Harbour porpoises *(Phocoena phocoena)* and fisheries in the Dutch North Sea

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INTRODUCTION

A study was carried out into the interaction between harbour porpoises *(Phocoena phocoena)* and fisheries in Dutch waters. The population biology of porpoises in the Dutch North Sea was investigated, stranding and necropsy data were analysed and a survey was sent to all professional fishermen.

ABUNDANCE

Estimates of the number of porpoises in the Dutch North Sea vary between ten thousand to over twenty thousand animals (Osinga, 2005). There is a high seasonal variation in abundance with most porpoises being present in spring. The number of porpoises has increased over the last decade. This increase is thought to be due to a shift in abundance rather than a natural growth of the population.

STRANDINGS

Stranding data for porpoises have been recorded since 1982 by the Seal Rehabilitation and Research Centre in Pieterburen. Necropsy reports of 225 porpoises were analysed and three main causes of death were identified. These were pneumonia, emaciation and by-catch. Animals classified as by-catch were found along the entire Dutch coast and over the entire research period (1982-2006), see figure 1. However, by-catch was most often seen during the December-April period, see figure 2. On average 10-20% of the stranded animals were deemed to be the victims of accidental by-catch.

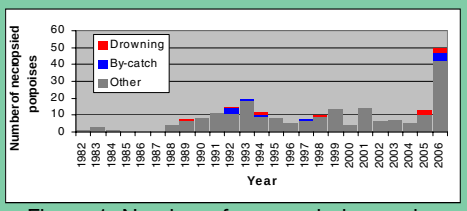

Figure 1. Number of necropsied porpoises in the period 1982-2006 (n=225)

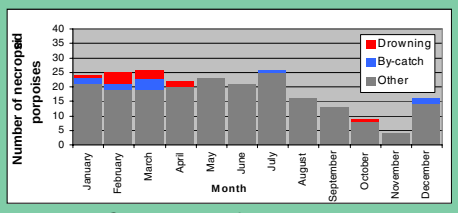

Figure 2. Strandings of necropsied harbour porpoises per month in the period 1982-2006 (n=225)

FISHERIES

A survey was sent to all Dutch fishermen (n=721); one third of which responded. Given that fishermen from nearly all ports and fishermen from all types of fishery participated in the survey, a good overview of the by-catch by the various kinds of fisheries in the Netherlands could be established. The total by-catch of the whole Dutch fleet was calculated to be 15 individuals per year. The scale of by-catch as determined by the survey was consistent with the results of the pathology and population studies.

By-catch rates differed for each type of fishery, see figure 3. Demersal trawling (i.e. bottom trawling, shrimp fishery and twin-trawling) does result in by-catch, although this primarily concerns decomposing animals. The death of these decaying animals is not a direct consequence of the fishing activity involved. Bottom-set gill-netting has few by-catches, but comparatively more fresh animals. Gillnets with a large mesh width (>110mm), which are used in the winter and spring appear to have the greatest chance of having by-catch. By-catch rates also depended on the fish species being targeted, see table 1. With regard to demersal trawling, there is more by-catch in the red mull, sea bass and mackerel fisheries. These fisheries are primarily carried out by twin-trawlers. For the bottom-set gillnet fishery, there is more by-catch in the category 'other flatfish', which primarily includes turbot and brill. In particular, turbot nets were listed as the cause of by-catch. The fishermen made useful suggestions on how to reduce the problem of by-catch.

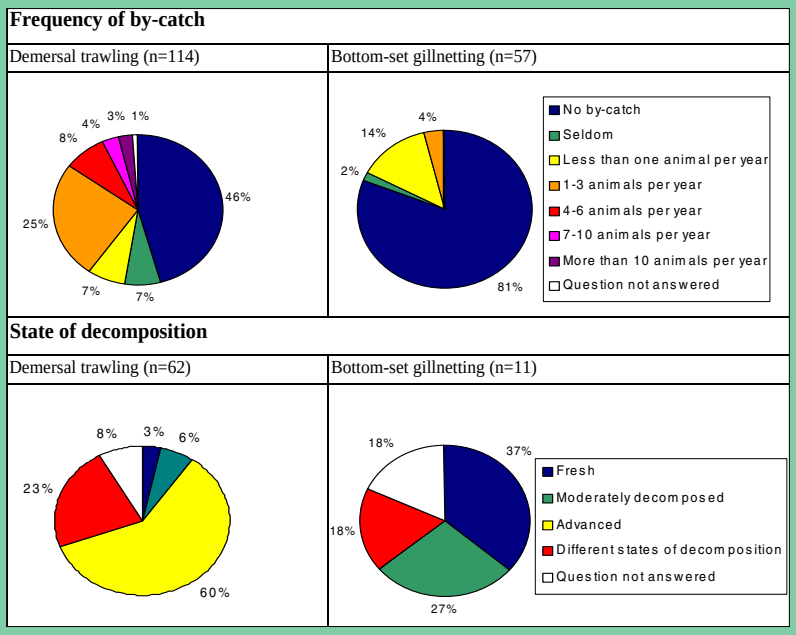

Figure 3. The frequencies of by-catch in the various fishery types and the state of decomposition of the by-caught porpoises.

	Demersal trawling	Bottom-set gillnetting
Plaice	4%	0%
Sole	4%	13%
Other flatfish	8%	25%
Cod	4%	13%
Mackerel	11%	14%
Norway lobster	4%	
Shrimp	0%	
Herring		
Sea bass	14%	5%
Red mullet	15%	
Grey mullet		6%

Table 1. Percentage of fishermen who have caught freshly dead porpoises, according to fish species. The fish species that fewer than five fishermen stated they caught are not included (grey cells)

REFERENCES

Osinga, 2005, Monitoring of cetaceans in the North Sea, the RIKZ aerial surveys and the Stena Line ferry surveys, Institute of Environmental Sciences, Leiden University.

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