BLUE WHALE (*Balaenoptera musculus*): Western North Atlantic Stock

STOCK DEFINITION AND GEOGRAPHIC RANGE

The distribution of the blue whale, *Balaenoptera musculus*, in the western North Atlantic generally extends from the Arctic to at least mid-latitudes. Blue whales are most frequently sighted in the waters off eastern Canada, with the majority of recent records from the Gulf of St. Lawrence (Sears et al. 1987). The species was hunted around Newfoundland in the first half of the 20th century (Sergeant 1966). The present Canadian distribution, broadly described, is spring, summer, and fall in the Gulf of St. Lawrence, especially along the north shore from the St. Lawrence River estuary to the Strait of Belle Isle and off eastern Nova Scotia. The species occurs in winter off southern Newfoundland and also in summer in Davis Strait (Mansfield 1985).

The blue whale is best considered as an occasional visitor in U.S. Atlantic Exclusive Economic Zone (EEZ) waters, which may be the current southern limit of its range (CeTAP 1982; Wenzel et al. 1988). All of the five sightings described in the foregoing two references were in August. Yochem and Leatherwood (1985) summarized records that suggested an occurrence of this species south to Florida and the Gulf of Mexico, although the actual southern limit of the species' range is unknown.

The blue whale may be nomadic and open-ocean in habitat. In one example, an individual was tracked from near Newfoundland to south of Bermuda (Gagnon and Clark 1993).

POPULATION SIZE

Little is known except for the Gulf of St. Lawrence area. Here, 308 individuals have been catalogued (Sears et al. 1987). Mitchell (1974) estimated that the blue whale population in the western North Atlantic may number only in the low hundreds. R. Sears (personal communication) suggests that no present evidence exists to refute this estimate.

Minimum Population Estimate

The 308 recognizable individuals from the Gulf of St. Lawrence area which were catalogued by Sears et al. (1987) is considered to be a minimum population estimate.

Current Population Trend

There are insufficient data to determine the population trends for this species. Off west and southwest Iceland, an increasing trend of 4.9% a year was reported for the period 1969-1988 (Sigurjonsson and Gunnlaugsson 1990).

CURRENT AND MAXIMUM NET PRODUCTIVITY RATES

Current and maximum net productivity rates are not known for this stock. The maximum net productivity rate was assumed to be 0.04 for purposes of this assessment. This value is based on theoretical calculations showing that cetacean populations may not generally grow at rates much greater than 4% given the constraints of their reproductive life history (Anon. 1994).

POTENTIAL BIOLOGICAL REMOVAL

Potential biological removal (PBR) was specified as the product of minimum population size, one-half the maximum productivity rate, and a "recovery" factor for endangered, depleted, threatened stocks, or stocks of unknown status relative to optimum sustainable population (OSP) (Anon. 1994). The recovery factor was set at 0.10 because the species is listed as endangered under the Endangered Species Act (ESA). PBR for this stock is 0.6 blue whales.

ANNUAL HUMAN-CAUSED MORTALITY AND SERIOUS INJURY

There are no records of fishery-related mortality or serious injury to blue whales in the U.S. Atlantic EEZ. Total fishery-related mortality and serious injury for this stock is considered insignificant and approaching zero mortality and serious injury rate. This determination cannot be made for specific fisheries until the implementing regulations for Section 118 of the MMPA have been reviewed by the public and finalized.

Fishery Information

No fishery information is presented because there are no observed fishery-related mortalities or serious injury.

STATUS OF STOCK

The status of this stock relative to OSP is unknown, but the species is listed as endangered under the ESA. There are insufficient data to determine population trends for blue whales. The total level of human-caused mortality and serious injury is unknown, but it is believed to be insignificant. Any fishery-related mortality would be unlawful because there is no recovery plan currently in place. This is a strategic stock because the blue whale is listed as an endangered species under the ESA.

REFERENCES

Anon. 1994. Report of the PBR (Potential Biological Removal) workshop. June 27-29, 1994. NOAA, NMFS Southwest Fisheries Science Center, La Jolla, California, 13 pp. + Appendices.

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.

Gagnon, G. J. and C. W. Clark. 1993. The use of U.S. Navy IUSS passive sonar to monitor the movement of blue whales. *Abstract*, Tenth Biennial Conference on the Biology of Marine Mammals, Galveston, TX, 11-15 November 1993.

Mansfield, A. W. 1985. Status of the blue whale, *Balaenoptera musculus*, in Canada. Canadian Field Naturalist 99(3): 417-420.

Mitchell, E. 1974. Present status of northwest Atlantic fin and other whale stocks. Pages 108-169 *in* W. E. Schevill (editor), The whale problem: A status report. Harvard University Press, Cambridge, Massachusetts, 419 pp.

Sears, R., F. Wenzel, and J. M. Williamson. 1987. The blue whale: a catalog of individuals from the western North Atlantic (Gulf of St. Lawrence). Mingan Island Cetacean Study, St. Lambert, Quebec, Canada, 27 pp.

Sergeant, D. E. 1966. Populations of large whale species in the western North Atlantic with special reference to the fin whale. Fish. Res. Board. Canada Circular No. 9, 30 pp.

Sigurjonsson, J. and T. Gunnlaugsson. 1990. Recent trends in abundance of blue (*Balaenoptera musculus*) and humpback whales (*Megaptera novaeangliae*) off west and southwest Iceland, with a note on occurrence of other cetacean species. Rep. Int. Whal. Commn. 40: 537-551.

Wenzel, F., D. K. Mattila, and P. J. Clapham. 1988. *Balaenoptera musculus* in the Gulf of Maine. Mar. Mam. Sci. 4(2): 172-175.

Yochem, P. K. and S. Leatherwood. 1985. Blue whale. Pages 193-240 *in* S. H. Ridgeway and R. Harrison (editors), Handbook of Marine Mammals, Vol. 3: The Sirenians and Baleen Whales, Academic Press, New York.