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The harbour porpoise (*Phocoena phocoena*) in the southern North Sea: a come-back in northern French and Belgian waters?

Submitted by: **Belgium/France**

ASCOBANS

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The harbour porpoise (*Phocoena phocoena*) in the southern North Sea: a come-back in northern French and Belgian waters?

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ABSTRACT

The harbour porpoise (*Phocoena phocoena*) is the most common cetacean in the North Sea. In the southern North Sea, the population (or sub-population) declined dramatically during the twentieth century. Between 1990 and 2002, northern French (*National Stranding Network*) and Belgian (*Marine Animals Research and Intervention Network*) stranding networks systematically collected marine mammals washed ashore, by-caught or floating in coastal waters. A total of 125 harbour porpoises were collected: 56 individuals from northern France and 99 from Belgium. From both areas, 20% of animals presented evidence of by-catch in fishing gear. From 1990 to 1996, the mean annual stranding number was low in both areas (mean annual number=5.3; SD=1.8; min=3; max=9; n=33). However, it increased significantly from 1997 to 2002 (*Pearson*, p=0.001; mean=22.6; SD=22.6; min=11; max=36). A better reporting of strandings may slightly have biased these trends. The sex-ratio was normal and all age classes were represented. In the late 90's, we observed stranded newborn animals and recorded for the first time a pregnant female (in 2001). This may indicate that calving occur in northern French and Belgian waters. A clear seasonality occurred in the strandings: they were more frequent during late winter and early spring. The increasing number of harbour porpoise strandings these last years along the northern French and Belgian coasts was accompanied by an increase of sightings. The higher number of porpoises in the southern North Sea could be due to an increase of the southern North Sea harbour porpoise population, possibly due to movements of other populations to the southern North Sea sector. Changes in prey availability or/and environmental changes would explain the come-back of the harbour porpoise off Belgium and northern France.

INTRODUCTION

The harbour porpoise (*Phocoena phocoena*) is the most abundant cetacean in the North Sea (Hammond *et al.*, 1995). However, during the twentieth century, it declined drastically in many regions, particularly in the southern North Sea (Smeenk, 1987; Camphuysen and Leopold, 1993; Camphuysen, 1994). The factors of this decline seem to be related to human activities, such as overfishing, incidental catches in fishing gear, pollution, and habitat degradation (Hammond *et al.*, 1995).

Here we present an analysis of stranding records of harbour porpoises along the northern French and Belgian coasts from 1990 to 2002. Since the late 90's, trends of stranding records seem to underline a come-back of the harbour porpoise in the southern bight of the North Sea. Possible factors of the increased number of harbour porpoise strandings are discussed.

MATERIAL AND METHOD

Strandings data were collected by correspondents of the French Stranding Network (*RNE*, co-ordinated by the *Centre de Recherche sur les Mammifères Marins*, la Rochelle, France), and by the Belgian group *Marin Animals Research and Intervention Network* (MARIN, co-ordinated by the Royal Belgian Institute of Natural Sciences, Management Unit of the North Sea Mathematical Models (MUMM). To investigate the status of the harbour

porpoise, we analysed the inter – and intra-annual distribution of strandings, their composition (sex and age-ratios), and the causes of death of most of the stranded individuals. Necropsies were performed at the University of Liège, Belgium (Department of General Pathology).

RESULTS

Between 1990 and 2002, 155 harbour porpoises stranded along the northern French (n=56) and Belgian (n=99) coasts. The spatial distribution of records is showed in the Figure 1. From 1990 to 1996, the mean annual stranding number was low in both areas (mean annual number=5.3; SD=1.8; min=3; max=9; n=33). However, it increased significantly from 1997 to 2002 (*Pearson*, p=0.001; mean=22.6; SD=22.6; min=11; max=36) (Figure 2). The sex-ratio was normal and all age classes were represented (Figure 3), with a higher presence of immatures. In the late 1990's, we observed a re-emergence of stranded newborn individuals, and recorded for the first time a pregnant female (in 2001,on the Belgian coast), probably reflecting calving in northern French and Belgian waters. A clear seasonality occurred and strandings were more during late winter and early spring (Figure 4). *Post mortem* investigations revealed that 20% of the animals presented evidence of by-catch in fishing gear. The main macroscopic lesions were emaciation, parasitosis, and pneumonia. Microscopic lesions were acute pneumonia, pulmonary oedema, enteritis, and hepatitis. Encephalitis was observed on a few individuals.

