

Aerial surveys of Grey Seals in the Wadden Sea in the season of 2012-2013

mixed messages

In the German and Dutch Wadden Sea, several aerial and boat counts are conducted during the pupping season (November-January), whilst on the island of Helgoland (Germany) surveys are carried out from land. Furthermore, two dedicated grey seal aerial surveys are carried out during the moult (March-April). Because grey seals have not been seen to breed in the Danish Wadden Sea and show a rather seasonal occurrence, grey seals are only counted during the summer counts for harbour seals in Denmark.

Results and Interpretation

As pup surveys are conducted in mid-winter, weather circumstances may affect the numbers counted. As a consequence, year to year variation is expected to be large and conclusions should be made with some caution. In winter of 2012/2013 the maximum number of pups counted synchronously in the different areas of the Wadden Sea was 549: 355 in the Netherlands, 58 in Lower Saxony/Hamburg, 6 in Schleswig-Holstein (Wadden Sea) and 132 pups on Helgoland. Growth was observed in the Netherlands (+23%), where after two years of apparent decrease, the pup number was slightly higher this season than three years ago in 2009/2010. A very slight decrease was observed in Lower Saxony. In Schleswig Holstein comparisons are more complicated as the counting method is changing, as explained in last year's rapport. Therefore, the total numbers are being compared with those of pups born in a season. On the island of Helgoland the numbers increased by almost 21% to 169 compared to 140 in last season. In the Wadden Sea area of Schleswig Holstein a decrease was observed, as the total numbers born were 15-25 vs. 35 in 2011/2012. The coming years should show if these changes persist and how the grey seals in the different areas are related as the counts are conducted in a similar way.

The number counted on Helgoland is an overestimation compared to the other counts, since it comprises all pups born to that date. As explained in last year's report, this count is lower than the true total numbers of pups born, because at the moment of the flight some pups will have already left the breeding site, while others will be born after the survey. Therefore, the number should be used as an index value between years or as a minimum number of pups born.

The maximum numbers of grey seals are observed during the spring moult. However, the total numbers observed this year were 31% lower than last year (2,785 grey seals), using the same counting method as in the past years. A methodical check of the counting method used in Lower Saxony led to a somewhat lower result. A number of factors might have affected the results of this year:

First of all, the temperature in the beginning of the year was extremely low, March being the coldest in 40 years. Moulting seals must get warm to activate the circulation in their skin (Paterson et al. 2012). Possibly, the cold weather would have delayed this process, influencing the numbers on land. Also the influx of animals from the UK may also have been affected by the late season. Next years' counts will show if the downwards trend was linked to unusual weather, or if the counts represent a negative development of the number of grey seals in the Wadden Sea.

Secondly, this year was particularly problematic as weather conditions were very poor and visibility low.

In anticipation, we can state that, given the rise in pup numbers observed this season, it is unlikely that the number of grey seals has dropped as dramatically as shown in recent counts. Furthermore, in Denmark where grey seals numbers are only assessed during the summer surveys, up to 87 grey seals were counted, an increase of 14%. This may be another indication that indeed numbers in spring were negatively biased.

References

Paterson W, Sparling CE, Thompson D, Pomeroy PP, Currie JI, McCafferty DJ (2012) Seals like it hot: changes in surface temperature of harbour seals (*Phoca vitulina*) from late pregnancy to moult. *Journal of Thermal Biology* 37:454-461.

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