

First global review on the status, future of Arctic marine mammals

March 17 2015, by Hannah Hickey



A polar bear is shown on the north slope of Alaska. Credit: Eric Regehr, U.S. Fish and Wildlife Service

For Arctic marine mammals, the future is especially uncertain. Loss of sea ice and warming temperatures are shifting already fragile Northern ecosystems.

The precarious state of those mammals is underscored in a multinational

study led by a University of Washington scientist, published this week in *Conservation Biology*, assessing the status of all circumpolar species and subpopulations of Arctic marine mammals, including seals, whales and [polar bears](#). The authors outline the current state of knowledge and their recommendations for the conservation of these animals over the [21st century](#).

"These species are not only icons of [climate change](#), but they are indicators of ecosystem health, and key resources for humans," said lead author Kristin Laidre, a polar scientist with the UW Applied Physics Laboratory.

The overall numbers and trends due to climate change are unknown for most of the 78 populations of marine mammals included in the report: beluga, narwhal and bowhead whales; ringed, bearded, spotted, ribbon, harp and hooded seals; walruses; and polar bears.

The paper reviews population sizes and trends over time, if known, for each group, ranging from millions of ringed seals to fewer than a hundred beluga whales in Northern Canada's Ungava Bay.

"Accurate scientific data - currently lacking for many species - will be key to making informed and efficient decisions about the conservation challenges and tradeoffs in the 21st century," Laidre said.



A bowhead whale in Disko Bay, West Greenland, is pictured. The report finds that this population may be growing. Credit: Kristin Laidre, Univ. of Washington

The publicly available report also divides the Arctic Ocean into 12 regions, and calculates the changes in the dates of spring [sea ice](#) retreat and fall freeze-up from NASA satellite images taken between 1979 and 2013.

Reductions in the sea ice cover, it finds, are "profound." The summer ice period was longer in most regions by five to 10 weeks. The summer period increased by more than 20 weeks, or about five months, in the Barents Sea off Russia.

The species most at risk from the changes are polar bears and ice-associated seals.

"These animals require sea ice," Laidre said. "They need ice to find food, find mates and reproduce, to rear their young. It's their platform of life. It is very clear those species are going to feel the effects the hardest."

Whales may actually benefit from less ice cover, at least initially, as the open water could expand their feeding habitats and increase food supplies.

Approximately 78 percent of the Arctic [marine mammal](#) populations included in the study are legally harvested for subsistence across the Arctic.



A bearded seal on the sea ice in Baffin Bay. Trends for this population are unknown. Credit: Øystein Wiig, University of Oslo

"There's no other system in the world where top predators support human communities the ways these species do," Laidre said.

The study recommends:

- Maintaining and improving co-management with local and governmental entities for resources that are important to the culture and well-being of local and indigenous peoples.
- Recognizing variable population responses to climate change and incorporating those into management. In the long term, loss of sea ice is expected to be harmful to many Arctic marine mammals, however many populations currently exhibit variable responses.
- Improving long-term monitoring while recognizing monitoring for all species will be impossible. Alternatives include collecting valuable data from subsistence harvests, using remote methods to track changes in habitat, and selecting specific subpopulations as indicators.
- Studying and mitigating the impacts of increasing human activities including shipping, seismic exploration, fisheries and other resource exploration in Arctic waters.
- Recognizing the limits of protected species legislation. A balanced approach with regard to regulating secondary factors, such as subsistence harvest and industrial activity, will be needed, since protected species legislation cannot regulate the driver of habitat loss.

While the report aims to bring attention to the status and future of Arctic mammals, the authors hope to provoke a broader public response.

"We may introduce conservation measures or protected species legislation, but none of those things can really address the primary driver of Arctic climate change and habitat loss for these [species](#)," Laidre said.

"The only thing that can do that is the regulation of greenhouse gases."

Provided by University of Washington

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