

COMMON WADDEN SEA SECRETARIAT

SURVEY RESULTS OF HARBOUR SEALS IN THE WADDEN SEA IN 2023

The population continues to decline



INTRODUCTION

To obtain an estimate of the number of harbour seals and pups hauled out in the entire Wadden Sea area (including Helgoland), counts are synchronized between the three Wadden Sea countries, Denmark, Germany and the Netherlands.

Harbour seals are counted when hauling out on land and counts are scheduled to be carried out when low tide occurs. The counts are conducted on five coordinated dates. Three counts during the pupping season in June and two during the moulting season in August. In June, the number of pups is counted and in August the total number of harbour seals is counted in the respective regions, providing for an index of the population.

Aside from actual population changes, many factors may influence the number of seals on land during the surveys. Though efforts are made to maximise the standardisation of the surveys with respect to tides and dates, other factors such as weather conditions and disturbance of the seals, may influence the local counts. This is why trends in abundance should be considered over several years. On longer terms, habitat alterations such as changes in prey density or distance to food patches and changes in for example sandbanks to haul out on may affect the haul out patterns. Finally, change in the age and sex composition of the population may affect the ratio of seals hauling out compared to those at sea (Härkönen *et al.* 1999), or the expected peaks in numbers may shift. Timing of birth has shifted forwards between the 1970's and 2010's (Reijnders *et al.* 2010). However, preliminary results suggest that such shifts have not occurred in past years.

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RESULTS AND INTERPRETATION

PUP COUNTS

In 2023, a total of 9,334 pups were counted. Although this represents an increase of 10% relative to the 2022 count of 8,514 pups (Figure 1), the number of pups is now comparable to those in 2017. In Denmark, there was an increase of 23% relative to 2022 with 663 pups counted. In Schleswig-Holstein, the increase compared to 2022 was 12% with 4,305 pups and in Lower Saxony and Hamburg, there was a decrease of 5% with 2,059 pups counted in 2023. In the Netherlands, the increase was 18% with 2,307 pups counted. On Helgoland, no pups were observed.

MOULT COUNTS

During the moult in August 2023, a total of 22,621 harbour seals were counted in the Wadden Sea area. This constitutes a decrease of 4% relative to the count in 2022 and is the lowest count since 2010 (Figure 2). This is the third consecutive year with a decrease.

In 2023, counts of moulting harbour seals decreased in all areas except Lower Saxony, where a change of methodology may have contributed to the very low count in 2022 (Galatius *et al.* 2022). Here, the 2023 count increased by 17% to 5,639. In Denmark, counts decreased by 19% to 2,268, in Schleswig-Holstein, they decreased by 5% to 7,936 and in the

Netherlands, they decreased by 11% to 6,706. At Helgoland, 72 seals were counted compared to 98 in 2022 (-27%).

Since the 2023 counts represent the third year of successive decline and the population has declined to a level comparable to 2010, effort is needed to understand the underlying mecha-

