

## MELON-HEADED WHALE (*Peponocephala electra*): Western North Atlantic Stock

### STOCK DEFINITION AND GEOGRAPHIC RANGE

The melon-headed whale is distributed worldwide in tropical to sub-tropical waters (Jefferson *et al.* 1994). Melon-headed whales are assumed to be part of the cetacean fauna of the tropical western North Atlantic. The paucity of sightings is probably due to a naturally low number of groups compared to other cetacean species. Sightings in the more extensively surveyed northern Gulf of Mexico occur in oceanic waters (Mullin *et al.* 1994; Mullin and Fulling, 2004). Sightings of melon-headed whales in the northern Gulf of Mexico were documented in all seasons during aerial surveys of the northern Gulf of Mexico between 1992 and 1998 (Hansen *et al.* 1996; Mullin and Hoggard 2000). The western North Atlantic population is provisionally being considered one stock for management purposes. Additional morphological, genetic and/or behavioral data are needed to provide further information on stock delineation.

### POPULATION SIZE

The numbers of melon-headed whales off the U.S. or Canadian Atlantic coast are unknown, and seasonal abundance estimates are not available for this stock, since it was rarely seen in any surveys. A group of melon-headed whales was sighted during both a 1999 (20 whales) and 2002 (80 whales) vessel survey of the western North Atlantic off of Cape Hatteras, North Carolina in waters >2500 m deep (Figure 1; Anon. 1999; Anon. 2002). Abundances have not been estimated from the 1999 and 2002 vessel surveys in western North Atlantic (NMFS 1999; NMFS 2002); because the sighting was not made during line-transect sampling effort; therefore the population size of melon-headed whales is unknown. No melon-headed whales have been observed in any other surveys.

### Minimum Population Estimate

Present data are insufficient to calculate a minimum population estimate for this stock.

### Current Population Trend

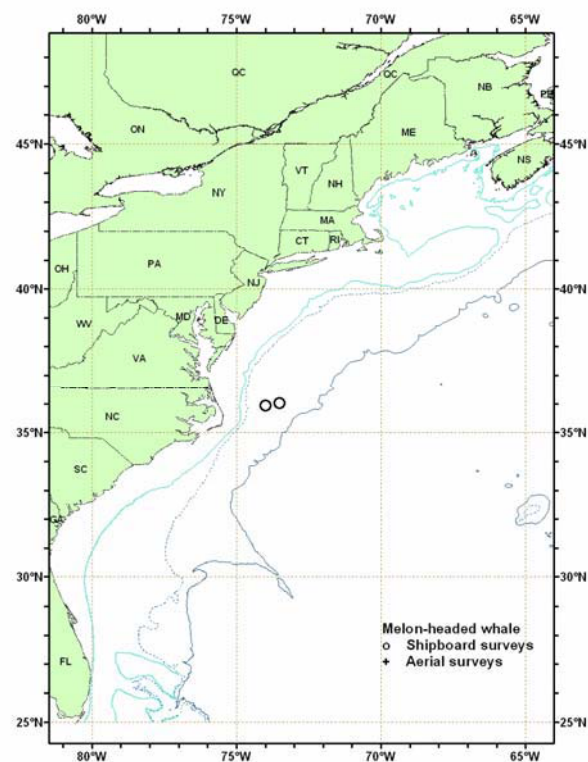
There are insufficient data to determine the population trends for this stock.

### 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 history (Barlow *et al.* 1995).

### POTENTIAL BIOLOGICAL REMOVAL

Potential Biological Removal level (PBR) is the product of the 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 stock of melon-headed whales is unknown because the minimum population size is unknown.



**Figure 1.** Distribution of melon-headed whales from SEFSC vessel surveys during 1998-2002. All sightings are shown. Solid lines indicate the 100 m, 1,000 m, and 4,000 m isobaths.

## ANNUAL HUMAN-CAUSED MORTALITY AND SERIOUS INJURY

### Fishery Information

Detailed fishery information is reported in Appendix III. Total annual estimated average fishery-related mortality and serious injury to this stock during 1999-2003 was zero melon-headed whales, as there were no reports of mortality or serious injury to melon-headed whales (Yeung 2001; Garrison 2003; Garrison and Richards, 2004).

### Other Mortality

From 1999-2003, 1 melon-headed whale was reported stranded in Puerto Rico. There was one additional reported stranding of a melon-headed whale in the western North Atlantic between 1997 and 2002. No evidence of human interaction was apparent for either stranded animal.

Stranding data probably underestimate the extent of fishery-related mortality and serious injury because all of the marine mammals that die or are seriously injured may not wash ashore, nor will all of those that do wash ashore necessarily show signs of entanglement or other fishery-interaction. Finally, the level of technical expertise among stranding network personnel varies widely as does the ability to recognize signs of fishery interaction.

### STATUS OF STOCK

The status of melon-headed whales, relative to OSP, in the western North Atlantic EEZ is unknown. The species is not listed as threatened or endangered under the Endangered Species Act. There are insufficient data to determine the population size or trends and PBR cannot be calculated for this stock. No fishery-related mortality and serious injury has been observed since 1999; therefore, total fishery-related mortality and serious injury rate can be considered insignificant and approaching zero mortality and serious injury. This is not a strategic stock.

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