Supporting Wildlife with Statistics

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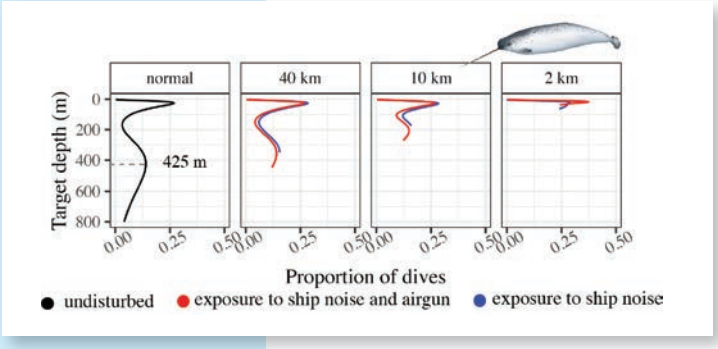
Much research on wild animal behavior depends on sensors that record information about location, sound, oceanic depth, and more. To get that information, researchers need to trap animals and attach the sensors to them. The ensuing research is often vital for conservation efforts to be effective, but the experience of being trapped and tagged can be stressful — even traumatic. That affects the animals' normal behavior, interfering with the reliability of the data they suffered for.

Recently, a team of researchers tried to figure out how to overcome this issue in the case of Arctic whales. A new paper, published in the journal *Ecology and Evolution* in April 2023, proposes a method for figuring out at what point bowhead whales and narwhals have recovered from the stress of being tagged. After that time, the data should reflect the whales' typical behavior.

The project was a joint effort between researchers from the Greenland Institute for Natural Resources (GINR) and statisticians from the University of Copenhagen. The two groups recently began to work together after scientists at GINR realized they needed statistics experts to help them detect and quantify patterns in their data on narwhals.



Graph showing how narwhals' diving behavior changed with noise. Courtesy of Outi Tervo.

Narwhals "can only be found in the Arctic," said Outi Tervo, a senior scientist at GINR. "These species are going to be threatened by climate change more than other species that can live in a bigger geographical area." The collaboration has already lobbied on behalf of the narwhals to reduce the level of sea traffic in their habitat, after using mathematical analysis to identify how noise from passing boats changes the narwhals' foraging behavior.

Watch an interview with an expert!

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AMS American Mathematical Society

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