Aerial Surveys of Harbour and Grey Seals in the Wadden Sea in 2006

Trilateral Seal Expert Group (TSEG)

Harbour seals on a sandbank (Photo: S. Brasseur).

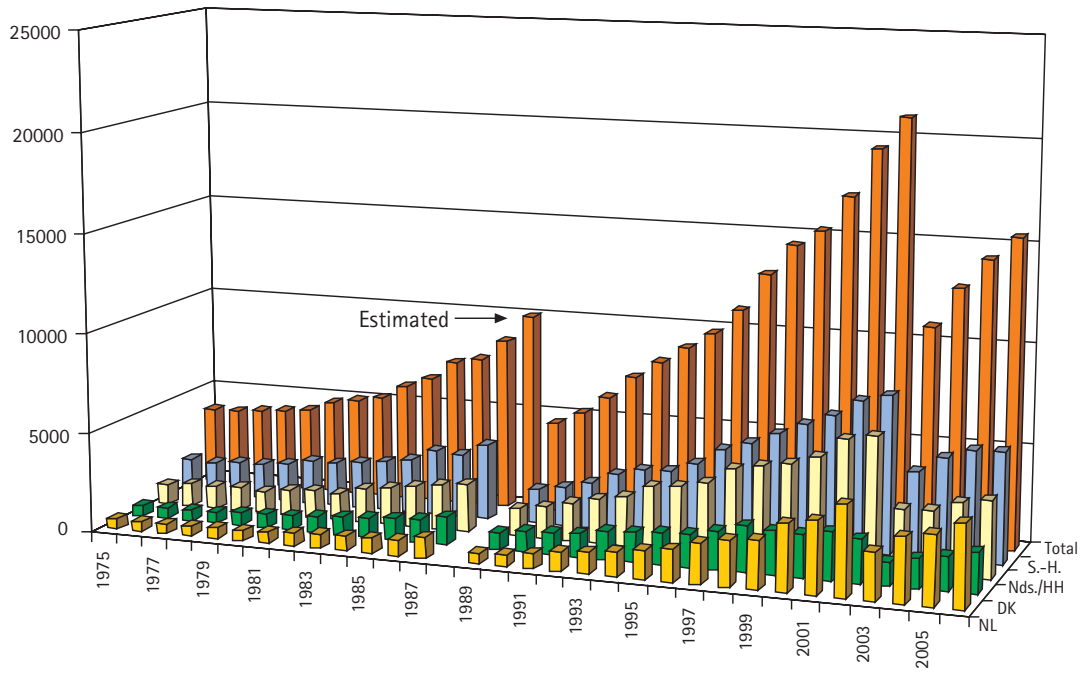
Harbour Seals: Puzzling Results

As in the foregoing years, in 2006 the surveys to monitor the harbour seal Phoca vitulina population in the entire Wadden Sea were coordinated and carried out trilaterally according to the Seal Management Plan. The counts, performed almost simultaneously in the different sub-regions, provided the following results: the maximum number observed in the moulting period (August) amounted to 4,065 in the Netherlands, 3,820 in Niedersachsen/Hamburg, 5,543 in Schleswig-Holstein, and 1,998 in Denmark, bringing the grand total to 15,426 seals. The maximum number of pups observed during the whelping period (June) was 850 in the Netherlands, 1,173 in Niedersachsen/Hamburg, 2,085 in Schleswig-Holstein and 411 in Denmark, bringing the grand total of pups to 4,519. The percentage pups-per-total-number is 29.3%.

The maximum number counted for the entire Wadden Sea is just over 8% higher than counted in 2005, the maximum number of pups observed equals the figure for 2005. Compared to the previous years since the 2002 epizootic, the annual increase continued to slow down from 18,5% in 2003/2004 to 8,1% in 2005/2006.

This is similar to the pattern observed in the first years following the 1988 epizootic. The initial increase was again higher than the average for the entire period 1989-2001. This underlines our previous postulation (Reijnders et al., 2003, Abt et al., 2005) that the post-epizootic age structure has changed in favor of adult (reproducing) females. The overrepresentation of adult males found dead in 2002 corroborates that assumption. Additional support for that postulation can be deducted from the fact that the ratio of observed numbers in the pupping season to numbers observed in the moult are higher in the post-2002 epizootic years compared to the pre-epizootic period.

The results of the pup counts of this year were puzzling. With an increasing population, it was expected that more pups would be counted than last year. However, the maximum number of pups observed in 2006 was almost equal to the number observed in 2005. We postulate that pup counts in 2006 encompassed a lower fraction of pups actually born than counts in 2003–2005. Unusually low count results in the early pupping season and the relatively late dates of first weaned pups observed, suggested that the pupping season was about one week later in 2006 than in previous years. As a consequence peak numbers would have occurred in the end of June, instead of



Number of counted Harbour seals in the Wadden Sea since 1975.

around 20 June when the surveys were made. This means that counts from both years are not entirely comparable and numbers obtained for this year are more likely an underestimate. The reason for the delay in the 2006 pupping season is presumably the extremely cold spring this year.

