

# TSEG Grey Seal surveys in the Wadden Sea and Helgoland in 2016-2017

General growth but local drop in numbers



*On Helgoland, grey seals are exposed to a steady presence of tourists (Photo: Katharina Tilly)*

**By the members of the Trilateral Seal Expert Group (TSEG):**

**Sophie Brasseur  
Richard Czeck  
Anders Galatius  
Lasse Fast Jensen  
Armin Jeß  
Peter Körber  
Ralf Pund  
Ursula Siebert  
Jonas Teilmann  
Sascha Klöpper**

## Introduction

The coordinated aerial, boat and land surveys of the Dutch, German and Danish Wadden Sea grey seal areas including Helgoland (Germany) are aimed at estimating changes in numbers of grey seals (*Halichoerus grypus*) in the Wadden Sea area. The pups born in winter are indicative of changes in the local breeding population, while the total counts during the moulting season in spring would include animals that might have bred elsewhere and have redistributed during the post breeding period. Results of the counts do not yield an absolute or maximum number of seals, but a number that can be compared from year to year to produce trends.

## Results and Interpretation

Though the growth in pups of almost 15% was less than the growth last year (almost 35%), the numbers of pups counted in the winter of 2016-2017 were still high: the maximum total count of grey seal pups counted in the Wadden Sea at the peak in mid-December was 1279. Pup numbers slightly dropped in Helgoland with a count of 287 pups (-4%). One pup was counted in the Wadden Sea area of Schleswig-Holstein, and no pups were recorded in Denmark during the coordinated counts. However, a pup was seen there in January, it is unclear whether it was born in Denmark or had drifted there from another area. In Lower Saxony/Hamburg pup numbers increased by almost 28% to 197 pups and in the Netherlands 794 pups were counted, 21% more than last year. Even with the lower growth, the relative growth in pup numbers compared to last year is still higher than can be expected in a stable population: 14.9 vs 11% (Harding & Härkönen 1999), indicating a net immigration of breeding animals (Brasseur et al. 2015).

The maximum numbers of grey seals in the Wadden Sea area are counted in spring during the moult. For the moult counts, the highest number counted within the space of a few days throughout the Wadden Sea is chosen, even if this total does not reflect the highest number recorded in a subarea. All in all, the total number recorded in 2017 increased by 10% compared to 2016 and amounted to 5445 grey seals in the Wadden Sea area (fig 1). In Denmark, 221 grey seals (+49% compared to 2016) were observed, reinforcing the expansion northwards. Contrary to other areas at Helgoland the numbers decreased to 616 animals (-17.2%). In the Schleswig Holstein Wadden Sea, the number of grey seals using the area during the moult grew to 141 animals (+200%). The haul out sites in this region seem to be more prone to flooding causing animals to shift often between areas. In Lower Saxony/Hamburg, a growth to 422 seals (+40%) was observed. In the Netherlands, numbers of grey seals during the moult grew to a maximum count of 4045 (+9.4%). This year the growth in numbers in the Wadden Sea is slightly lower than the average recorded since 2008 (16%), and lower than the growth in the number of pups born in the region. The ratio between the number of pups and the total numbers was 23% this year. It is too early to take this as an indication that the local breeding population has stabilised (fig2).

As discussed above, the aim of the surveys is to produce an index for the whole area. As there might be fluctuations due to annual circumstances, it is not possible to determine when the exact peak (the maximum numbers) will fall. The TSEG therefore tries by standardising their methods; i.e. linking the surveys to low tide in the approximate period of the expected peak, thus producing an index to compare numbers between years, rather than an absolute maximum number. This allows the scientists to monitor the general long term trends in the population and observe possible differences between areas. For management purposes these synchronised trends are of vital importance as the seal population extends far beyond the local boundaries.

Compared to the other areas, it seems that in Helgoland, the number of grey seals recorded in these surveys vary more from one year to the other. Though this could be a result of misfortune in the planning of the flights, other aspects need to be considered:

There might be a relatively higher, but fluctuating number of seals from the UK visiting Helgoland. And as there is a slight difference in timing of the annual cycle between the Wadden Sea and the UK, this could result in more variation in the peak in numbers during the moult than in other areas. This has been suggested in Schop et al. (2017). In addition, the more exposed situation of Helgoland in the relatively open Southern German Bight or the unavoidable number of disturbances as a result of the many visitors of this touristic island, could play a role in these fluctuations, causing animals to move temporarily to other areas. To better understand how grey seals move within the North Sea areas, individual grey seals could be tracked using telemetry or photo ID programs.

