

3.2.5 Status of marine mammals

Marine mammals (Figure 3.12) exhibit not good status in the Baltic Sea (Figure 3.13). While grey seal (*Halichoerus grypus*) and harbour seal (*Phoca vitulina*) are increasing in some areas, overall population growth rates are assessed as too low, and neither the reproductive nor the nutritional status reach their threshold values. The quality of monitoring data to evaluate the status of ringed seals (*Pusa hispida*) in the Bothnian Bay has decreased due to behavioural changes in the population, possibly attributed to a warming climate. The status of the harbour porpoise (*Phocoena phocoena*) in terms of both abundance and distribution is not good for any of the Baltic Sea populations, based on a qualitative evaluation.

Why is this important?

-  *Marine mammals of the Baltic Sea have strong cultural and historical importance, contributing to recreational values and ecosystem appreciation.*
-  *As top predators marine mammals regulate the distribution, abundance and health of a variety of prey species.*
-  *Because they are highly mobile, marine mammals play an important role in nutrient transfer across different parts of the sea.*
-  *The health of marine mammals can be a sensitive signal of broad-scale or diffuse environmental changes.*



Figure 3.12. An overview of the ecosystem components and pressures descriptively linked to the status of marine mammals in HOLAS 3. The figure reflects aspects highlighted in the chapter on this topic in the HOLAS 3 thematic assessment report on biodiversity (HELCOM 2023a), based on the terms used and interlinkages made. The chapter itself is symbolised by the dark blue circle in the centre, and the other circles represent the key elements (terms) used in the chapter. The size of each circle is based on how often the term is mentioned in the chapter and should only be interpreted in this way. The terms are aggregated, so each circle includes both the term itself and all terms deemed to be synonymous (e.g. “eutrophication” includes “eutrophication” and associated terms such as “nutrient input” or “concentrations”). The width and length of the lines and the placement of the items is arbitrary. The image gives a simple visual representation of the topics covered in the evaluation, while simultaneously providing a gap analysis of where more information may be required in the future to increase the holistic nature of the evaluation (e.g. if an interaction between a certain pressure and an ecosystem component has not been well addressed). The overview was made using igraph.

What can we do – what is affecting the status of marine mammals in the Baltic Sea?

Marine mammals are top predators in the Baltic Sea food web and are strongly dependent on the availability and quality of their prey, mainly fish.

Drowning in fishing gear is an additional pressure of concern. Unintentional by-catches of marine mammals mainly happen in gillnets but also in trawls (Berggren 1994, Vinther 1999, AS-COBANS 2000, Skóra & Kuklik 2003, NAMMCO & IMR 2019). The status of marine mammals in relation to by-catch is presented in section 4.3.2.

In the past, environmental contaminants decimated marine mammal populations of the Baltic Sea. While many of the substances causing the harm are now banned, hazardous substances remain one of the most widespread and impactful pressures in the Baltic Sea (Slobodnik *et al.* 2022), and emerging substances may be a cause for concern.

Marine mammals are very perceptive of underwater sound. The effects of sound on the animals depend on its properties, such as the intensity, frequency content, amplitude, duration and distance. At lower levels, anthropogenic sounds in the environment can mask natural sounds that species use for communication or to locate prey, while higher levels can lead to behavioural changes or disrupt ongoing behaviour (e.g. feeding or breeding). Very high levels can cause physiological stress or even temporary or permanent changes in hearing sensitivity (HELCOM 2019). Hearing loss can be highly detrimental to the harbour porpoise, a species which uses echolocation to forage.

Hunting has historically put major pressure on marine mammals in the Baltic Sea but is forbidden in most Baltic Sea countries today. However, restricted control hunting of seals is allowed in Denmark, Estonia, Finland and Sweden. In Latvia, a pilot project is being carried out to measure the effects of control hunting of seals, and if results are positive, control hunting will be permitted.

Seals integrated assessment results

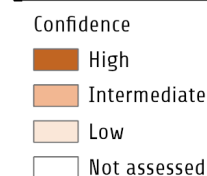
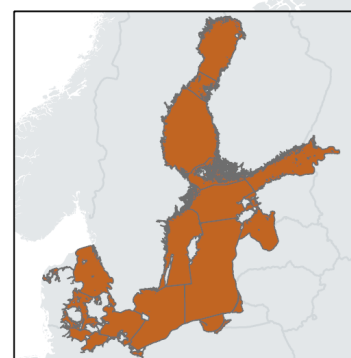
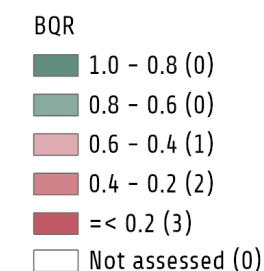


Figure 3.13. Summary of assessment results from the assessment of marine mammals (seals). Biological quality ratios (BQR) above 0.6 correspond to good status. Assessment confidence is presented in the map inserted on the left-hand side. Source: HELCOM 2023a.

