

Hammond, P.S., Berggren, P., Benke, H., Borchers, D.L., Collet, A., Heide-Joergensen, M.P., Heimlich, S., Hiby, A.R., Leopold, M.F., Oeien, N. 2002. Abundance of harbour porpoise and other cetaceans in the North Sea and adjacent waters. *Journal of Applied Ecology* [J. Appl. Ecol.]; vol. 39, no.2, pp. 361-376.

Abstract:

1. The status of small cetaceans in the North Sea and adjacent waters has been of concern for many years. Shipboard and aerial line transect surveys were conducted to provide accurate and precise estimates of abundance as a basis for conservation strategy in European waters. 2. The survey, known as SCANS (Small Cetacean Abundance in the North Sea), was conducted in summer 1994 and designed to generate precise and unbiased abundance estimates. Thus the intensity of survey was high, and data collection and analysis methods allowed for the probability of detection of animals on the transect line being less than unity and, for shipboard surveys, also allowed for animal movement in response to the survey platform. 3. Shipboard transects covered 20 000 km in an area of 890 000 km². Aerial transects covered 7000 km in an area of 150 000 km². 4. Three species dominated the data. Harbour porpoise *Phocoena phocoena* were encountered throughout the survey area except in the Channel and the southern North Sea. Whitebeaked dolphin *Lagenorhynchus albirostris* and minke whale *Balaenoptera acutorostrata* were found mainly in the north-western North Sea. 5. *Phocoena phocoena* abundance for the entire survey area was estimated as 341 366 [coefficient of variation (CV) = 0 times 14; 95% confidence interval (CI) = 260 000-449 000]. The estimated number of *B. acutorostrata* was 8445 (CV = 0 times 24; 95% CI 5000-13 500). The estimate for *L. albirostris* based on confirmed sightings of this species was 7856 (CV = 0 times 30; 95% CI = 4000-13 000). When Atlantic whitesided dolphin *Lagenorhynchus acutus* and *Lagenorhynchus* spp. sightings were included, this estimate increased to 11 760 (CV = 0 times 26; 95% CI 5900-18 500). 6. Shortbeaked common dolphin *Delphinus delphis* were found almost exclusively in the Celtic Sea. Abundance was estimated as 75 450 (CV = 0 times 67; 95% CI = 23 000-149 000). 7. Current assessments and recommendations by international fora concerning the impact on *P. phocoena* of bycatch in gillnet fisheries in the North Sea and adjacent waters are based on these estimates.