## References

- Brasseur SMJM, van Polanen Petel TD, Gerrodette T, Meesters EHWG, Reijnders PJH, Aarts G (2015) Rapid recovery of Dutch gray seal colonies fueled by immigration. *Marine Mammal Science* 31:405-426
- Harding KC, Härkönen TJ (1999) Development in the Baltic grey seal (*Halichoerus grypus*) and ringed seal (*Phoca hispida*) populations during the 20th century. *Ambio* 28:619-627
- Schop J, Aarts G, Kirkwood R, Cremer JSM, Brasseur SMJM (2017) Onset and duration of gray seal (*Halichoerus grypus*) moult in the Wadden Sea, and the role of environmental conditions. *Marine Mammal Science*

**Numbers of grey seals counted in the Wadden Sea and Helgoland since 2008**

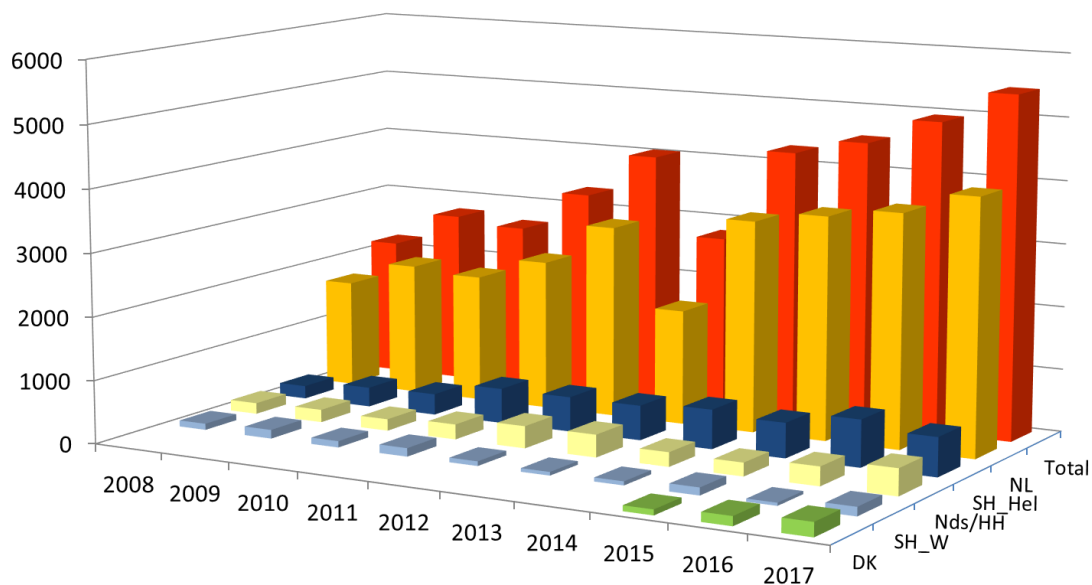


Figure 1. Total number of grey seals counted in the Wadden Sea during the moult, as well as numbers broken down by region, for 2008-2016.

Numbers of grey seal pups and percentage of pups compared to moult counts

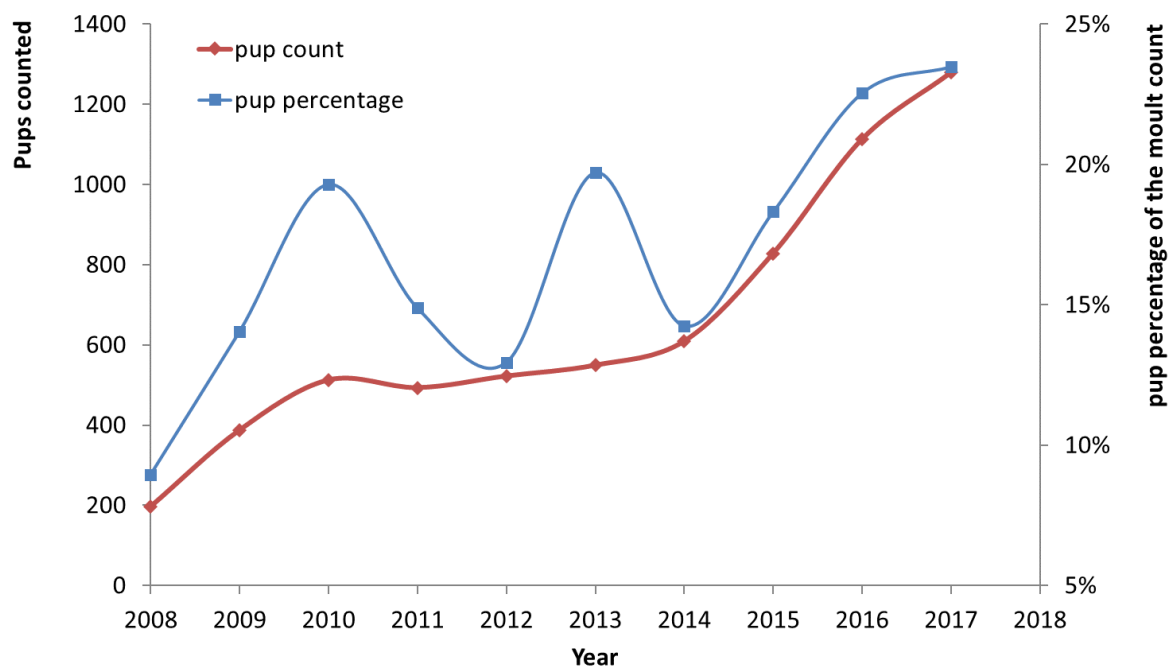


Figure 2. Number of pups counted in the Wadden Sea (red line, right vertical axis) in the years 2008-2015. The number of pups as a percentage of the total moult count is given by the blue line (left vertical axis).