Effects of climate change on marine mammals

The effects of climate change on marine mammals are expected to vary depending on the species' distribution ranges (Figure 3.15). Climate change is an especially important pressure on species which breed on ice, because shorter and warmer winters will lead to more restricted coverage of suitable ice fields (Sundqvist *et al.* 2012, Meier *et al.* 2022). Changes in ice conditions can have strong effects on the reproductive success of ringed seals, which breed in lairs they burrow into snow on the ice. The reduced availability of reproductive areas alone poses a high risk for local extinction to southern subpopulations of ringed seals in the Baltic Sea (Sundqvist *et al.* 2012, Meier *et al.* 2022). Furthermore, early ice break-up may cause pups to enter the water earlier or more often, which affects their thermoregulation. The pups may also be exposed to harsh weather conditions if there is not enough snow and ice for lairs, posing a risk of hypothermia and higher mortality (Stirling & Smith 2004). A

shortened ice period has been observed to increase the number of pups with the lanugo fur still present late in the season and to lower growth rates (Harwood *et al.* 2000, Smith & Harwood 2001).

Grey seals are facultative ice breeders, and their breeding success is considerably greater when they breed on ice than on land (Jüssi *et al.* 2008).

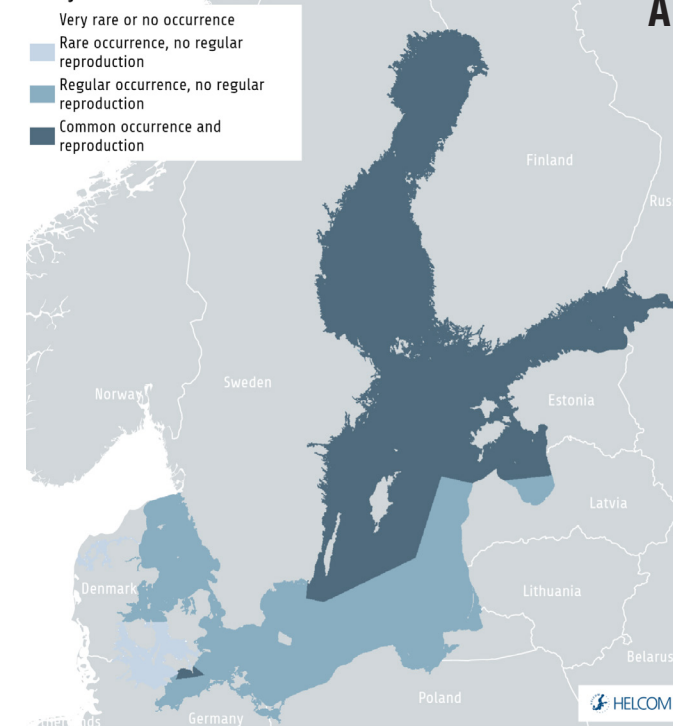
A shorter ice season and earlier ice break-up may also facilitate shipping and increase maritime traffic in areas that are usually ice-covered in winter, leading to an increase in underwater noise, disturbance and displacement from habitats.

Environmental changes resulting from a changing climate will likely affect all marine mammals in the Baltic Sea via changes in the food web and ecosystem functions. However, the aggregated effects of changes in prey distribution, quality and quantity on the marine mammals are difficult to predict (HELCOM and Baltic Earth 2021).