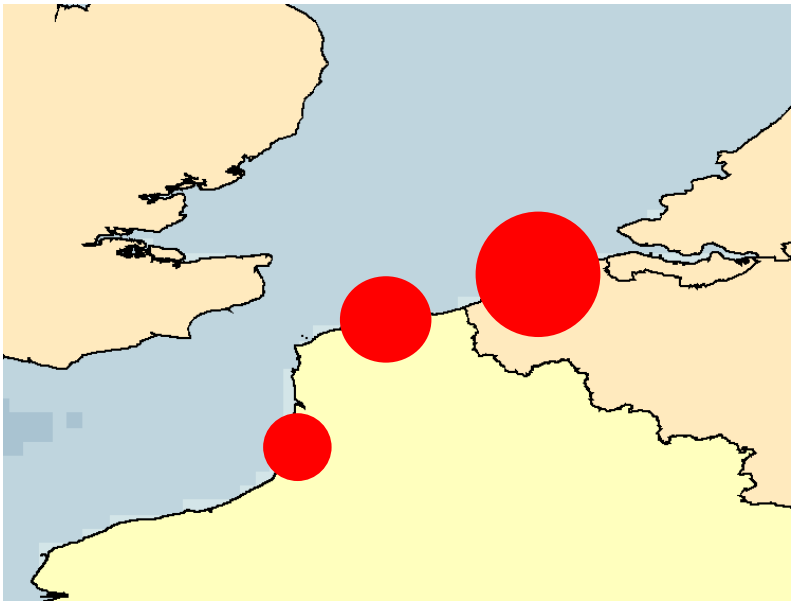

Figure 1: Spatial distribution of harbour porpoise strandings along the northern French and Belgian coasts from 1990 to 2002.

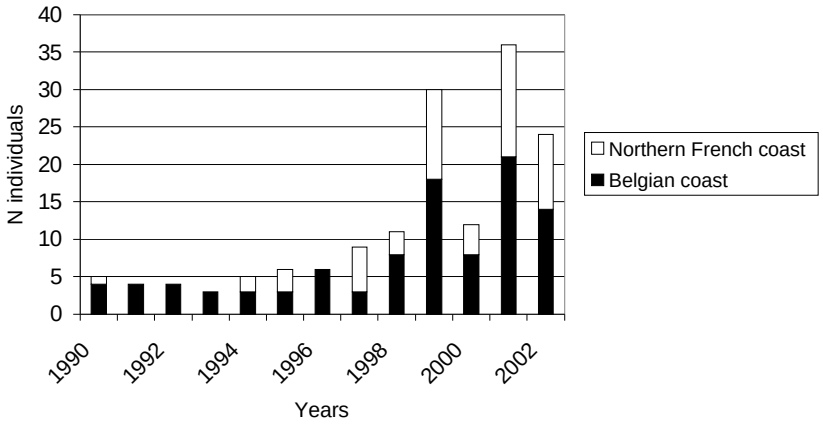

Figure 2: Inter-annual distribution of harbour porpoise strandings along the northern French and Belgian coasts from 1990 to 2002.

