



Seal Abundance and Distribution



MSFD Descriptor: 1 - Biological diversity

MSFD Criteria: 1.1 - Species distribution; 1.2 - Population size

Key Message Atlantic grey seals and harbour seals are resident in the Greater North Sea and Celtic Seas. Harbour seal abundance is stable or increasing in most of the Greater North Sea, but declining in a few areas. The reasons for this decline are unclear. Grey seal abundance is increasing and distribution is stable

Background

Atlantic grey seals and harbour seals are both regularly found in the Greater North Sea and Celtic Seas. As higher predators, seals can be used as an indicator to reflect the state of the marine ecosystem. This assessment of seal abundance and distribution aims to determine if populations of both species are in a healthy state, with no long-term decrease in population size, beyond natural variability. Historically, populations have declined due to anthropogenic influences. This assessment will help to determine trends in abundance.

Seal abundance and distribution are influenced by many factors, such as disease, competition with other species, changes in the distribution and abundance of prey, disturbance and interactions with fisheries. Seals were hunted into the 20th century, and as a result have disappeared entirely in some areas, but are now protected in most areas of Europe.

Future changes in distribution or declines in abundance may signal that populations are no longer in a healthy state. Further studies would then be needed to establish the cause of these changes and to determine whether management measures are required.

The conservation status of harbour seals and grey seals is also assessed under the European Union Habitats Directive (Council Directive 92/43/EEC).



Results

This indicator assessment uses estimates of seal numbers from monitoring programmes that count seals on land when they are moulting or breeding. Assessments of changes in abundance and distribution were made within discrete geographical areas of coastline, or 'Assessment Units' (AUs).

Grey seal abundance and distribution

Grey seal abundance in the Greater North Sea (excluding AUs in Norway) and in the United Kingdom part of the Celtic Seas has increased since 1992. In the Greater North Sea (excluding the United Kingdom, Sweden and Norway), where sufficient data were available, grey seal numbers during their moulting period in spring have increased substantially since 1992. The number of breeding colonies occupied between 2003–2008 and 2009–2014 generally increased or remained unchanged.

Harbour seal abundance and distribution

In the Greater North Sea, harbour seal abundance has increased over both the short term (2009–2014) and long term (1992–2014) in all AUs along the coast of continental Europe and along the east coast of England (Figure 1 and 2). In the Wadden Sea (AU17), which holds over 40% of harbour seals in the total area being assessed, numbers have trebled since 1992. Increases in abundance on the Belgian Coast and in the Dutch Delta (AU16) are likely to be due to immigration of seals from the Wadden Sea and possibly also from the South-East England (AU10) and French North Sea and English Channel Coast (AU15). Elsewhere in the Greater North Sea, short- and long-term declines in abundance exceeded the assessment values (declined >1% per year and decreased by >25% against baseline year, respectively) in East Scotland (AU8), North Coast and Orkney (AU5), and Shetland (AU6), but were inconclusive in the Moray Firth (AU7) (Figure 1 and 2). The causes of these declines are currently unknown and are the subject of a major research initiative in the United Kingdom.



Images: Atlantic Grey seal (*Hali-choerus grypus*) ©John Weinberg (left); and Harbour seals (*Phoca vitulina*) © Silje-Kristin Jensen

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Results cont...

In the United Kingdom part of the Celtic Seas there were insufficient data to conduct assessments in most AUs (**Figure 1**). In West Scotland (AU3), numbers have increased substantially since 1992 and the AU holds over 20% of harbour seals in the total assessed area of the Greater North Sea and Celtic Seas. In the Western Isles (AU4) and Northern Ireland (AU1) numbers have decreased since 1992, but had not conclusively exceeded assessment values. The presence of harbour seals at haul-out sites has either increased or remained the same in most AUs in the Greater North Sea and the United Kingdom part of the Celtic Seas. A notable exception is East Scotland (AU8), where abundance has declined dramatically since the mid-2000s. In this AU, the number of occupied areas has decreased from seven (out of a total of nine surveyed) in the period 2003–2008, to four (out of a total of six surveyed) in the period 2009–2014 (**Figure 2**).

There is a moderate / low confidence in the methodology used and moderate confidence in the availability of data.

