

## PYGMY KILLER WHALE (*Feresa attenuata*): Northern Gulf of Mexico Stock

### STOCK DEFINITION AND GEOGRAPHIC RANGE

The pygmy killer whale is distributed worldwide in tropical and subtropical waters (Ross and Leatherwood 1994). Sightings of these animals in the northern Gulf of Mexico occur primarily over the deeper waters off the continental shelf [Southeast Fisheries Science Center (SEFSC) unpublished data]. Pygmy killer whales and melon-headed whales (*Peponocephala electra*) are difficult to distinguish and sightings of either species are often categorized as pygmy killer/melon-headed whales. Sightings of this category were documented in all seasons during recent seasonal GulfCet aerial surveys of the northern Gulf of Mexico during 1993-1995 (Davis et al., in preparation). There is no information on stock differentiation for the Atlantic population.

### POPULATION SIZE

Estimates of abundance 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. Estimated abundance of pygmy killer whales by survey year [coefficient of variation (CV) in parentheses] was 2,347 in (0.81), 356 in 1992 (0.73), 153 in 1993 (1.13), and zero in 1994 (Hansen et al. 1995). Survey effort-weighted estimated average abundance of pygmy killer whales for all surveys combined was 518 (CV = 0.81) (Hansen et al. 1995).

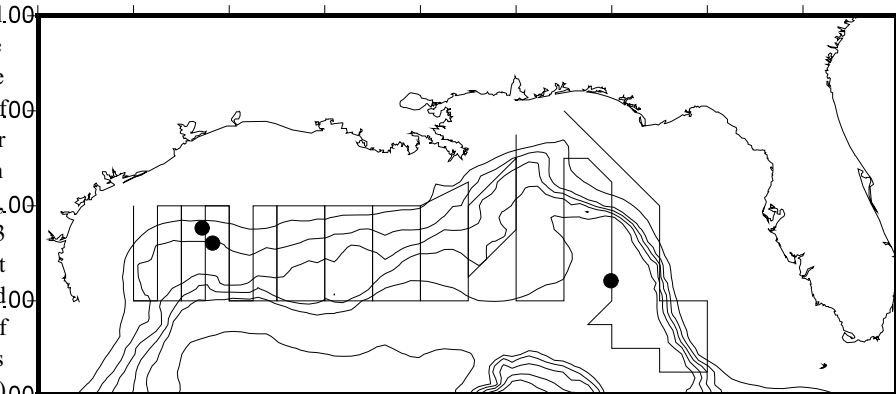


Figure 1. Distribution of pygmy killer whale sightings during marine mammal surveys during 1991-1994. The straight lines show transects during two surveys and are examples of typical survey transects. Isobaths are in 183 m (100 fm) intervals.

### Minimum Population Estimate

The minimum population size was estimated from the average estimated abundance which was 518 pygmy killer whales (CV = 0.81) (Hansen et al. 1995). The minimum population estimate is the lower limit of the two-tailed 60% confidence interval of the log-normal distributed abundance estimate, which is equivalent to the 20th percentile of the log-normal distributed abundance estimate as specified by NMFS (Anon. 1994). The minimum population estimate is 285 pygmy killer whales.

### Current Population Trend

A declining trend was identified in the annual abundance estimates; however, the 1991-1993 abundance estimates were not significantly different using the criteria of no overlap of log-normal 95% confidence intervals. There were no observations of this species during the 1994 survey. The apparent differences in abundance estimates may have been caused by lower sampling effort during 1991, by low sampling intensity relative to population size (Hansen et al. 1995), or by inter-annual variation in distribution patterns or spatial sampling patterns, rather than changes in population size.

### CURRENT AND MAXIMUM NET PRODUCTIVITY RATES

Current and maximum net productivity rates are not known; 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 specified as the product of the minimum population size, one half the maximum net productivity rate, and a recovery factor for endangered, threatened, or depleted stocks, or stocks of unknown status relative to optimum sustainable population (OSP) (Anon. 1994). The recovery factor was set at 0.50 because the status of the stock relative to OSP is unknown. PBR for this stock is 2.8 pygmy killer whales.

#### **ANNUAL HUMAN-CAUSED MORTALITY AND SERIOUS INJURY**

There has historically been some take of this species in small cetacean fisheries in the Caribbean (Caldwell and Caldwell 1971); however, the level of past or current, direct, human-caused mortality of pygmy killer whales in the northern Gulf of Mexico is unknown. Available information indicates there likely is little, if any, fisheries interaction with pygmy killer whales in the northern Gulf of Mexico. There have been no logbook reports of fishery-related mortality or serious injury and no fishery-related mortality or serious injury has been observed.

There were no documented strandings of pygmy killer 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.

The total known fishery-related mortality and serious injury for this stock is less than 10% of the calculated PBR 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. There were no reports of mortality or serious injury of pygmy killer whales by this fishery.

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 relative to PBR; 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.
- 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.
- Caldwell, D. K. and M. C. Caldwell. 1971. The pygmy killer whale, *Feresa attenuata*, in the western Atlantic, with a summary of world records. J. Mamm. 52:206-209.
- 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.
- 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.
- Ross, G. J. B. and S. Leatherwood. 1994. Pygmy killer whale *Feresa attenuata* (Gray, 1874). Pages 387-404 in S. H. Ridgway and R. Harrison (editors), Handbook of marine mammals, Vol. 5: The first book of dolphins. Academic Press, London, 416 pp.