

GERVAIS' BEAKED WHALE (*Mesoplodon europaeus*): Northern Gulf of Mexico Stock

STOCK DEFINITION AND GEOGRAPHIC RANGE

Only three species of *Mesoplodon* are known, from strandings and/or sightings, to have occurred in the Gulf of Mexico (Jefferson et al. 1992; Hansen et al. 1995). These are Blainville's beaked whale (*M. densirostris*), Gervais' beaked whale (*M. europaeus*), and Sowerby's beaked whale (*M. bidens*). The occurrence of Sowerby's beaked whale in the Gulf of Mexico is considered extralimital because there is only one known stranding of this species in the Gulf of Mexico (Bonde and O'Shea 1989), and because it normally occurs in northern temperate waters of the North Atlantic (Mead 1989). Identification of *Mesoplodon* species at sea is problematic. Therefore, nearly all sightings of these species are identified as beaked whales and may include sightings of *Ziphius cavirostris* which were not identified as such. Beaked whales were seen in all seasons during recent seasonal GulfCet aerial surveys of the northern Gulf of Mexico (Davis et al., in preparation).

Strandings of Gervais' beaked whales have occurred along the northwestern Atlantic coast from Florida to New York (Mead 1989), and there have been at least ten documented strandings of this species in the Gulf of Mexico (Jefferson et al. 1992). There is no information on stock differentiation.

POPULATION SIZE

Estimates of abundance of beaked whales were derived through the application of distance sampling analysis (Buckland et al. 1993) and the computer program DISTANCE (Laake et al. 1993) to sighting data collected during 1991-1994 spring-summer, visual sampling, line-transect vessel surveys of the northern Gulf of Mexico (Hansen et al. 1995) (Fig. 1), which includes data collected as part of the GulfCet program (Davis et al., in preparation). These surveys were conducted throughout the area from approximately the 200 m isobath along the U.S. coast to the seaward extent of the U.S. Exclusive Economic Zone. The seasonal GulfCet aerial surveys included only a small portion of the stock range and these data were not used for abundance estimation. Survey effort-weighted estimated average abundance of beaked whales not identified to species for all surveys combined was 117 (coefficient of variation, CV = 0.38) (Hansen et al. 1995). Estimated beaked whale abundance (CV in parentheses) by survey year was 129 in 1991 (0.78), 18 in 1992 (1.27), 53 in 1993 (0.78), and 287 in 1994 (0.48) (Hansen et al. 1995). These estimates may also include an unknown number of Cuvier's beaked whales (*Ziphius cavirostris*) and abundance of Gervais' beaked whale cannot be estimated due to uncertainty of species identification at sea.

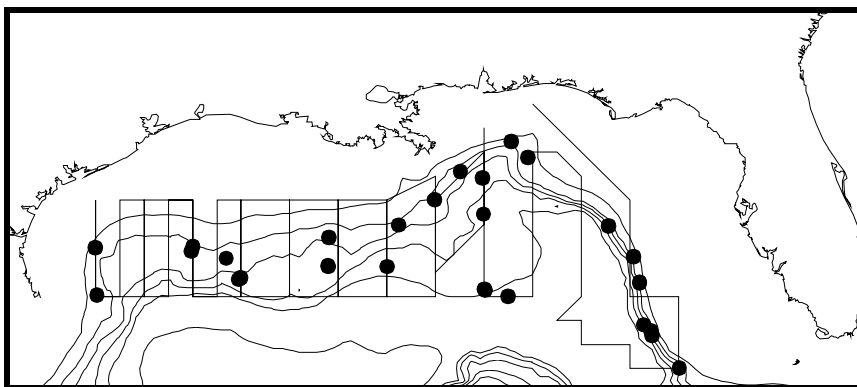


Figure 1. Distribution of beaked whale sightings during NOAA Ship Oregon II marine mammal surveys during 1991-1994. The straight lines show transects during two surveys and are examples of typical survey transects. Isobaths are in 183 m (100 fm) intervals.

Minimum Population Estimate

A minimum population estimate could not be not calculated because of uncertainty of species identification of sightings.

Current Population Trend

The abundance estimates of beaked whales for 1991-1993 were lower than 1994, but there was considerable overlap of the log-normal 95% confidence intervals, which indicates the estimates were not significantly different at that level. Any differences in abundance estimates could be due to chance given the small estimated population size and sampling intensity or a change in distribution, rather than a change in population size.

