Bycatch and Bycatch Reduction of the Harbour Porpoise (*Phocoena phocoena*) in Danish Waters

Nicholas Lowry

DIFTA, North Sea Centre, PO Box 59, 9850 Hirtshals, Denmark

and Jonas Teilmann

Danbio ApS, Toregaver 3, 2920 Charlottenlund, Denmark

ABSTRACT

The harbour porpoise (*Phocoena phocoena*) is the only cetacean incidentally caught in significant numbers in the Danish fishing fleet and there is some concern that the populations in Danish waters may be in decline. The main catches are in the extensive fleet of vessels fishing demersal gillnets. Recently, this bycatch has been quantified by a rough estimate of up to 7,000 bycaught harbour porpoises and [illegible] assessment of the issue is increasing. This paper reviews the Danish passive gear fishery and the level of the bycatch of harbour porpoises. Methods with potential for reducing this bycatch are briefly discussed.

KEYWORDS: NORTH ATLANTIC; BALTIC; INCIDENTAL CAPTURE; FISHERIES; HARBOUR PORPOISE

INTRODUCTION

The harbour porpoise (*Phocoena phocoena*) is the only cetacean that is known to be resident in Danish waters (e.g. Jensen, 1946; Clausen and Kinze, 1993). This primarily coastal species has a circumpolar distribution in the Northern Hemisphere from the Cape Verde Islands at 15°N to Thule at 78°N (Gaskin, 1984; personal observation).

Several studies have considered the status and distribution of the harbour porpoise in Danish and adjacent waters and concluded that its numbers may have declined and its distribution narrowed (e.g. Andersen, 1982; Jensen, 1987; Clausen and Andersen, 1988). These assumptions are mostly based on information from historical catch statistics (e.g. the extensive Danish fishery up to the 2nd World War is reviewed by Kinze, In press) and scattered information from strandings and incidental sightings.

In recent years there has been increasing international interest and concern about the bycatch of small cetaceans in fishing gear (e.g. IWC, 1994a). In northern Europe, the harbour porpoise is the species most frequently caught in fishing gear and concern about the problems this may cause for the populations have been widely expressed (e.g. IWC, 1992; 1994a).

Few studies have tried to assess the magnitude of the bycatch in fishing gear, or to obtain estimates of species abundance – two factors critical to the management of the harbour porpoise. Some preliminary work has been done to attempt to find solutions to entanglements in fishing gear, but so far no commercially useful solutions have been developed.

This paper presents current information on the Danish gillnet fishery and the bycatch in fishing gear in inner Danish waters and the North Sea. The final section briefly reviews possible ways of reducing bycatches.

SUMMARY OF DANISH PASSIVE GEAR FISHERIES

This section summarises the situation of Danish fisheries in the 1990s. Information for previous years is given in Cortzensen (1988), Hovgård (1988) and Kinze (1990).

Gillnet fishery

Denmark has the largest gillnet fleet of any member state of the European Community (EC). In 1992, a total of 1,549 vessels were registered as prosecuting gillnet fisheries and 3,500 people were directly employed. The distribution of these vessels by area and as a proportion of the total number of vessels in the fleet is shown in Fig. 1. The most important species for gillnetters are (by value) cod, plaice, sole, turbot, hake, pollock and lumpsucker, with at least 30 other species of fish represented in the catches. The relative tonnage of the most important species by area is given in Table 1. The total value of the catch is at least 600 million Danish kroner (about $US100,000,000).

Gear and fishing strategies

In all gillnet fishing, the nets are constructed individually and tied together into 'strings' or 'fleets', each end of which is marked by an anchor and a buoy (IWC, 1994b). The number of nets carried by a boat and the number of nets in a string varies according to the size of the boat, the fishery, and how the net is hauled. There are approximately 50–80 nets for a vessel of 10 BRT (1 man), 200–250 nets for a vessel of 10–15 BRT (2 men) and 350–400 nets for a vessel of 20 BRT (3–5 men). The total length of the nets set by Danish gillnetters in the North Sea each day is about 5,000–10,000km. Strings vary in size depending on the fishery, but are typically 5–15 nets. In the Danish fishery, there are large numbers of both small boats operating in coastal waters that make day trips and of larger boats that work further offshore and make trips of 5 to 14 days. Operational strategies are variable depending on the particular fishery and the prevailing conditions during the day. Typically, it involves setting the net, leaving it overnight and returning the next day to haul and clean the net before resetting. This lets the net fish over two changes of tide (or two daylight changes in the Baltic where there is little tide) which is when the greatest catches occur. The exceptions to this are nets for turbot, which are left for 3–4 days before hauling, and the sole fishery, in which the soak time is often only 6 hours. Soak times are shorter during periods of high water temperature or where there are