

Caribou and Sea Ice Crossings

Project Summary Report: 2018 – 2020



Hello! My name is Emmelie and I am a student at Carleton University in Ottawa, ON.

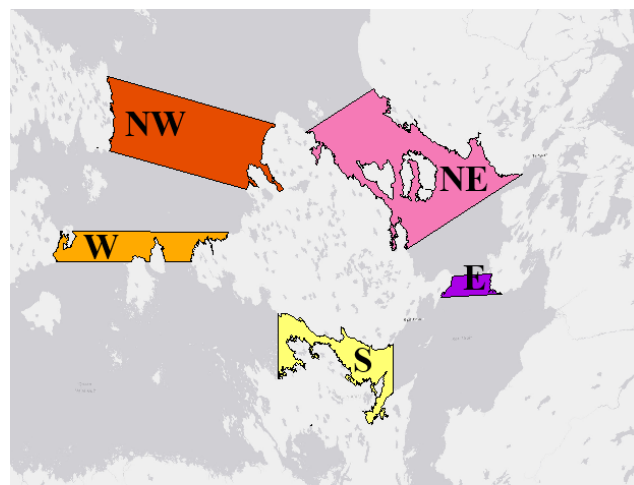
In September 2018 I visited Uqsuqtuuq as a part of my Master's research project. In several workshops I learned from Uqsuqtuurmiut about how and when caribou use the sea ice surrounding Qikiqtaq. This report provides a summary of what I, along with my supervisors, learned in our time in Uqsuqtuuq, and how these lessons guided our research.

Why we came to Uqsuqtuuq

This project builds on previous work led by Gita Ljubicic and Simon Okpakok, that happened between 2010 and 2016. The earlier project was motivated by an Uqsuqtuurmiut priority to learn about caribou and their connections to community well-being. Following from this project, we talked to Okpakok and the Gjoa Haven Hunters and Trappers Association about ways expand the research based on community interest. One priority identified by the HTA was to learn about the potential impacts of changing sea ice conditions and growing ship traffic on caribou sea ice crossing areas.

Over 5 workshops in September 2018 we asked about:

- When does freeze-up, and break-up occur surrounding Qikiqtaq, and what does it look like?
- When and where are caribou moving on sea ice?
- When and where ships are moving in the surrounding water?
- What could be the potential impacts of changing sea ice and growing ship traffic on caribou use of sea ice?



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NSTP



PFSN

Northern Scientific
Training Program

Programme de formation
scientifique dans le Nord

Special thanks to Simon Okpakok for his role in organizing, facilitating, and translating workshops in Uqsuqtuuq. He has been a strong mentor to me, and to everyone involved in this project.

Thank you to the all the Uqsuqtuurmiut who shared their knowledge and time with our team.

Miriam Aglukkaq
Saul Aqslaluq
Alissa Kammemalik
Betty Kogvik
George Konana
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Wayne Puqiqnak
Jimmy Qirqqut
Adam Ukuqtunnuag

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Ben Putuguq
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Ruth Qirqqut

Mary Aqilriag
Simon Hiqniq Sr.
Jacob Keanik
Simon Komangat
Nicole Kununaq
Uriash Puqiqnak
Tommy Tavalok
Salomie Qitsualik

What we learned about caribou sea ice habitat from Uqsuqtuurmiut

Elder Men

- **Concerns:** Traffic from ships lead to more areas of open water, and loose ice.
- **Sea ice habitat:** Caribou walk on sea ice 2-3 inches thick – the thickness of this ice is based on the currents in the area. Caribou do not cross on moving ice.
- **Local spaces:** In the area between Qikiqtaq and Richardson Point, the small creeks that run into the ocean decrease the amount of salt in the water – this causes earlier freeze-up.



Elder Women

- **Behaviour:** Caribou can assess the reliability of sea ice before crossing. Sometimes they go forward onto the ice and sometimes they move to other areas on the land if the ice is not stable enough. Caribou can also swim across bodies of water.
- **Movement:** Caribou need to get to Qikiqtaq in the spring to calve, because it is cooler and they encounter less insects than on the mainland. In the fall, calves and their mothers are the first to leave the island, to avoid the start of the cold season and access more vegetation.