CURRENT AND MAXIMUM NET PRODUCTIVITY RATES

Current and maximum net productivity rates are not known for this stock; therefore, the default maximum net productivity rate of 0.04 (Anon. 1994) was used for purposes of this assessment.

POTENTIAL BIOLOGICAL REMOVAL

Potential biological removal level (PBR) was not calculated because the minimum population size cannot be calculated.

ANNUAL HUMAN-CAUSED MORTALITY AND SERIOUS INJURY

The level of past or current, direct, human-caused mortality of beaked whales in the northern Gulf of Mexico is unknown, but there have been no documented reports of fishery-related mortality or serious injury to beaked whales by U.S. fisheries in the Gulf of Mexico. Available information indicates there likely is little, if any, fisheries interaction with beaked whales in the northern Gulf of Mexico.

There were no documented strandings of beaked whales in the northern Gulf of Mexico during 1987-1994 which were classified as likely caused by fishery interactions or other human-related causes. Stranding data probably underestimate the extent of fishery-related mortality and serious injury because not all of the marine mammals which die or are seriously injured may 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.

Although PBR cannot be calculated, the total known fishery-related mortality and serious injury for this stock is zero and, therefore, can be 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.

Fisheries Information

Pelagic swordfish, tunas, and billfish are the targets of the longline fishery operating in the U.S. Gulf of Mexico. Total longline effort for the Gulf of Mexico pelagic fishery, including OCS edge, continental slope, and Mexican territorial waters, based on mandatory logbook reporting, was 4,400 sets in 1991, 4,850 sets in 1992, and 3,260 sets in 1993 (Cramer 1994). This fishery has been monitored with about 5% observer coverage, in terms of trips observed, since 1992.

Pair trawl fishing gear has the potential to capture marine mammals, but there have been no reports of mortality or serious injury to marine mammals in the Gulf of Mexico. This fishery has not been observed by NMFS observers, and there are no other data available as to the extent of this fishery in the Gulf of Mexico. It is assumed that it is very limited in scope and duration.

STATUS OF STOCK

The status of this stock relative to OSP is unknown and there are insufficient data to determine population trends. This species is not listed under the Endangered Species Act. The total level of human-caused mortality and serious injury is unknown, but it is believed to be insignificant; therefore, this is not a strategic stock.

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.
- Bonde, R. K. and T. J. O'Shea. 1989. Sowerby's beaked whale (*Mesoplodon bidens*) in the Gulf of Mexico. *J. Mammal.* 70: 447-449.
- Buckland, S. T., D. R. Anderson, K. P. Burnham and J. L. Laake. 1993. *Distance Sampling: estimating abundance of biological populations.* Chapman & Hall, London, 446 pp.
- Cramer, J. 1994. Large pelagic logbook newsletter - 1993. NOAA Tech. Mem. NMFS-SEFSC-352, 19 pp.
- Davis, R., G. Scott, B. Würsig, W. Evans, G. Fargion, L. Hansen, K. Mullin, N. May, T. Leming, B. Mate, J. Norris and T. Jefferson. In preparation. Distribution and abundance of marine mammals in the north-central and western Gulf of Mexico: Final Report. OCS Study #MMS 94-0003. Texas Institute of Oceanography and the National Marine Fisheries Service. U.S. Dept. of the Interior, Minerals Mgmt. Service, Gulf of Mexico OCS Region, New Orleans, Louisiana.
- Hansen, L. J., K. D. Mullin and C. L. Roden. 1995. Estimates of cetacean abundance in the northern Gulf of Mexico from vessel surveys. Southeast Fisheries Science Center, Miami Laboratory, Contribution No. MIA-94/95-25, 9 pp. + tables and figures.
- Jefferson, T. A., S. Leatherwood, L. K. M. Shoda and R. L. Pitman. 1992. *Marine mammals of the Gulf of Mexico: a field guide for aerial and shipboard observers.* Texas A&M University Printing Center, College Station, 92 pp.
- Laake, J. L., S. T. Buckland, D. R. Anderson, and K. P. Burnham. *DISTANCE user's guide, V2.0.* Colorado Cooperative Fish & Wildlife Research Unit, Colorado State University, Ft. Collins, Colorado, 72 pp.
- Mead, J. G. 1989. Beaked whales of the genus *Mesoplodon*. Pages 349-430 *in* S. H. Ridgway and R. Harrison (editors), *Handbook of marine mammals, Vol. 4: River dolphins and the larger toothed whales.* Academic Press, London, 442 pp.