Nevertheless, with the presently observed trend in growth, the population may have recovered to the pre-epizootic level by 2008.

Counting Grey Seals in the Wadden Sea in 2006

This is the first time that we report on trilaterally coordinated surveys on grey seals in the Wadden Sea. We therefore introduce this species and report on this year's counts.

History of occurrence

The grey seal Halichoerus grypus was a common species along mainland Europe during the Neolithic and early Bronze Age (4000 - 1200 BC). Most of the sub-fossil seals remain found in Dutch deposits dated between 2000 BC and 1000 AD, which is comparable to finds in other parts of the Wadden Sea. By the end of the Middle Ages (1400 -1500 AD), grey seals virtually disappeared from the Wadden Sea area. Up until the mid-20th century, only straggling animals were reported on the Dutch, German and Danish North Sea coasts.

In recent times, about three decades ago, grey seals started to re-establish themselves in the Wadden Sea, first a haul/out rookery off the German Island of Amrum, followed later by a few rookeries in the western part of the Dutch Wadden Sea. More regular surveys from boats have been carried out in the Netherlands since 1980 and from 1988 onwards off Amrum. Maybe the re-colonisation has started sometime earlier, but grey seals present were just taken as harbour seals.

Present occurrence

The grey seal rookeries in the Netherlands are mainly found in the western part of the Wadden Sea, although gradually more single animals and small haul-out groups are observed in the middle and eastern part. Numbers at the main haul/outs have increased exponentially since 1980, on average by 20% annually.

In the westernmost part of the German Wadden Sea (Niedersachsen), small groups have recently been observed near the islands of Borkum, Norderney and Juist, and single ones in the Weser-Elbe estuary.

The haul/out rookery off Amrum (Schleswig-Holstein) is growing and moult counts (carried out from boats) indicate an annual increase of about 4-5%.

Another stronghold of grey seals in the German Bight is located on the island of Helgoland. Regular occurrence has been known there since 1989. Only straggling seals are found in the Danish Wadden Sea.

Aerial surveys of Grey Seals in 2006

Since the grey seal evidently belongs to the indigenous fauna of the Wadden Sea, its monitoring is part of the operative trilateral Seal Management Plan. It has been agreed to carry out trilaterally co-ordinated and synchronised aerial surveys for grey seals from 2006 onwards. For the time being, at least two surveys should be carried out during the moult (March-April). These moult counts are supplemented by either multiple aerial or boat counts, during the pupping season (December-January). In the case of Helgoland, these surveys are carried out from land.

The maximum numbers of grey seals counted in the Dutch Wadden Sea during the moult in 2006 are 1,786, 42 in Niedersachsen, 117 in Schleswig-Holstein, and 194 at Helgoland. That brings the total number of grey seals nearly simultaneously observed in the Wadden Sea and at Helgoland, to 2,139 animals. As with harbour seals, this number is an index only, because a certain fraction of the seals does not haul out during surveys. It is yet unknown how the counted numbers relate to the actual number present at that time of the year.

The reported maximum number of newly born pups observed were 200, 19, 24 in respectively the Wadden Sea of the Netherlands, Niedersachsen, and Schleswig-Holstein, and 23 at Helgoland (Schleswig-Holstein) in the breeding period Dec 2005/Jan 2006. However, we emphasize that these pup production figures were obtained in different ways and under different conditions. Thus the relation of newly born pups counted to the total number born varies between sub-areas. In the Netherlands, the quoted figure is the sum of all newly born pups observed during different surveys in the whelping season. On Helgoland, presumably all pups actually born are observed. Off Amrum, newly born pups are registered during the birth season in weekly intervals, so number of newly born pups observed are believed to represent the vast majority of pups actually born there. In Niedersachsen, the quoted figure is the highest number observed in one of the two surveys, and the relation to total number born is unknown.

We do not yet know whether there is a genetic connection between the different colonies in the Wadden Sea. From sightings of marked animals we know that there is contact between animals from rookeries within the Wadden Sea and moreover with haul-out groups on the UK east coast, namely the Farne Islands and Orkney. Results from a few recently satellite-tagged animals confirm migration of grey seals from the Wadden Sea to the UK east coast and vice-versa. Therefore, we consider the grey seals in the Wadden Sea as part of an open population, meaning that the occurrence of grey seals in the Wadden Sea area is significantly influenced by movements of animals within the North Sea. Changes in numbers and pup production should therefore be interpreted in a meta-population concept, preferably in a North Sea-wide geographic context.

Grey seals (Photo: S. Brasseur).

References

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