

Pine MK, Halliday WD, Insley SJ, Juanes F (2020) Fish sounds near Sachs Harbour and Ulukhaktok in Canada's Western Arctic. *Polar Biology* 43: 1207-1216.

What is the research about?

- The Arctic marine environment is undergoing rapid change due to climate change and human activities. Monitoring the species that live in this environment is an important aspect of understanding and managing the impacts of climate change and human activities.
- Passive acoustic monitoring (underwater listening) is a powerful tool for monitoring species that make sounds, and in non-Arctic waters, acoustics are used to monitor fish species that vocalize.
- Cod species, including Arctic cod (*Boreogadus saida*), are known to vocalize, so passive acoustic monitoring could be used to monitor populations of Arctic cod and other Arctic fishes.

What we did:

- We recorded underwater acoustic data near Sachs Harbour in 2015-2016 and near Ulukhaktok in 2016-2017.
- We manually analyzed the acoustic data and looked for sounds made by fish.

What we found:

- We found 47 fish calls in the approximately 1.5 years of acoustic data collected between the two sites, and the majority of these calls were from Ulukhaktok during January.
- Three different call types were detected, with different seasonal patterns in these call types, which suggests that either different species were producing the calls, or there were specific seasonal functions for certain call types.

Our recommendations:

- Maintain acoustic monitoring sites (e.g., WCS Canada, DFO) to continue looking for locations and times when fish sounds are common. This may help to identify key monitoring sites for different fish species, and can serve to track populations of fish species.

Why is this research relevant to the Inuvialuit people?

- Arctic cod and other marine fishes are important prey for marine mammals, including beluga whales, ringed seals, and bearded seals, all three of which are important species for Inuvialuit subsistence hunting. Changes in the abundance of fish species may negatively impact these marine mammals, therefore monitoring fish populations is important for the conservation and management of these marine mammals.

Was the community involved?

- Yes. The acoustic data collected in this study was from Sachs Harbour and Ulukhaktok, and the Hunters and Trappers Committees in both communities, as well as A. Kudlak, G. Kudlak, W. Gully, B. Hoagak, T. Lennie, J. Kudlak, and J. Kuptana were involved in the data collection.