

CLYMENE DOLPHIN (*Stenella clymene*): Western North Atlantic Stock

STOCK DEFINITION AND GEOGRAPHIC RANGE

The Clymene dolphin is endemic to tropical and sub-tropical waters of the Atlantic (Jefferson and Curry 2003). Clymene dolphins have been commonly sighted in the Gulf of Mexico since 1990 (Mullin *et al.* 1994; Fertl *et al.* 2003), and a Gulf of Mexico stock has been designated since 1995. Four Clymene dolphin groups were sighted during summer 1998 in the western North Atlantic (Mullin and Fulling 2003), and two groups were sighted in the same general area during a 1999 bottlenose dolphin survey (NMFS unpublished). These sightings and stranding records (Fertl *et al.* 2003) indicate that this species routinely occurs in the western North Atlantic. The western North Atlantic population is provisionally being considered a separate stock for management purposes, although there is currently no information to differentiate this stock from the northern Gulf of Mexico stock(s). Additional morphological, genetic and/or behavioral data are needed to provide further information on stock delineation.

POPULATION SIZE

The numbers of Clymene dolphins off the U.S. or Canadian Atlantic coast are unknown, and seasonal abundance estimates are not available for this species since it was rarely seen in any surveys.

Clymene dolphins were observed during earlier surveys along the U.S. Atlantic coast. Estimates of abundance were derived through the application of distance sampling analysis (Buckland *et al.* 2001) and the computer program DISTANCE (Thomas *et al.* 1998) to sighting data. Data were collected using standard line-transect techniques conducted from NOAA Ship *Relentless* during July and August 1998 between Maryland (38.00°N) and central Florida (28.00°N) from the 10 m isobath to the seaward boundary of the U.S. EEZ. Transect lines were placed perpendicular to bathymetry in a double saw-tooth pattern. Sightings of Clymene dolphins were primarily on the continental slope east of Cape Hatteras, North Carolina (Fig. 1). The best estimate of abundance for the Clymene dolphin was 6,086 (CV=0.93) (Mullin and Fulling 2003) and represents the first and only estimate to date for this species in the U.S. Atlantic EEZ. No Clymene dolphins have been observed in subsequent surveys. As recommended in the GAMMS Workshop Report (Wade and Angliss 1997), estimates older than eight years are deemed unreliable, therefore should not be used for PBR determinations.

Minimum Population Estimate

No minimum population estimate is available at this time.

Current Population Trend

There are insufficient data to determine 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

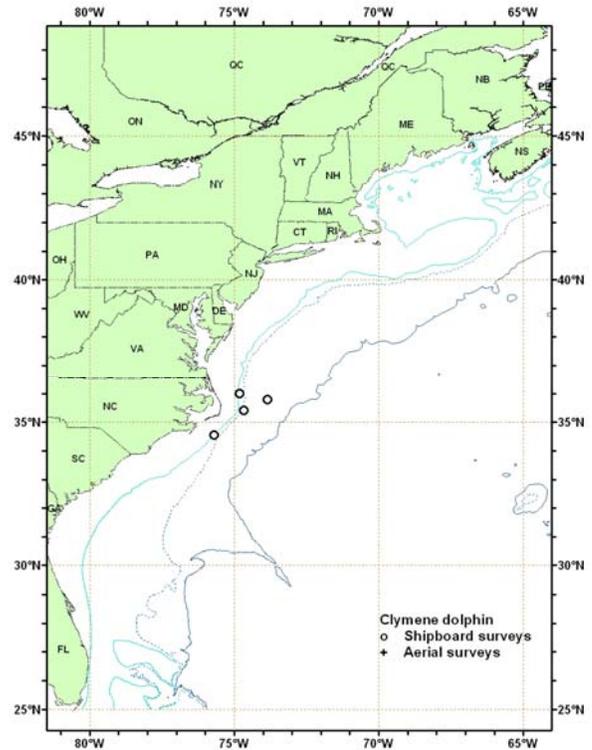


Figure 1. Distribution of Clymene dolphin sightings from NEFSC and SEFSC vessel and aerial summer surveys during 1998. Isobaths are at 100 m, 1,000 m, and 4,000 m.

(Barlow *et al.* 1995).

POTENTIAL BIOLOGICAL REMOVAL

Potential Biological Removal (PBR) is the product of minimum population size, one half the maximum net productivity rate, and a recovery factor (MMPA Sec. 3. 16 U.S.C. 1362; Wade and Angliss 1997). The minimum population size is unknown; therefore, PBR for the western North Atlantic Clymene dolphin stock is undetermined.

ANNUAL HUMAN-CAUSED MORTALITY AND SERIOUS INJURY

Fishery Information

Detailed fishery information is reported in Appendix III. Total annual estimated fishery-related mortality and serious injury to this stock during 2001-2005 was zero, as there were no reports of mortalities or serious injury to Clymene dolphins.

Other Mortality

There has been one reported stranding of a Clymene dolphin in the western North Atlantic between 2001-2005, which occurred in NC in August 2004. This stranding was part of the Mid-Atlantic Offshore Small Cetacean UME, which was declared when 33 small cetaceans stranded from Maryland to Georgia between July-September 2004. One Clymene dolphin was involved in this UME.

Prior to this, one stranding of a Clymene dolphin was recorded in Florida in 1999. No sign of fishery or human interactions were noted. There may be some uncertainty in the identification of this species due to similarities with other *Stenella* species.

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

REFERENCES CITED

- Barlow, J., S.L. Swartz, T.C. Eagle, and P.R. Wade. 1995. U.S. marine mammal stock assessment: guidelines for preparation, background, and a summary of the 1995 assessments. NOAA Tech. Memo. NMFS-OPR-6, National Marine Fisheries Service, Seattle, WA, 73 pp. Available from: NOAA National Marine Fisheries Service, 7600 Sand Point Way NE, Seattle, WA 98115-0070.
- Buckland, S.T., D.R. Anderson, K.P. Burnham, J.L. Laake, D.L. Borchers and L. Thomas. 2001. Introduction to distance sampling: estimating abundance of biological populations. Oxford University Press, New York. 432 pp.
- Fertl, D., T.A. Jefferson, I.B. Moreno, A.N. Zerbini, and K.D. Mullin. 2003. Distribution of the Clymene dolphin *Stenella clymene*. Mammal Review 33(3):253-271.
- Jefferson, T.A. and B.E. Curry. 2003. *Stenella clymene*. Mammalian Species 726:1-5.
- Mullin, K.D. and G.L. Fulling. 2003. Abundance of cetaceans in the southern U.S. North Atlantic Ocean during summer 1998. Fish. Bull. 101:603-613.
- Mullin, K.D., T.A. Jefferson, and L.J. Hansen. 1994. Sightings of the clymene dolphin (*Stenella clymene*) in the Gulf of Mexico. Mar. Mamm. Sci. 10:464-470.
- Thomas, L., J.L. Laake, J.F. Derry, S.T. Buckland, D.L. Borchers, D.R. Anderson, K.P. Burnham, S. Strindberg, S.L. Hedley, F. F. C. Marques, J. H. Pollard, and R. M. Fewster. 1998. Distance 3.5. Research Unit for Wildlife Population Assessment, University of St. Andrews, St. Andrews, UK.
- 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. NOAA Tech. Memo. NMFS-OPR-12, National Marine Fisheries Service, Seattle, WA, 93pp..