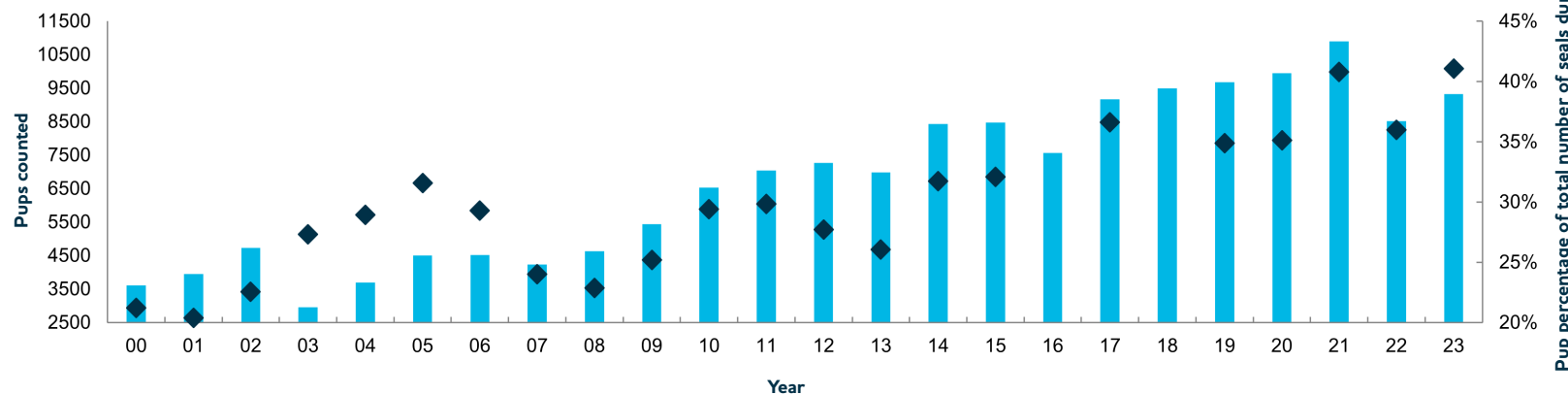
nism, or cumulation of different mechanisms. Changes in numbers of seals hauled out could be the result of changing circumstances (as stated above), or actual changes in population numbers, i.e., due to lack of reproduction, migration or mortality. The high number of pups observed makes the former unlikely and there is no indication of large-scale migration

to adjacent areas (ICES 2022). Neither pathological examinations in Germany and Denmark nor the number of dead harbour seals found stranded indicate a disease-related decline in the population. In some areas in the North Atlantic harbour seal abundance has been recorded to drop following the growth of grey seal numbers (ICES 2015) and individual grey seals have

been observed to kill harbour seals (van Neer *et al.* 2015; Rohner *et al.* 2020). However, in the areas of the Dutch Wadden Sea where most grey seals in the Wadden Sea are counted (>70%), harbour seals are growing, not declining (<https://www.wur.nl/nl/show/populatie-gewone-zeehonden-in-de-nederlandse-waddenzee.htm>). The areas of the southern North Sea

Figure 1

● Pup count ● Pup percentage



Number of harbour seal pups counted in the Wadden Sea in June (left y-axis, light blue bars) in the years 2000-2023. The number of pups counted in June as a percentage of the total number of seals counted during the moult in August (right y-axis, dark blue diamonds).