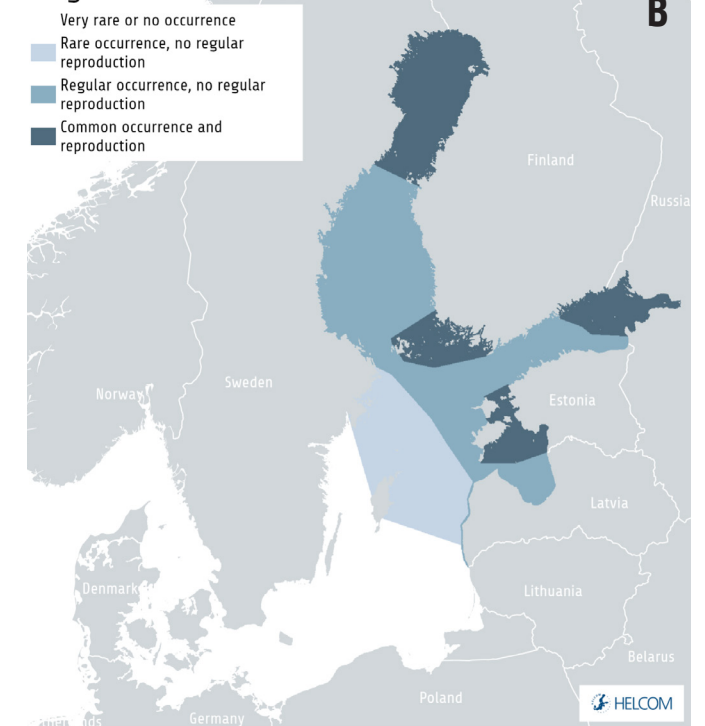


Figure 3.14. In the 19th and early 20th centuries, harbour porpoises were widespread throughout the entire Baltic, occurring as far as the inner parts of the Gulf of Bothnia and the Gulf of Finland. The harbour porpoise population in the Baltic Proper has declined dramatically over the past 100 years. Today, harbour porpoise observations are very rare in the Baltic Proper. The number of individuals remaining is estimated to be a few hundred at most (HELCOM 2023a), and there are indications that this population is facing extinction (HELCOM 2013b).

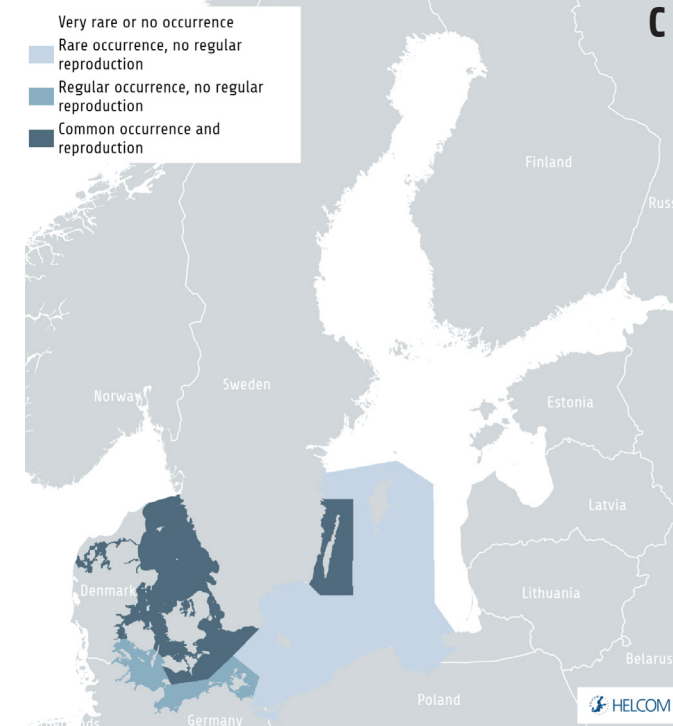
Grey seals distribution



Ringed seals distribution



Harbour seals distribution



Harbour porpoise

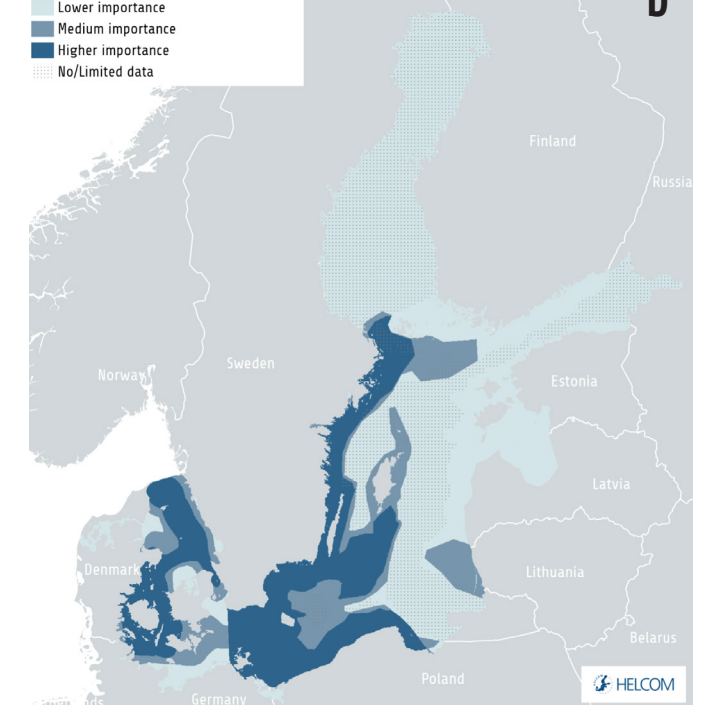


Figure 3.15. Distributional range of A) grey seals, B) ringed seals, C) harbour seals (based on expert input), D) Harbour porpoise. Source: HELCOM 2023e.