



# Grey Seal Pup Production

MSFD Descriptor: 1 - Biological diversity  
MSFD Criterion: 1.3 - Population condition



**Key Message** In the Greater North Sea and in parts of the Celtic Seas, the number of grey seals born each year has increased substantially since 1992 and has continued to rise in recent years (2009–2014)

## Background

This indicator assesses trends in the number of grey seal pups born at breeding sites in the Greater North Sea and in the United Kingdom part of the Celtic Seas. Grey seals gather to breed at long-established colonies located on islands, sand banks and mainland coastlines around Europe.

As higher predators, seals can be used as an indicator to reflect the state of the marine ecosystem. Grey seal pup production is influenced by many factors such as disease, competition with other species, changes in the distribution and abundance of prey, disturbance, and interactions with fisheries. Grey seals were hunted into the 20th Century, and as a result have disappeared entirely from some areas, but are now protected in most areas of Europe.

Seals have been hunted both illegally and legally for a long time and it is not possible to know the undisturbed state, nor the current carrying capacity that could be attained alongside protection from illegal hunting. Except for hunting, no straightforward link has yet been identified between pup production and human activity, although several human activities may, at least in part, drive change in pup production. If changes are detected, this signals the need to investigate the cause and to determine whether management measures are required.



Image: Atlantic grey seal pup (*Halichoerus grypus*) © Arran Bee

## Results

In the Greater North Sea and parts of the Celtic Seas, grey seal pup production has increased over both the long term and short term, in all assessed areas where there were breeding sites and sufficient data to carry out the assessment (**Figure 1 and Figure 2**). There is no decline in pup production in these areas, in line with both assessment values. Although the data available for Shetland (AU6) were not sufficient to allow an assessment, pup counts appear to indicate a long-term decline in pup production during the period 2004–2014.

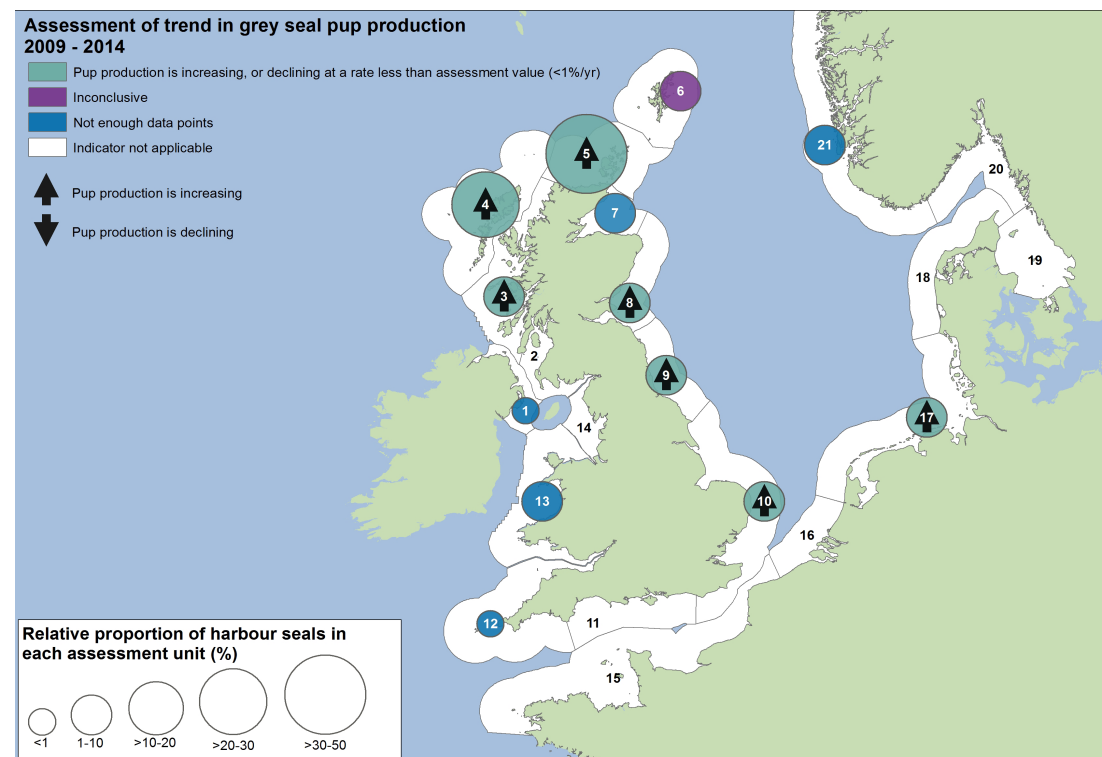


Figure 1: Change in grey seal pup production during the period 2009–2014, assessed against no decline greater than 1% per year. The numbers in each circle refer to the respective 'Assessment Unit' (mentioned in the text as AU).

