeffer in Kotzebue Sound was much moister than seawater since the Noatak, Kobuk and Selawik rivers dump into the enclosed sound.

- While there was still ice cover, salty water entered Kotzebue Sound likely from the Bering Sea pushed by strong 20+ mph winds on March 17–20.
- Lots of fresh water entered the sound, likely from the Noatak, Kobuk and Selawik rivers as they broke up.
- Kotzebue Sound broke up on May 25.

Wainwright

Steven Patkotak took the water samples at Wainwright in an area exposed to the open ocean and the water was much saltier until just before breakup.

- As the ice started to melt, fresh water formed a thin lens just below the sea ice.
- A deep layer of fresh water formed, likely from the Kuk River as it broke up.
- Sea ice break up occurred on July 1.

Mapping whaling trails at Utqiagvik

Each spring AAOKH maps trails across the shorefast ice used by Utqiagvik whalers to access the ice edge during hunting. Whalers use the maps in three ways:

1. See what type of ice (flat ice, rubble ice or unsafe thin sections) to expect before traveling over the sea ice.
2. Learn where other crews are located and direct community members to whale harvest locations.
3. As a resource during search and rescue efforts.

These trail maps have been created since 2007 and now provide a longterm record of spring sea ice thickness and ice edge location at Utqiagvik. Use the graph below to compare the ice thickness on the trails during the past four years. In 2020, AAOKH scientists Josh Jones and Matt Druckenmiller were unable to travel to Utqiagvik because of COVID-19, so AAOKH’s local partner Craig George from the North Slope Borough Department of Wildlife Management mapped the trails.
AAOKH has six active local observers in five coastal Arctic Alaska communities. These individuals share their expertise related to changes in the seasonal cycle, playing an important role in understanding Arctic Alaska’s changing environment. Observer and science team activities are guided by a volunteer steering group composed of local Indigenous advisors from coastal communities and University of Alaska Fairbanks scientists. The group ensures that AAOKH provides useful tools and resources for northern Alaska coastal communities.

AAOKH in COVID times
As the COVID-19 global pandemic extends into 2021, we are particularly grateful for the sustained efforts and dedication of our observers and community partners. Their work allowed AAOKH projects like the sea ice trail mapping and seal monitoring to continue. Community health and safety remain among our top priorities, so our UAF-based staff maintain a focus on virtual and telephone communications to avoid any potential virus spread due to travel.

Please reach out if you have ideas or questions to support your community during these challenging times.

Connect with us
There are many ways to get involved in AAOKH. Whether you are a community member, local expert, teacher or student we need your help documenting the changing seasonal cycle in your community.

Keep up to speed on AAOKH observations, findings, activities and events by connecting with us online or by phone!