



NARWHALS AND CLIMATE CHANGE

A pod of narwhals off Greenland. Note the long single tusks on many of these small whales. – Photo: © Dr. Kristin Laidre, Polar Science Center, UW NOAA

ABOUT THE NARWHAL

Names:

Scientific: *Monodon monoceros*

English: Narwhal

French: Narval

Spanish: Narval

The Narwhal, *Monodon monoceros*, inhabits the Arctic waters of Canada, Greenland, Norway (Svalbard and Jan Mayen) and the Russian Federation. These animals are very distinctive as they are the only species of whale to possess a long spiral 'tusk'. This 'tusk' is a long tooth, which has sensory capabilities and is packed with up to ten million nerve endings. Narwhals are sometimes referred to as 'the unicorns of the sea' due to the presence of this 'tusk'. These whales change colour as they age, starting off as a blueish-grey, transforming into a blueish-black or mottled-grey as they reach maturity. At older ages, Narwhals take on a lighter, almost completely white colour.

These migratory animals are found in northern coastal regions during the summer when sea ice extent is at its lowest. When the winter sea ice begins to accumulate, they swim south towards areas with less ice coverage. They overwinter for up to five months amongst the sea ice of Baffin Bay-Davis Strait area, feeding on Greenland halibut, squid, polar and Arctic cod and shrimp. To capture their prey, they can dive to depths of approximately 1.5 km. Narwhals migrate in groups of 10 to 100 individuals known as pods. Mature females typically give birth to one calf every three years.

Threats due to climate change

The Narwhal's Arctic habitat is highly sensitive to climatic changes that result in increased atmospheric and ocean water temperatures. In recent years, it has become clear that some species that occupy these northern regions have suffered negative impacts from these changes. Narwhals – with their relationship to sea-ice - are unfortunately among those animals that are facing serious threats to their survival. Direct and indirect effects of climate change on this elusive creature include increasingly erratic sea ice activity, seasonal and permanent sea ice decline, a change and increase in human activity in their habitat and potentially colonization of their range by species not previously present in the high north.

The Narwhal's annual migration from the north in summer to more southerly overwintering habitats exposes them to sea ice which is constantly expanding and receding. In situations of high sea ice cover, the whales depend on cracks in the ice where they can surface and breathe in-between dives. This behaviour, however, can prove to be fatal as rapid changes in weather can result in the closing of cracks and entrapment of whales, resulting in suffocation. Although these occurrences have been observed by northern peoples for centuries, scientists believe that climate change may be affecting the frequency and locations of these entrapments. It is believed that more erratic weather events are causing more entrapments in the Narwhal's summer habitat, catching them off guard, subsequently resulting in the deaths of entire whale pods. Further research is being conducted to confirm the role of climate change on these phenomena.

The effects of climate change are also changing the timing and location of annual sea ice expansion and retreat. The expansion of winter sea ice is occurring later in autumn, delaying the Narwhal's southward migration to their wintering grounds. It is believed that this results in the whales delaying their southward migration, ultimately becoming entrapped in their summer grounds as a result of flash freezing in the late autumn. The rapid changes in sea ice expansion and retreat are also expected to influence the Narwhal's feeding and reproductive patterns.

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Threats due to climate change

Increasing Arctic temperatures, in combination with other factors, have resulted in significant declines of winter sea ice cover. As these areas warm and sea ice retreats, the Narwhal and its prey and habitat may also be encroached upon by the increased presence of species that are not endemic to these northern ecosystems. This may lead to competition for resources or even potentially predation.

The decline of seasonal and permanent sea ice in the Arctic has opened up many new commercial opportunities for humans. These activities often result in an increase of marine traffic, resource extraction projects and tourism in the area. The underwater noise created from these threatens underwater species including Narwhals, which inhabit and highly depend on the area. The whales' communication, navigation and hunting habits are negatively affected by these forms of noise pollution. Increased shipping also brings a greater threat of other forms of pollution.

Species Listing

Monodon monoceros was placed on Appendix II of the Convention on the Conservation of Migratory Species of Wild Animals (CMS) in 1991. The last assessment undertaken for the Red List of the International Union for Conservation of Nature (IUCN) in 2017 categorized the species as 'Least Concern'. The Narwhal is also listed on Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).



Narwhal swimming in gap between the edge of land fast ice and pack ice along north Baffin Island – Photo: Narwhal at ice edge © Paul Gierszewski

About CMS

The Convention on the Conservation of Migratory Species of Wild Animals (CMS), also known as the Bonn Convention, works for the conservation of a wide array of endangered migratory animals worldwide through negotiation and implementation of agreements and species action plans. It has 130 Parties (as of 1 February 2020).

CMS engages all relevant stakeholders in addressing threats to migratory species in concert with all other aspects of wildlife conservation and management.

CMS Instruments

Animals receive protection under CMS through listing on its two Appendices, through global or regional agreements and through action plans.

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