Members of the Hunters and Trappers Association (including Elders)

- **Sea ice habitat:** Sea ice can freeze quickly, even overnight. Caribou can walk on this freshly frozen sea ice.
- **Movement:** In the fall, caribou will wait by the narrow water body south of the island. Caribou move on sea ice in large numbers right before break-up, but the numbers decrease when the leads begin to open. In the spring, cows and calves are the first to move onto the island to calve to avoid predators on the mainland.



Active Hunters

- **Behaviour:** Caribou can recover from falling into open water, but it is harder for them to get out when the ice is thicker and higher above the water surface level.
- **Sharing the sea ice:** Wolverines, wolves, and grizzly bear tracks are seen in the same areas of sea ice where caribou are moving.
- **Local spaces:** The narrow body of water south of Qikiqtaq has small areas of water that remain open year-round – likely due to the strong currents in the area.



Youth involved in Ikaarvik Barriers to Bridges Program

- **Local spaces:** Caribou can be found on small islands around Qikiqtaq, like Hat Island, for part or all the year.
- **Habitat:** Caribou do not walk on human-made things, like bridges.
- **Remembering:** The earlier caribou project talked to Elders and hunters who have now passed on. Youth talked about being grateful for the knowledge they shared in the community, and that they allowed their knowledge to be documented for others to learn beyond the community. The areas where caribou cross on sea ice have been the places of many stories, and those stories teach us about caribou.

