

## **NORTHERN BOTTLENOSE WHALE (*Hyperoodon ampullatus*): Western North Atlantic Stock**

### **STOCK DEFINITION AND GEOGRAPHIC RANGE**

Northern bottlenose whales are characterized as extremely uncommon or rare in waters of the U.S. Atlantic Exclusive Economic Zone. The two sightings of three individuals constituted less than 0.1% of the 11,156 cetacean sightings in the 1978-82 CETAP surveys. Both sightings were in the spring, along the 2,000 m isobath (CETAP 1982). In 1993 and 1996, two sightings of single animals, and in 1996, a single sighting of six animals (one juvenile), were made during summer shipboard surveys conducted along the southern edge of Georges Bank (Anon. 1993; Anon. 1996).

Northern bottlenose whales are distributed in the North Atlantic from Nova Scotia to about 70° in the Davis Strait, along the east coast of Greenland to 77° and from England to the west coast of Spitzbergen. It is largely a deep-water species and is very seldom found in waters less than 2,000 m deep (Mead 1989).

There are two main centers of bottlenose whale distribution in the western north Atlantic, one in the area called "The Gully" just north of Sable Island, Nova Scotia, and the other in Davis Strait off northern Labrador (Reeves *et al.* 1993). Studies at the entrance to the Gully from 1988-1995 identified 237 individuals and estimated the local population size at about 230 animals (95% C.I. 160-360) (Whitehead *et al.* 1997). These individuals are believed to be year-round residents and all age and sex classes are present (Gowans and Whitehead 1998). Mitchell and Koziacki (1975) documented stranding records in the Bay of Fundy and as far south as Rhode Island. Stock definition is unknown.

### **POPULATION SIZE**

The total number of northern bottlenose whales off the eastern U.S. coast is unknown.

### **Minimum Population Estimate**

Present data are insufficient to calculate a minimum population estimate.

### **Current Population Trend**

There are insufficient data to determine the 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 (MMPA Sec. 3. 16 U.S.C. 1362; Wade and Angliss 1997). The minimum population size 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 northern bottlenose whale is unknown because the minimum population size cannot be determined.

### **ANNUAL HUMAN-CAUSED MORTALITY**

No mortalities have been reported in U.S. waters. A fishery for northern bottlenose whales existed in Canadian waters during both the 1800s and 1900s. Its development was due to the discovery that bottlenose whales contained spermaceti. A Norwegian fishery expanded from east to west (Labrador and Newfoundland) in several episodes. The fishery peaked in 1965. Decreasing catches led to the cessation of the fishery in the 1970s, and

provided evidence that the population was depleted. A small fishery operated by Canadian whalers from Nova Scotia operated in the Gully, and took 87 animals from 1962 to 1967 (Mead 1989; Mitchell 1977).

### **Fishery Information**

Data on current incidental takes in U.S. fisheries are available from several sources. In 1986, NMFS established a mandatory self-reported fishery information system for large pelagic fisheries. Data files are maintained at the Southeast Fisheries Science Center (SEFSC). The Northeast Fisheries Science Center (NEFSC) Sea Sampling Observer Program was initiated in 1989, and since that year several fisheries have been covered by the program. In late 1992 and in 1993, the SEFSC provided observer coverage of pelagic longline vessels fishing off the Grand Banks (Tail of the Banks) and provides observer coverage of vessels fishing south of Cape Hatteras.

There have been no observed mortalities or serious injuries by NMFS Sea Samplers in the pelagic drift gillnet, pelagic longline, pelagic pair trawl, New England multispecies sink gillnet, mid-Atlantic coastal sink gillnet, and North Atlantic bottom trawl fisheries.

### **STATUS OF STOCK**

The status of northern bottlenose whales relative to OSP in U.S. Atlantic EEZ is unknown; however, a depletion in Canadian waters in the 1970's may have impacted U.S. distribution and may be relevant to current status in U.S. waters. The species is not listed as threatened or endangered under the Endangered Species Act. There are insufficient data to determine the population trends for this species. Because there are no observed mortalities or serious injury, the total fishery-related mortality and serious injury for this stock is considered to be approaching zero mortality and serious injury rate. This is not a strategic stock because there are no recent records of fishery-related mortality or serious injury.

### **REFERENCES**

- Anon. 1993. Cruise results, NOAA ship DELAWARE II, Cruise No. DEL 93-06, Marine Mammal Survey. NOAA NMFS NEFSC, Woods Hole Laboratory, Woods Hole, MA 5 pp.
- Anon. 1996. Cruise results, R/V ABEL-J, Cruise No. AJ-9601, Part III, Marine Mammal Survey. NOAA NMFS NEFSC, Woods Hole Laboratory, Woods Hole, MA 7 pp.
- Barlow, J., S.L. Swartz, T.C. Eagle, and P.R. Wade. 1995. U.S. Marine Mammal Stock Assessments: Guidelines for Preparation, Background, and a Summary of the 1995 Assessments. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-OPR-6, 73 pp.
- CETAP. 1982. A characterization of marine mammals and turtles in the mid- and north Atlantic areas of the U.S. outer continental shelf. Cetacean and Turtle Assessment Program, University of Rhode Island. Final Report #AA551-CT8-48 to the Bureau of Land Management, Washington, DC, 538 pp.
- Gowans, S. and H. Whitehead. 1998. Social organization of northern bottlenose whales. The World Marine Mammal Science Conference, Monaco, January 1998 (Abstract).
- Mead, J. G. 1989. Bottlenose whales. Pages 321-348. *In*: S. H. Ridgway and R. Harrison (eds), Handbook of marine mammals, Volume 4: River dolphins and the larger toothed whales. *Academic Press*, New York.
- Mitchell, E. D. 1977. Evidence that the northern bottlenose whale is depleted. *Rep. int. Whal. Commn.* 27: 195-203.
- Mitchell, E. D. and V. M. Kozicki. 1975. Autumn stranding of a northern bottlenose whale (*Hyperoodon ampullatus*) in the Bay of Fundy. *J. Fish. Res. Bd. Can.* 32: 1019-1040.
- Reeves, R.R., E. Mitchell and H. Whitehead. 1993. Status of the northern bottlenose whale, *Hyperoodon ampullatus*. *Can.Fld. Nat.* 107:490-508.
- Whitehead, H., S. Gowans, A. Faucher, and S.W. McCarrey. 1997. Population analysis of northern bottlenose whales in the Gully, Nova Scotia. *Mar. Mamm. Sci.* 13(2): 173-185.
- Wade P.R., and R.P. Angliss. 1997. Guidelines for assessing marine mammal stocks: Report of the GAMMS Workshop April 3-5, 1996, Seattle, Washington. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-OPR-12, 93 pp.