Dr. Donna Hauser

- Raised in Alaska
- Marine biologist & research professor at UAF International Arctic Research Center
- Science Lead for the Alaska Arctic Observatory & Knowledge Hub (AAOKH)
AAOKH Observer Billy Adams discusses ice conditions near Utqiaġvik. Photo by D. Hauser
Sustained, year-round community-based observing

K-12 education & outreach

Coastal erosion

Ocean conditions & storm surge

Measuring snow & sea ice thickness

Mapping whaling trails & ice thickness

Measuring ocean temperature, salinity, productivity

Marine wildlife observations

AAOKH (arctic-aok.org) • International Arctic Research Center
AAOKH priority areas

1. Sustain & support local Indigenous observers to share their knowledge and document environmental changes

2. Create educational opportunities for the next generation of Indigenous leaders & scholars

3. Provide services & info to support local and community priorities

Photo: 13 April 2022, Guy Omnik, Tikiġaq (Point Hope)
Engaging future leaders & scientists

Roberta Tuurraq Glenn
UAF MS, Geosciences

Mik’aq (Elizabeth) Lindley
UAF MS[soon PhD], Fisheries

Kimberly Kivvaq Pikok
UAF MS, Interdisciplinary Studies
Personal Introduction

- Roberta Tuurraq Glenn
- AAOKH Graduate student from Utqiaġvik

Documenting Coastal Change and Community-Based Observations in Alaska Communities
- Develop relevant data products which communicate and support community priorities
- AAOKH StoryMap
Example observation from Billy Adams in Utqiagvik (01/16/2020)

Transcript
Location between Nuvuk and Nuvugaluak about 1/2 mile out, temperature 4f, light south winds, clear, and visibility to 5 miles. You can see young ice forming 25-50 feet of it near the main safe ice, it started as qinnu 1/4 inch then next 2 days 2 inch thick enough to support a bear and even me. hahaha

Observation source(s):
- Email communication

Sea ice related activities
Hunting
Activity: Hunting on sea ice

Sea ice observations
Shorefast Ice Thickness:
Approximately 2.0 inches

Native sea ice terms:
qinnu

Shorefast Ice:
Shorefast ice growing/extending out
Shorefast ice is thickening
Young ice freezing in place

Annual Cycle:
Ice thick enough to walk on

Weather
Air temperature:
Approximately 4.0 Fahrenheit

Visibility:
Approximately 5.0 miles

Skies:
Clear

Wind Speed:
Light

Wind Direction:
S

Game and Wildlife
Marine Mammals:
Seal (Taken)

Birds:
Long tailed duck (old squaw) (Sighted)
AAOKH StoryMap: How and Why

- Direction from AAOKH Steering Group meeting
- Impacts to *subsistence activities, travel access* and *community infrastructure*
- Database search
- One-on-one conversations with observers
- Supporting instrumental data
- Reasoning behind StoryMap
  - Multimedia platform supports story format
  - Communicate local narratives of change
  - Identify local impacts

Photo: January 7, 2020, Guy Omnik, Tikiġaq (Point Hope)
AAOKH StoryMap

- Warmer temperatures
- Changing winds
- Coastal storms, flooding and erosion
- Sea ice changes

Screenshot from AAOKH StoryMap: https://storymaps.arcgis.com/stories/30d30ab062ea4aad3b3734dd7770ae
Warm Temperatures

“We are still experiencing May temperatures in March… The night temps are cold enough to freeze the overflow on top the snow but not cold enough to freeze the water above the ice. Water on the rivers is getting deeper hindering snowmobile travel on rivers and lakes… Even if we do get a cold snap, it is just too late in the year to get cold enough to affect the sea ice.”

- Bobby Schaeffer, Qikiqtarjuaq, March 14, 2019

Bobby Schaeffer on lack of sea ice in Kotzebue Sound in 2019. (Recorded in March 2021)
Winds

"When you look out over the open tundra you can see a lot of brown again, the strong winds blew a lot of the snow away again. The lagoon ice is covered in a thin layer of dust from the winds blowing the sand from the beaches."

- Carla SimsKayotuk, Kaktovik, January 16, 2020

Carla SimsKayotuk on low snow cover around Kaktovik. (March 2021)
Coastal Storms, Flooding and Erosion

"Even with fairly light winds waves are pulled to the shore and continue to erode the beach. We continue to look for ways to protect historic areas but looks like this method is not a good one, there is hope and where there is hope someone will always find a way."

- Billy Adams, Utqiagvik, August 28, 2019
Sea ice

"Very flat ice everywhere. The southerly winds have made the water level rise as you can see a crack and the wet snow reveals the dangers of rising waters. Ullit means rising waters and qaamit is the revelation of the wet snow and water on top of the ice through concealed cracks. Please take caution during this time if you should be on the ice."

- Billy Adams, Utqiagvik, January 8, 2020

Billy Adams (March 2021) on sea ice conditions affecting inter-village travel on the North Slope Community Winter Access Trails (CWAT).
Subsistence Change

“The caribou are finally moving... I hear the young bulls are still good as they have not gone into the rut yet... My net continues to produce. I have been getting a lot of white fish this fall... Yummy... There a lot of seals out front of Kotzebue. Our fall herring run must be quite healthy. In fact, hundreds of sea gulls are dive bombing herring in front right now.”

- Bobby Schaeffer, October 7, 2020, Qikiqtarjuk
Linking local observations with climate adaptation

- Community partnerships
- Local observations → local changes and impacts
  - Baseline from which to measure future change
  - Identify community priorities
- We can track changes in the sea ice, in the environment, in ecosystems and in wildlife populations which are important to Arctic/AAOKH communities

- Long-term environmental observations can begin to inform climate adaptation planning
  - Co-management strategies
  - Hazard mitigation planning
  - Subsistence impacts
Learn more

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Photo 28 September, Carla SimsKayotuk, Kaktovik
Quyanaqpak
Thank you!