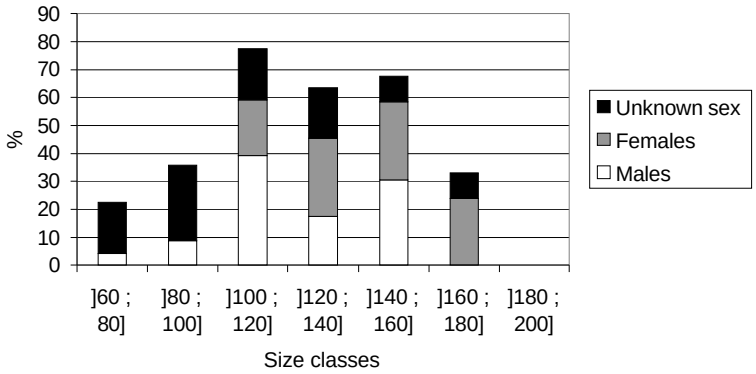

Figure 3: Size and sex distribution of harbour porpoises stranded along the northern French and Belgian coasts from 1990 to 2002.

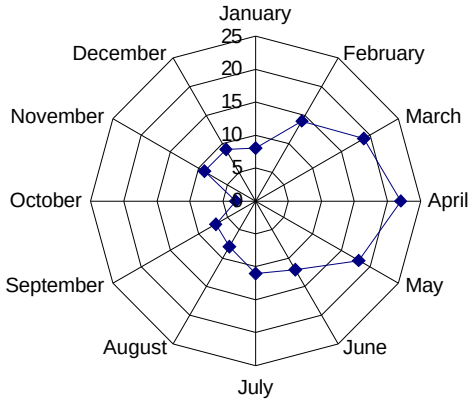

Figure 4: Monthly distribution of harbour porpoise strandings along the northern French and Belgian coasts from 1990 to 2002.

DISCUSSION & CONCLUSIONS

As along the Dutch coast, the harbour porpoise seems to make a come-back in the southern bight of the North Sea, but somewhat later than observed in the Netherlands (Camphuysen and Leopold, 1993; Camphuysen, 1994). The increasing number of harbour porpoise strandings along the southern North Sea coast may be related to an increasing mortality, due to natural diseases or human activities (such as by-catch). However, *post mortem* investigations did not show any sign of epizooty, or other potential factors of highest mortality. In conclusion, we suspect an increase of the southern North Sea porpoise population. The growing number of harbour porpoise strandings these last years along the northern French and Belgian coasts was also accompanied by an increase of sightings in coastal waters (like off the Dutch coast), especially during the spring months (MUMM & CMNF, unpublished data).

Movements of other populations (in the northern or eastern North Sea) to the southern North Sea sector may have affected the abundance of the species, and could be the consequence of changes in prey availability and/or environmental changes in the southern North Sea and/or in other areas of the North Sea. The increase of Herring (*Clupea harengus*) stocks in the southern North Sea in the late 1990's may have provoked the come-back of the harbour porpoise in this area (IFREMER, pers. com.). During the same period, herring stocks declined in the northern North Sea (IFREMER, pers. com.). However, preliminary investigations of the diet of harbour porpoises from the southern North Sea (individuals from the Netherlands) confirmed a low presence of herring and other clupeid fishes (Addink, pers. com.). Consequently, more investigations on the ecology, habitat, distribution and abundance of the harbour porpoise in the southern North Sea are clearly needed to better understand its status.

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REFERENCES

CAMPHUYSEN, C.J., 1994. The harbour porpoise *Phocoena phocoena* in the southern North Sea, II : a come-back in Dutch coastal waters? *Lutra*, 37: 54-61.

CAMPHUYSEN, C. J. & LEOPOLD, M. F., 1993. The harbour porpoise *Phocoena phocoena* in the southern North Sea, particularly the Dutch sector. *Lutra*, 31: 1-24.

HAMMOND, P. S., H. BENKE, P. BERGGREN, D. L. BORCHERS, S. T. BUCKLAND, A. COLLET , M. P. HEIDE-JORGENSEN, S. HEIMLICH-BORAN, A. R. HIBY, M. F. LEOPOLD & N. OIEN, 1995. Distribution & abundance of the harbour porpoise & other small cetaceans in the North Sea & adjacent waters. Life 92-2/UK/027, 239 p.

SMEENK, C., 1987. The harbour porpoise *Phocoena phocoena* (L., 1758) in the Netherlands: stranding records and decline. *Lutra*, 30: 77-90.