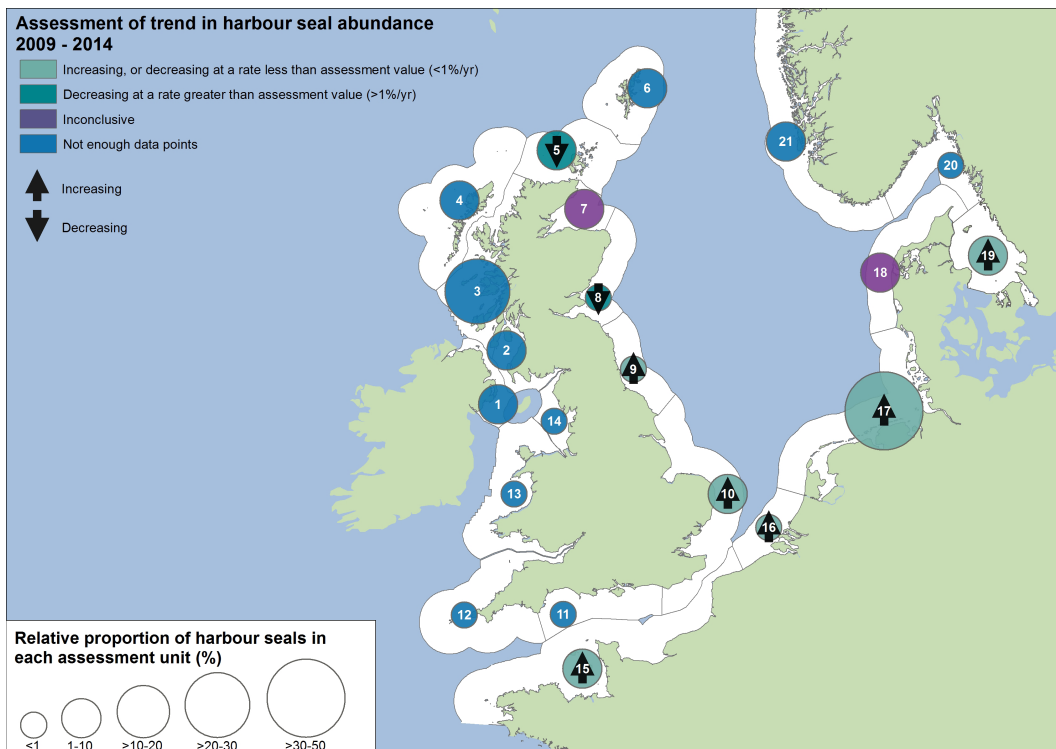


Figure 1: Assessment of recent change in harbour seal abundance (2009–2014). The numbers in each circle refer to the respective 'Assessment Unit' (mentioned in the text as AU).

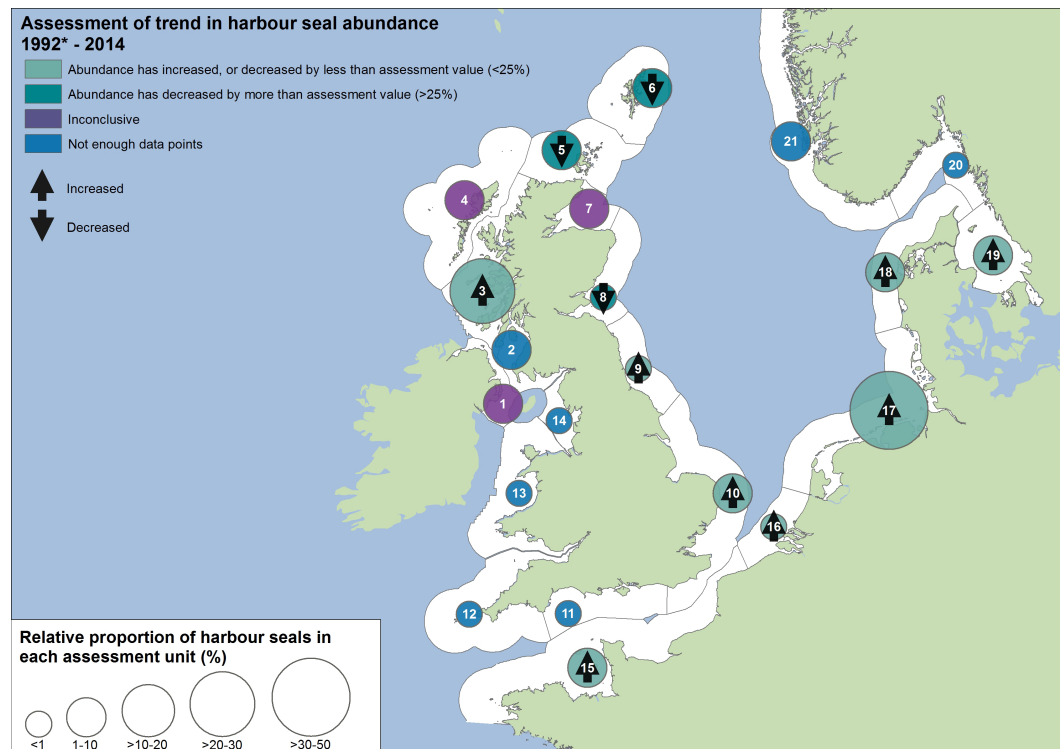


Figure 2: Assessment of long-term change in harbour seal abundance (1992*–2014). The numbers in each circle refer to the respective 'Assessment Unit' (mentioned in the text as AU). *Although 1992 was used as the baseline year, in some Assessment Units a later year was used due to data availability

Conclusion

Grey seal numbers have increased throughout the areas assessed, as they recover from historical hunting pressure. Harbour seals are in decline in parts of the north-east of the United Kingdom, but are stable or increasing in most other regions. The reason(s) for the marked and prolonged declines detected in Orkney (AU5), Shetland (AU6), and East Scotland (AU8) are presently unclear but major research initiatives are already in place to investigate potential causes. One possibility is that the decline in harbour seal abundance has resulted naturally from increased competition with grey seals.

Knowledge Gaps

There are several knowledge gaps that need to be addressed to improve this assessment for its next iteration. Data collection could be improved for some North Sea assessment units (AU) and the geographic scale could be increased. The frequency of monitoring could be improved to increase the power of the assessment. Further studies could be undertaken into the reasons for historic declines to help develop the understanding of pressures and impacts on the grey and harbour seal populations. Interactions between grey and harbour seal populations could also be investigated to develop understanding of how these impact each other.