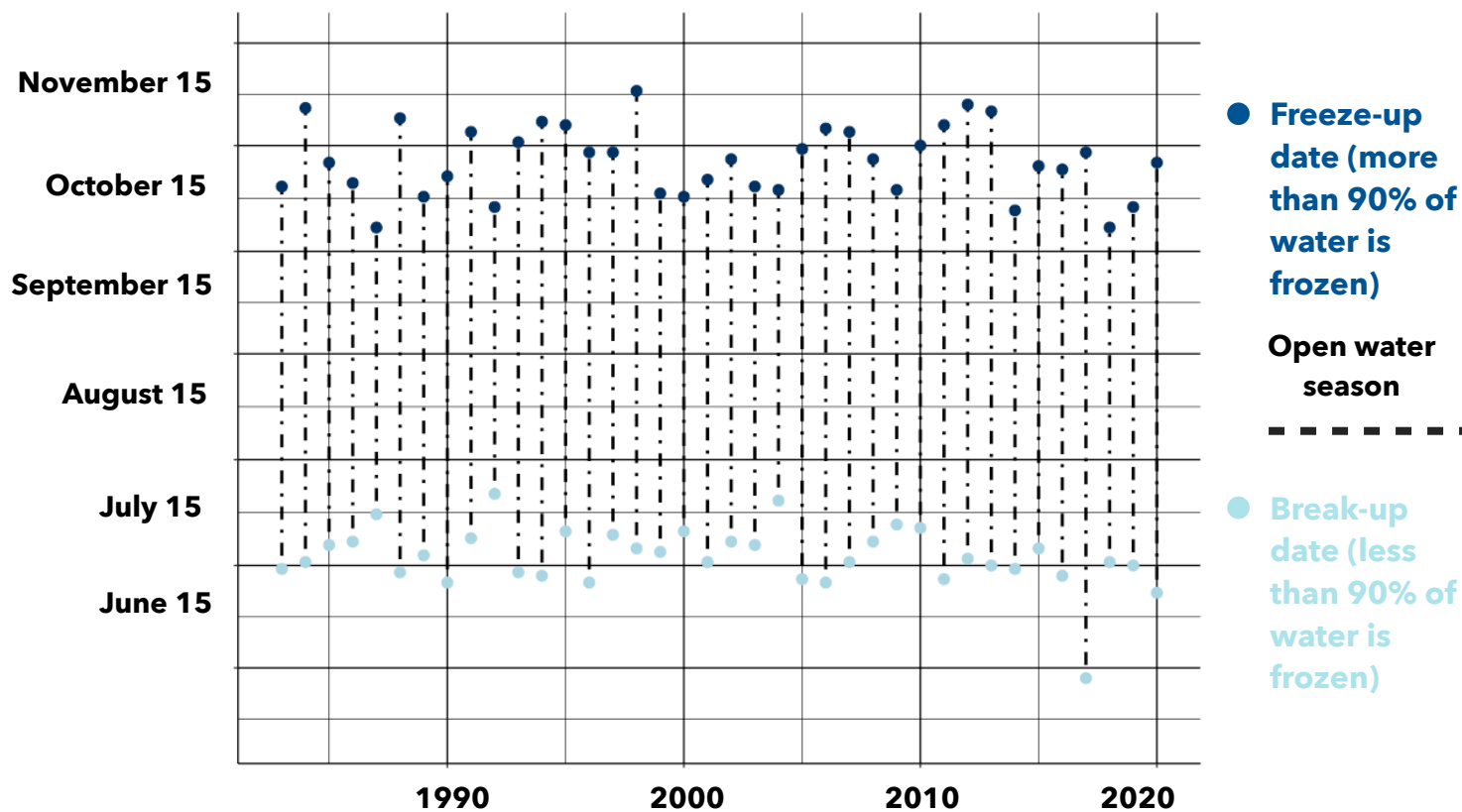


What we learned in the workshops was then used to guide analysis of sea ice charts and ship traffic records...

Are there changes in freeze-up and break-up timing around Qikiqtaq since 1983?

- Freeze-up and break-up did not show much change over time. Instead, we see that the timing of freeze-up and break-up varies between years and is different depending on the crossing area.
- The sea ice that forms south of Qikiqtaq and connects to the mainland is an important crossing area used by caribou and Uqsuqtuurmiut. This area tends to break up and freeze up earlier than other northeastern and northwestern crossings.
- The south crossing area typically breaks up and freezes up earlier than other crossings around the island, because of the low salinity of the water and the narrow extent of the area. This happens despite a strong current, but large waves do not usually form in this area.

Caribou crossing area south of Qikiqtaq



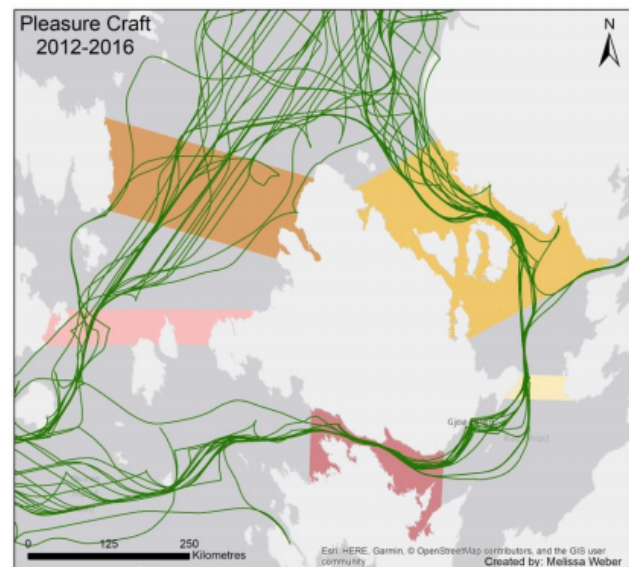
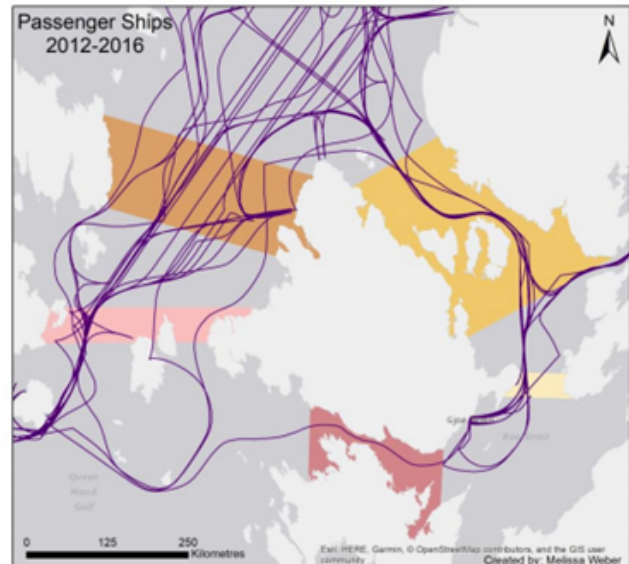
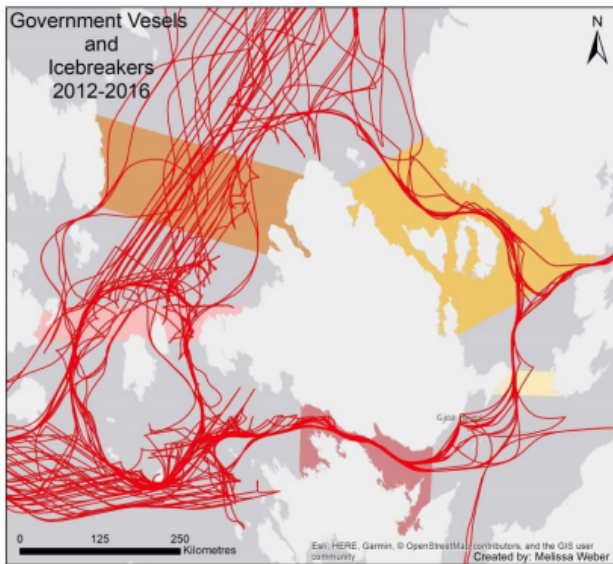
Freeze-up timing

