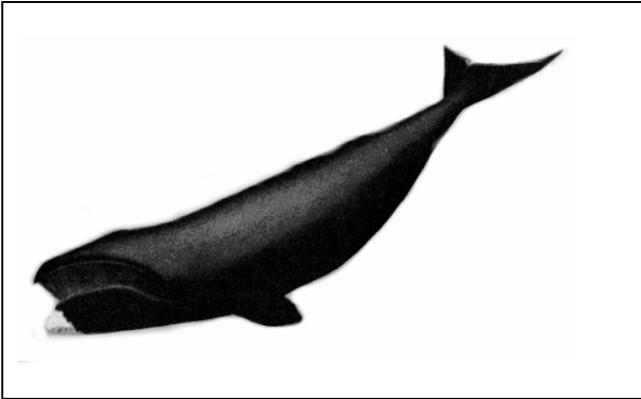


## Nomination

*Balaena mysticetus*, Bowhead whale



## Geographical extent

OSPAR Region; I

Biogeographic zones: 3,12,18-20

Region & Biogeographic zones specified for decline and/or threat: as above

Bowhead whales inhabit arctic and sub-arctic waters between 55° and 80°N. There are believed to be four different stocks; Spitsbergen, Hudson Bay/Davis Strait, Bering/Chukchi/Beaufort Seas and Okhotsk Sea. The animals migrate to northerly feeding grounds in spring and summer, returning to the southern parts of their range in late autumn (Christensen *et al.*, 1992). The Spitsbergen stock is found in the waters around Greenland, Norway and Russian but centred in the Greenland and Barents Seas (IUCN, 2002).

## Application of the Texel-Faial criteria

*B.mysticetus* was nominated for inclusion by one Contracting Party citing rarity, decline and sensitivity, with information also provided on threat.

### Decline

Before hunting started in the 17<sup>th</sup> century the population of the Spitsbergen stock of the bowhead whale was estimated to be about 25,000 (Klinkowka, 1991). Populations were quickly depleted because of the ease with which this species could be caught. Today there are believed to be only a few tens of individuals (only 24 sightings, including one dead animal, between 1958 and 1983) (Klinkowka, 1991, Zeh *et al.*, 1993). Sightings in the Russian region of the Arctic suggest that there may be more whales in this area but it is unclear whether these are a few remaining

individuals from the original Spitsbergen stock or immigration from another stock.

### Sensitivity

Ice-associated animals, such as the bowhead whale, may be sensitive to changes in Arctic weather, sea-surface temperatures or ice extent. Like other marine mammals they are generally characterised by low annual mortality and long life spans. There are believed to be less than 50 mature individuals in the Spitsbergen stock, which makes the whole stock very vulnerable to extinction.

Cetaceans use sound to provide information about the physical environment, to communicate between individuals and for the detection of potential prey. Baleen whales, such as the bowhead emit low frequency sound that can travel hundreds of kilometres (Evans, 2000). This makes them sensitive to acoustic disturbance from military activities such as naval sonars (particularly low frequency acoustics), as well as other sources such as seismic exploration. The whales will be particularly vulnerable if the zone of influence coincides with migration and breeding areas.

### Threat

In the past the main threat to this species was commercial whaling whereas today it is pollution. Oil pollution is of particular concern because oil spilled in polar regions tends to accumulate at the ice edges, the preferred habitat of these whales. One of their main methods of feeding involves skimming the water at the surface, making them more likely to ingest oil.

Synthetic toxins such as DDT and PCBs are another threat. High levels of these compounds have been found in the blubber of several whale species. Although the detrimental effects of chlorine compounds on whales has not been proven, birth abnormalities have been reported in seals in association with high levels of these chemicals. The population may also be exposed to radionuclides in the food chain in Arctic waters. Acoustic disturbance from shipping, military and research activities adds to the pressures on this species.

Any shifts in regional weather patterns which affect sea-surface temperature and the extent of sea ice, are another potential threat but it is not possible to make reliable predictions of the effects of Arctic climate change on bowhead whales at the present time.

## Relevant additional considerations

### Sufficiency of data

Data from past whaling activities in the Arctic confirm that large numbers of bowhead whale were taken by whalers. There is some uncertainty about the precise size of the population today as the species is very rare.

### Changes in relation to natural variability

The large numbers of bowhead whales that were fished during earlier centuries will have masked any changes in the population caused by natural variability. With such a small number remaining, natural variability may however become a major contributory factor in its local extinction.

### Expert judgement

Information on the catches of bowhead whale in the Arctic reveal the historic decline in this species, its vulnerable status today, and the threat of it becoming extinct in the OSPAR Maritime Area.

### ICES Evaluation

The ICES Advisory Committee on Ecosystems (2003) concluded that there is good evidence of a decline in populations of the Bowhead Whale but currently rather little evidence of direct threat.

## Threat and link to human activities

*Cross-reference to checklist of human activities in OSPAR MPA Guidelines*

*Relevant human activity:* Shipping & navigation, military activities; fishing, hunting, harvesting, research. *Category of effect of human activity:* Physical – Noise disturbance, Biological – removal of target species, removal of non-target species, physical damage to species.

Commercial whaling, and therefore human activity, is known to have caused the significant decline of the bowhead whale. Current threats from poor water quality and acoustic disturbance are also linked to human activities.

## Management considerations

All states whose waters this species is found in are members of the International Whaling Commission (IWC). and two of them (Norway and Greenland) are also members of the North Atlantic Marine Mammal Commission (NAMMCO). The IWC have banned commercial whaling of the bowhead whale since 1975 however some aboriginal whaling does

take place. Apart from protection from whaling, other measures that would help safeguard this species are more indirect such as minimising the risk of marine pollution and ensuring a high water quality in the Arctic. OSPAR does not deal with whaling issues directly but can communicate an opinion on it to the IWC and members of the North Atlantic Marine Mammal Commission (NAMMCO).

The Spitsbergen stock of bowhead whale has been classified as Critically Endangered by IUCN (IUCN, 2002).

## Further information

*Nominated by:*  
Norway

*Contact persons:*  
Eva Degre, Directorate for Nature Management, Tungasletta 2, N-7485 Trondheim, Norway.

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