Trilateral Seal Expert Group (TSEG)

Counting Harbour Seals in the Wadden Sea in 2004 and 2005 – Expected and unexpected results

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

Results of the aerial surveys in 2004

Following the Trilateral Seal Management Plan, harbour seals in the Wadden Sea are monitored annually by a series of five aerial surveys. The 2003 census has shown the extent of the 2002 distemper mass mortality. The 2004 counting data documents the first step of the recovery of the seal stock. In the peak moulting season in early August, maximum numbers of seals counted in the Wadden Sea were 3,194 in The Netherlands (NL), 3,098 in Niedersachsen (Nds)/Hamburg, 5,032 in Schleswig-Holstein (SH), and 1,479 in Denmark (DK), a grand total of 12,803 seals. Maximum figures for newborn seals counted during the late pupping season in late June / early July make up a grand total of 3,704, with 694 in NL, 946 in Nds, 1,781 in SH, and 283 in DK (the latter may be biased downwards due to an early count date).

The total number of seals counted is 18% higher than the 2003 result, which compares to the pre-epizootic average growth rate of 12-13% per year. Of course, year-to-year records can differ from the actual growth rate due to random or methodological effects. The figure of 18% in fact remains within the previous range of annual changes in counts from the moulting season. However, we actually did expect an elevated stock increase after 2003 (see WSNL 2003-2, page 11). This was based on evidence of a temporary surplus of adult female seals, at least in part of the population, caused by the mass mortality in 2002. An elevated proportion of females in turn means elevated productivity, as was in fact observed in 2003. It is emphasized that we do not relate high productivity to lower seal density. Although population size increased by a factor of five between 1989 and 2002, fertility of seals is considered stable throughout that period.

Surprisingly, productivity appears even higher in 2004 than in 2003: The number of newborn seals counted is as much as 25% higher than in 2003, and the ratio between the count of newborns and the total count in August (which contains only very few pups of the year) is 29%, compared to 27% in 2003. Due to the presumably high recruitment of young seals born in 2003, which do not contribute to the 2004 pup production, we had rather expected a lower per capita birth rate this year. Of course, count results do not precisely reflect birth rate or changes thereof. For instance, the fraction of seal pups born in a year that is actually counted may be influenced by the temporal spread of births, the average length of lactation, and survey dates. Nevertheless, certain demographic effects related to the 2002 seal epidemic (i.e. skewed sex ratio amongst

survivors, certain rate of reproductive failure in 2002) are considered in order to explain recent count results.

In any case, harbour seals are likely to recover quickly from the blow in 2002. Assuming a current growth rate around 18% per year, which may level off to the normal 12-13% within three years or so, rebuilding of the 2002 stock size may be expected at least until 2008.

Results of the aerial surveys in 2005

In 2005, the total number of seals counted during the moult period in August was 14,275. This number consisted of 1,720 in Denmark, 5,505 in Schleswig-Holstein, 3,607 in Niedersachsen/Hamburg and 3,443 in The Netherlands. The maximum number of pups counted during the whelping season in June was 4,507, in detail: Denmark 388, Schleswig-Holstein 2,046, Niedersachsen/Hamburg 1,176 and The Netherlands 897.

This is an apparent increase of 11.5% compared to 2004, and close to the average annual growth rate of 12-13% observed in the pre-epizootic period 1990-2001. As the increase from 2003 to 2004 was 18%, the average growth rate observed so far after the epizootic in 2002 is higher than before the epizootic. This corresponds to the remarkably high ratio of pups versus total number of seals found over the last three years. This ratio was 27-31% for the period 2003-2005, compared to 20-25% for the period 1990-2001.

Elevated productivity may partly be explained by a female-biased demography as a consequence of the 2002 mass die-off. Population recovery to the pre-epizootic level may be expected by 2007/2008.

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See also: http://waddensea-secretariat.org

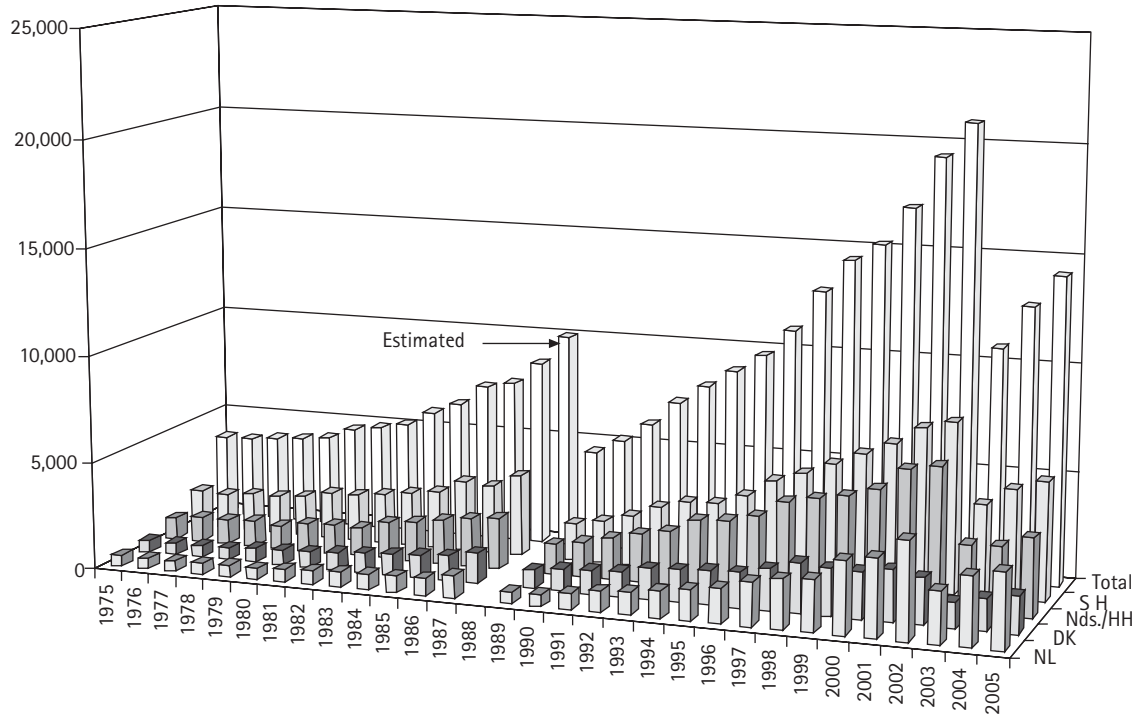

Figure 1:
Number of counted seals in the Wadden Sea since 1975.