## Results cont...

Grey seal pup production increased rapidly in Greater North Sea Assessment Units (AUs) during the period 2009–2014. It is likely that the increase in pup production in the AUs in continental Europe (e.g. the Wadden Sea, AU17) is being driven by the immigration of animals from the large colonies to the north of the United Kingdom.

Growth rates in pup production were lower in West Scotland (AU3) and the Western Isles (AU4). This may be due to these areas approaching carrying capacity.

Changes in grey seal pup production were assessed up to 2014 in the Greater North Sea and in parts of the Celtic Seas within British waters. Grey seals breed along the coast of Ireland, but corresponding data are not available because the data density could not support an assessment.

Long-term change was assessed from a baseline year of 1992 (or later for some time series). Short-term change concerns the period 2009–2014. The analysis looked at the extent of long-term or short-term decline. No declines were detected.

The confidence rating for the methodology was considered to be moderate/low. The confidence rating for data availability was considered to be moderate.

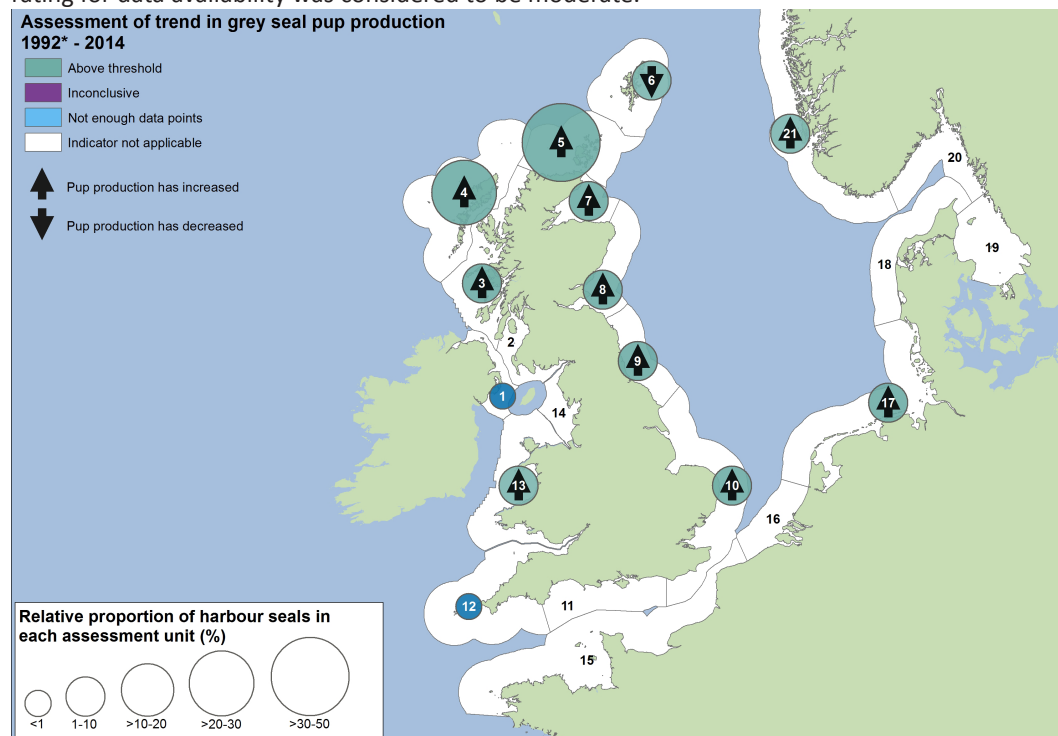


Figure 2: Change in grey seal pup production during the period 1992\*–2014, assessed against no decline greater than 25%. The numbers in each circle refer to the respective 'Assessment Unit' (mentioned in the text as AU). \*Although 1992 was used as the baseline year, in some Assessment Units a later year was used due to data availability



## Conclusion

Grey seal pup production has increased over both the long term and short term in all assessed areas in the Greater North Sea (except Shetland) and in the parts of the Celtic Seas covered by this assessment.

The results for pup production should be considered alongside those for the common indicator on seal abundance and distribution. While both indicators show an improvement in the condition of the grey seal population in the North-East Atlantic, the population is likely to be recovering from a time when it was significantly depleted by human activity. Hunting, pollution and overfishing are all likely to have reduced populations in the recent past and might still be having an influence. The natural carrying capacity for the number of grey seals in the North-East Atlantic is not known. Even without pressure from human activities it is clear that pup production cannot keep increasing indefinitely and will reduce as the natural carrying capacity is reached.

## Knowledge Gaps

There are several knowledge gaps that need to be addressed to improve this assessment for its next iteration. There are currently insufficient data points in some of the Assessment Units (AUs) (Figure 1). Pup production is only a partial indicator of population condition, which is also affected by female fecundity, pup survival and body condition and this aspect of the indicator could be further developed. There is also a lack of information on human impacts on pup production and how adult grey seals move between AUs, including how this impacts populations.