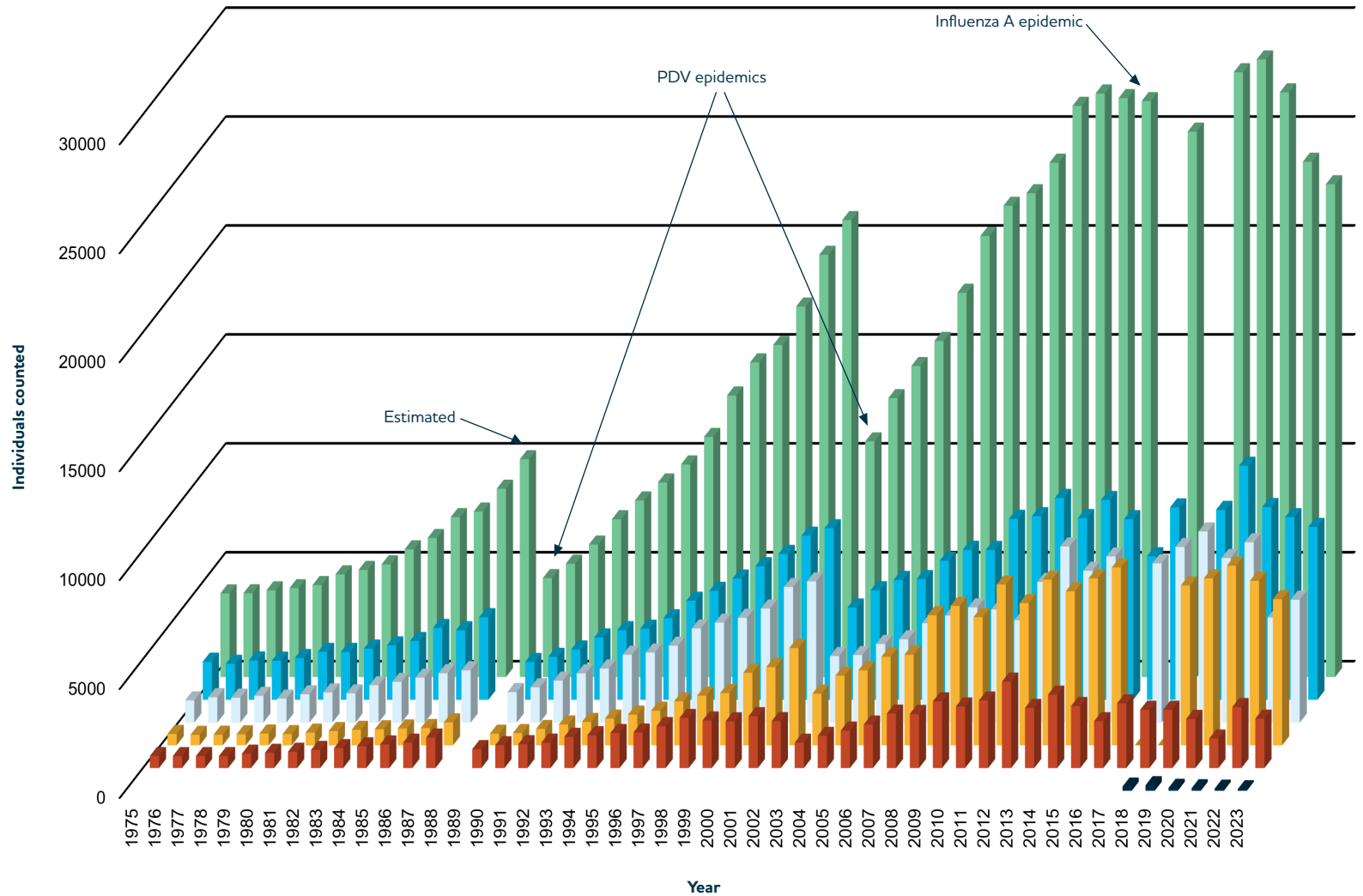
where the Wadden Sea harbour seals forage (Aarts *et al.* 2019) changes in the fish populations have been observed. Intensive fisheries in the area may affect the seals directly through bycatch or indirectly by degrading the habitat and its resources. Additionally, during the past decade offshore construction of wind farms and other use of the coastal waters have increased in or adjacent to the Wadden Sea area. The effects of these changes on the seal populations are still to be determined.

CONCLUSION

Though compared to 2022 there is some recovery of the annual number of pups counted, a decrease in total number of harbour seals was recorded for the third successive year and numbers are now as low as in 2010. The causes of the decline remain unclear, but prey availability, potentially caused by human activities, grey seals and offshore construction are candidates. The estimate of the total Wadden Sea harbour seal population, including seals in the water during the survey, can be calculated using a correction factor estimated by Ries *et al.* (1998). They found that on average 32% of the seals were in the water during summer. By using this correction factor, the total population size of harbour seals in the Wadden Sea area in 2023 is estimated at about 33,300. However, this correction factor may not accurately reflect the proportion of harbour seals hauling out today. New studies on the proportion of seals visible during the surveys are needed to ensure that the total population size is estimated accurately.

Figure 2

● Helgoland ● Denmark ● Netherlands ● Lower Saxony and Hamburg ● Schleswig-Holstein ● Total



Total number of harbour seals counted in the Wadden Sea during the moult in August, as well as numbers for each region, from 1975 to 2022. In 2016 and 2018, parts of the Wadden Sea could not be surveyed on the coordinated date, resulting in missing total counts for these years. Since 2018, data from Helgoland are included.

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