Harbour porpoises (*Phocoena phocoena*) in the North Atlantic: Distribution and genetic population structure.

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ABSTRACT

The known geographical distribution (based on ship surveys, aerial surveys, incidental sightings, stranding and bycatch data) and the population genetic structure obtained from mitochondria DNA and nuclear DNA (isozymes and microsatellites) data analyses of the harbour porpoise in the North Atlantic have recently been reviewed and revised by the International Whaling Commission. The present review builds on these documents by integrating more recent genetic and distributional studies. Studies of the genetic structure of harbour porpoise populations tend to be concentrated in areas where samples are available which coincide with areas where incidental or directed catches or stranding take place. Nevertheless, recently, several genetic studies on the population structure have been able to reveal a more comprehensive picture of the harbour porpoise population structure in the Northwest and Northeast Atlantic, although not all areas have been subjected to analyses.

Andersen L. W. 2003. Harbour porpoises (*Phocoena phocoena*) in the North Atlantic: Distribution and genetic population structure. *NAMMCO Sci. Publ.* 5:11-30.

INTRODUCTION

Information on harbour porpoise distribution in the North Atlantic was reviewed comprehensively by Gaskin in 1984 and revised by the International Whaling Commission (IWC) in 1996. The present review of the distribution patterns is mainly based on these two documents and the distribution areas are listed according to their suggestions. Recently, several studies have been conducted on the genetic population structure of harbour porpoises in the North Atlantic, testing the different population structure hypotheses given in Table 1. As for the distribution patterns, the different genetic studies conducted in each of the distribution areas will be reviewed in the light of the mentioned hypothesised population structure models and the results of these studies are summarised in Table 1. In the text I have attempted to use the two terms "population" and "sub-population" to reflect the distance between the supposed "populations" and thereby their ability to exchange migrants, hence "populations" defining a low probability of exchange and "sub-population" defining a higher probability of exchange. (For genetic terminology see glossary at the end of the text)

DISTRIBUTION AND GENETIC STRUCTURE

Northwest Atlantic

Distribution

According to Gaskin (1984) harbour porpoises in the Northwest Atlantic are distributed in the