- In the south caribou crossing area there is high variation in the timing of freeze-up, typically occurring in October to November.
- Landfast ice can often be observed at the time of freeze-up.
- Freeze-up occurs quickly, and earlier than in other crossings around Qikiqtaq.

Break-up timing

- Break-up in the south crossing typically occurs around mid-July.
- Thick first-year ice can often be observed breaking up at these times.
- The south crossing area breaks up earlier than other crossings around Qikiqtaq.

Where are ships coming into the waters surrounding Qikiqtaq?



- Government vessels and icebreakers (left map), passenger ships (middle map), and pleasure crafts (right map) are the types of vessels that Uqsuqtuurmiut were most concerned about.
- All these vessels commonly move around Uqsuqtuuq, both near and off shore.
- Some Uqsuqtuurmiut were concerned about how government vessels and icebreakers break up the ice to allow for smaller pleasure crafts to move through.

How might dynamic sea ice and changes in ship traffic impact the use of sea ice by caribou?

- Government vessels and icebreakers are the most likely to disrupt caribou sea ice habitat by breaking up the ice. The travel routes of these ships are concentrated in the south, and northwest of Qikiqtaq.
- Ship traffic is increasing over time, especially pleasure crafts, passenger ships, and government vessels and icebreakers.
- Ships entering an area before break-up, or leaving an area after freeze-up, are the most likely to impact caribou because they would disrupt reliable sea ice habitat.
- If the shipping and tourism industry start extending their operational seasons while the freeze-up and break-up timing is still variable, there is more potential for shipping to disturb caribou sea ice habitat around Qikiqtaq.

We are currently working on writing papers and reports to share what we learned in this project!



Continuing work in Uqsuqtuuq

When I was in Uqsuqtuuq, some Elders asked “what did people from other communities say?” This was motivation for me to continue working in Uqsuqtuuq. I kept going in school, and I am now a PhD student at Carleton University.

I hope to keep working in Uqsuqtuuq, and connect with community members in Taloyoak as well, to bring people together. I hope to work with Inuit youth to learn about caribou, sea ice, and how knowledge, and harvests are shared with both communities. I hope this can keep building on the earlier caribou project, as well as the harvest study that Stephan Schott is working on in both communities. These are just early ideas, and I hope to be able to visit in fall 2021 to learn more about community priorities and future research directions you would like to see.

If you have ideas and priorities to share about caribou and sea ice in your region please reach out to me. It has been a pleasure to learn from you all, and I hope to keep listening to your stories, knowledge, and interests in the future.

Thank you and warm thoughts,
Emmelie Paquette

Any comments or questions?

Reports and project updates available at <https://straightupnorth.ca/caribou-and-sea-ice-crossings/>
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