

Bearded seals are loud—but not loud enough

February 24 2021



Credit: Unsplash/CC0 Public Domain

During mating season, male bearded seals make loud calls to attract a mate. How loud? Well, even their "quiet" call can still be as ear-rattling as a chainsaw.

These elaborate vocalizations are essential for bearded seal reproduction,



and have to be loud enough to be heard over the cacophony of their equally loud brethren.

But in the rapidly changing Arctic soundscape, where <u>noise</u> from industrial activities is predicted to dramatically increase in the next 15 years, bearded <u>seals</u> may need to adjust their calling behavior if they are going to be heard above the noise generated by ships and commercial activities.

The bearded seals, however, can only do so much. A study conducted by the Cornell Lab of Ornithology's Center for Conservation Bioacoustics (CCB) found that when ambient underwater noise gets too loud, the bearded seals are no longer able to compensate in order to be heard.

The results of the study, "Limited Vocal Compensation for Elevated Ambient Noise in Bearded Seals: Implications for an Industrializing Arctic Ocean," published Feb. 24 in *Proceedings of the Royal Society: Biological Science*.

"We wanted to know whether bearded seals would call louder when their habitat grew noisy from natural sound sources," said CCB postdoctoral researcher Michelle Fournet, who led the study. "The goal was to determine if there was a 'noise threshold' beyond which seals either couldn't or wouldn't call any louder in order to be heard. By identifying this naturally occurring threshold, we can make conservation recommendations about how loud is too loud for human activities."

From spring through <u>early summer</u>, the under-ice habitat near Utqiagvik, Alaska, is flooded with the vocalizations of male bearded seals—a sound that can be best described as "otherworldly."

Fournet and colleagues listened to thousands of recorded bearded seal vocalizations from Arctic Alaska spanning a two-year period. Each call



was carefully measured and compared with the concurrent ambient noise conditions. They found bearded seals do call louder as their underwater acoustic habitat gets noisier, but there is an upper limit to this behavior. As expected, when ambient noise gets too high, bearded seals are no longer able to compensate in order to be heard.

As a result, as ambient noise conditions increase, the distance over which individuals can be detected goes down.

"Given that these are reproductive calls, it is likely that the seals are already calling as close to as loudly as possible—the males very much want to be heard by the females," Fournet said. "So it is unsurprising that there is an upper limit. I'm grateful that we have been able to identify that limit so we can make responsible management choices moving forward."

Bearded seals—or ugruk in the Inupiaq language—are highly valued by Alaska Native communities in the high Arctic. Since <u>bearded seals</u> are at the center of subsistence and cultural activities in Inupiaq communities, threats to them threaten the communities that rely on them.

"This work never would have happened without the insight and guidance of Arctic communities," Fournet said. "It was their energy that led the Cornell Lab to place hydrophones in the water. It is our job to continue listening."

More information: Michelle E. H. Fournet et al. Limited vocal compensation for elevated ambient noise in bearded seals: implications for an industrializing Arctic Ocean, *Proceedings of the Royal Society B: Biological Sciences* (2021). DOI: 10.1098/rspb.2020.2712



Provided by Cornell University

Citation: Bearded seals are loud—but not loud enough (2021, February 24) retrieved 9 May 2024 from <u>https://phys.org/news/2021-02-bearded-loudbut-loud.html</u>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.