

WHITE-BEAKED DOLPHIN (*Lagenorhynchus albirostris*): Western North Atlantic Stock

STOCK DEFINITION AND GEOGRAPHIC RANGE

White-beaked dolphins are the more northerly of the two species of *Lagenorhynchus* in the Northwest Atlantic (Leatherwood *et al.* 1976). The species is found in waters from southern New England, north to western and southern Greenland and Davis Straits (Leatherwood *et al.* 1976; CETAP 1982), in the Barents Sea and south to at least Portugal (Reeves *et al.* 1999). Differences in skull features indicate that there are at least two separate stocks, one in the eastern and one in the western North Atlantic (Mikkelsen and Lund 1994). No genetic analyses have been conducted to distinguish the stock structure.

In waters off the northeastern U.S. coast, white-beaked dolphin sightings have been concentrated in the western Gulf of Maine and around Cape Cod (CETAP 1982). The limited distribution of this species in U.S. waters has been attributed to opportunistic feeding (CETAP 1982). Prior to the 1970's, white-sided dolphins (*L. acutus*) in U.S. waters were found primarily offshore on the continental slope, while white-beaked dolphins were found on the continental shelf. During the 1970's, there was an apparent switch in habitat use between these two species. This shift may have been a result of the increase in sand lance in the continental shelf waters (Katona *et al.* 1993; Kenney *et al.* 1996).

More recently, during late March of 2001, two groups of white-beaked dolphins stranded on Cape Cod beaches (see Other Mortality section below), and one group of 18 animals was seen about 60 nautical miles east of Provincetown, MA during a NEFSC aerial marine mammal survey (NEFSC unpubl data).

POPULATION SIZE

The total number of white-beaked dolphins in U.S. and Canadian waters is unknown, although one abundance estimate is available for part of the known habitat in U.S. waters, and two estimates are available from Canadian waters (Table 1).

A population size of 573 white-beaked dolphins (CV=0.69) was estimated from an aerial survey program conducted from 1978 to 1982 on the continental shelf and shelf edge waters between Cape Hatteras, North Carolina and Nova Scotia (CETAP 1982). The estimate is based on spring data because the greatest proportion of the population off the northeast U.S. coast appeared in the study area during this season, according to the CETAP data. This estimate does not include a correction for dive-time or $g(0)$, the probability of detecting an animal group on the track line. This estimate may not reflect the current true population size because of its high degree of uncertainty (e.g., large CV), its old age, and it was estimated just after cessation of extensive foreign fishing operations in the region.

A population size of 5,500 white-beaked dolphins was based on an aerial survey off eastern Newfoundland and southeastern Labrador (Alling and Whitehead 1987).

A population size of 3,486 white-beaked dolphins (95% confidence interval (CI) = 2,001-4,971) was estimated from a ship-based survey of a small segment of the Labrador Shelf in August 1982 (Alling and Whitehead 1987). A CV was not given, but assuming a symmetric CI, it would be 0.22.

There are no abundance estimates for this species in waters between the Gulf of Maine and the Newfoundland/Labrador region.

Minimum Population Estimate

Present data are insufficient to calculate a minimum population estimate in U.S. Exclusive Economic Zone (EEZ) waters.

Current Population Trend

There are insufficient data to determine population trends for this species.

CURRENT AND MAXIMUM NET PRODUCTIVITY RATES

Current and maximum net productivity rates are unknown for this stock. For purposes of this assessment, the maximum net productivity rate was assumed to be 0.04. This value is based on theoretical modeling showing that cetacean populations may not grow at rates much greater than 4% given the constraints of their reproductive life history (Barlow *et al.* 1995).

POTENTIAL BIOLOGICAL REMOVAL

Potential Biological Removal (PBR) is the product of minimum population size, one-half the maximum productivity rate, and a "recovery" factor (Wade and Angliss 1997). The minimum population size of white-beaked dolphins is unknown. The maximum productivity rate is 0.04, the default value for cetaceans. The "recovery" factor, which accounts for endangered, depleted, threatened stocks, or stocks of unknown status relative to optimum sustainable population (OSP) is assumed to be 0.5 because this stock is of unknown status. PBR for the western North Atlantic white-beaked dolphin is unknown.

ANNUAL HUMAN-CAUSED MORTALITY AND SERIOUS INJURY

White-beaked dolphins have been taken in cod traps and the Canadian groundfish gillnet fisheries off Newfoundland and Labrador and in the Gulf of St. Lawrence (Alling and Whitehead 1987; Read 1994; Hai *et al.* 1996); however, the total number of animals taken is not known. Of three by-caught white-beaked dolphins reported off Newfoundland during 1987-1988, one died in a groundfish gill net, one in a herring gill net, and one in a cod trap (Reeves *et al.* 1999).

There are no documented reports of fishery-related mortality or serious injury to this stock in the U.S. EEZ.

Fishery Information

Because of the absence of observed fishery-related mortality and serious injury to this stock in the U.S. and Canadian waters, no fishery information is provided.

Other Mortality

White-beaked dolphins were hunted for food by residents in Newfoundland and Labrador (Alling and Whitehead 1987). These authors, based on interview data, estimated that 366 white-beaked dolphins were taken each year. The same authors reported that 25-50% of the killed dolphins were lost. Hunting that now occurs in Canadian waters is believed to be opportunistic and in remote regions of Labrador where enforcement of regulations is minimal (Lien *et al.* 2001).

White-beaked dolphins regularly become caught in ice off the coast of Newfoundland during years of heavy pack ice. A total of 21 ice entrapments involving approximately 350 animals were reported in Newfoundland from 1979 to 1990; known mortality as a result of entrapment was about 55% (Lien *et al.* 2001).

Mass strandings of white-beaked dolphins are less common than for white-sided dolphins. White-beaked dolphins more commonly strand as individuals or in small groups (Reeves *et al.* 1999). In Newfoundland, five strandings of white-beaked dolphins between 1979 and 1990 involved groups of two to seven animals. On three occasions live dolphins came ashore, including groups of three and four (Reeves *et al.* 1999).

White-beaked dolphin stranding records from 1997 to 2001 that are in the Northeast Regional Office/NMFS strandings and entanglement database include three records that clearly identify the species to be the white-beaked dolphin. All these strandings were collected from Cape Cod, Massachusetts beaches, where one animal stranded during May 1997, and two animals stranded during March 2001. Samples from the two 2001 strandings have been archived. It was not possible to determine the cause of death for any of these stranded animals.

STATUS OF STOCK

The status of white-beaked dolphins, relative to OSP, in U.S. Atlantic coast waters is unknown. They are not listed as threatened or endangered under the Endangered Species Act. There are insufficient data to determine population trends for this species. Because there are insufficient data to calculate PBR it is not possible to determine if stock is strategic and if the total fishery-related mortality and serious injury for this stock is significant and approaching zero mortality and serious injury rate. However, because this stock has a marginal occurrence in U.S. waters and there are no documented takes in U.S. waters, this stock has been designated as non strategic.

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