

Sperm Whales

Pygmy sperm whale *Kogia breviceps*

Dwarf sperm whale *Kogia sima*

Contributor: Wayne McFee

DESCRIPTION

Taxonomy and Basic Description

The pygmy sperm whale was first described by de Blainville in 1838. The dwarf sperm whale was first described by Owen in 1866. Both were considered a single species until 1966.

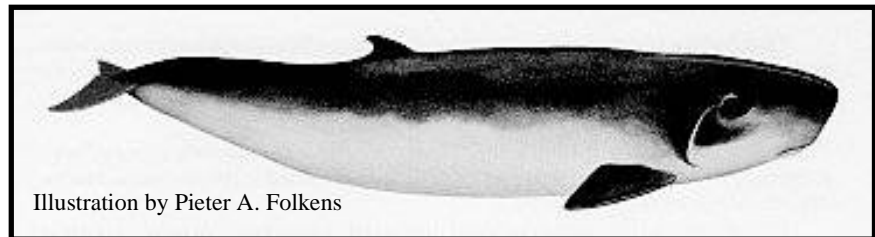


Illustration by Pieter A. Folkens

These are the only two species in the family Kogiidae. The species name for the dwarf sperm whale was changed in 1998 from ‘*simus*’ to ‘*sima*.’

At sea, these two species are virtually indistinguishable. Both species are black dorsally with a white underside. They possess a shark-like head with a narrow under-slung lower jaw and a light colored “false gill” that runs between the eye and the flipper. Small flippers are positioned far forward on the body.

Pygmy sperm whales generally have between 12 and 16 (occasionally 10 to 11) pairs of needle-like teeth in the lower jaw. They can attain lengths up to 3.5 meters (11.5 feet) and weigh upwards of 410 kilograms (904 pounds). A diagnostic character of this species is the low, falcate dorsal fin (less than 5 percent of the body length) positioned behind the midpoint on the back.

Dwarf sperm whales generally have 8 to 11 (rarely up to 13) pairs of teeth in the lower jaw and can have up to 3 pairs of teeth in the upper jaw. They can attain lengths up to 2.7 meters (8.9 feet) and weigh upwards of 210 kilograms (463 pounds). A diagnostic character of this species is the high, dolphin-like dorsal fin (greater than 5 percent of the body length) positioned in the middle of the back. This species usually has a pair of short grooves on the throat.

Status

The status for both species is unknown; and neither is listed as threatened or endangered under the Endangered Species Act. The status for pygmy sperm whales is considered strategic by the National Marine Fisheries Service (NMFS) because of recent increased mortality events and fishery related mortalities exceeding Potential Biological Removal (PBR) as established by NMFS (Waring et al. 2002). An unusual mortality event (UME) of pygmy sperm whales in the southeastern United States was declared in 2003 by NMFS, prompting the need for more research on mortality of both species.

POPULATION DISTRIBUTION AND SIZE

Both species appear to occur worldwide in tropical and temperate latitudes. They tend to occur over the continental slope with the pygmy sperm whale possibly venturing over the limits of the continental shelf more often than the dwarf sperm whale. Stable isotope research suggests that the species may be separated by vertical niche partitioning, occurring in similar locations (Barros et al. 1998).

Because of their shy behavior and avoidance of research vessels at sea, population estimates in the Western North Atlantic Ocean are unreliable. Nearly all the information obtained on either of these species is from stranded animals.

HABITAT AND NATURAL COMMUNITY REQUIREMENTS

Based largely on stomach content analyses from stranded specimens, pygmy and dwarf sperm whales live in deep water on the continental slope and occasionally continental shelf feeding on cephalopods (squid) and, less frequently, crustaceans and fish. The species of squid found in stomachs suggests that these animals require deep water up to 1,500 meters (4,921 feet). Benthic fish and crabs found in stomachs also suggest that these species forage on the ocean bottom (Reeves et al. 2002).

CHALLENGES

The greatest challenge to both species appears to be marine debris (plastics, bags, balloons). Numerous stranded specimens have been documented with plastic bags and other marine debris in the stomachs. The reasons for this remain speculative but could be the result of mistaking a potential food source. NMFS observer programs have not documented any mortality in fisheries operations except for one take in the pelagic longline fishery in 2000 (Waring et al. 2002).

Cardiomyopathy (enlargement of the heart muscle) appears to be very common in pygmy sperm whales. The etiology of this disease to the heart is unknown, but is observed in nearly 50 percent of the stranded animals. Research on this disease is occurring at a few institutions in the southeastern US.

CONSERVATION ACCOMPLISHMENTS

A Prescott Grant through the NMFS to SCDNR has funded responses to marine mammal strandings, data collection, training of volunteers, and timely collection of tissues for research. These funds have allowed the recovery and collection of tissues by the National Ocean Services (NOS), Center for Coastal Environmental Health and Biomolecular Research (CCEHBR) for research on pygmy and dwarf sperm whales. Additionally, a stranding brochure was developed by SCDNR and NOS/CCEHBR in 2003 to hand out to beachgoers at strandings.

CONSERVATION RECOMMENDATIONS

- Continue monitoring sperm whale strandings to:
 - develop predictive models of stranding rates, especially seasonally, to better prepare network volunteers for increased strandings of these species,
 - increase information on mortality rates and cause of mortalities to obtain a better understanding on the stressors these species face, and
 - develop a better understanding of the distribution of these species.
- Develop outreach material to educate the public about the harm plastics and other marine debris can cause to marine life.
- Conduct collaborative research with partners to determine the cause(s) of cardiomyopathy in sperm whales. Basic life history parameters such as age analysis using teeth and reproductive status are also essential in determining longevity, population status and fecundity.

MEASURES OF SUCCESS

As more data are accumulated and a better understanding of the status and life history of the two sperm whale species emerges, further management recommendations will be developed. Reduction of marine debris could have a substantial impact on the survival of these species.

LITERATURE REFERENCED

- Barros, N.B., D.A. Duffield, P.A. Ostrum, D.K. Odell and V.R. Cornish. 1998. Nearshore vs. offshore ecotype differentiation of *Kogia breviceps* and *Kogia simus* based on hemoglobin, morphometric, and dietary analyses. Abstracts. World Marine Mammal Science Conference. Monaco. 20-24 January.
- Jefferson, T.A., S. Leatherwood and M.A. Webber. 1993. FAO species identification guide. Marine mammals of the world. Rome, FAO. 320 pp.
- Reeves, R.R., B.S. Stewart, P.J. Clapham and J.A. Powell. 2002. Guide to marine mammals. Alfred A. Knopf, New York, 527 pp.
- Waring, G.T., J.M. Quintal and C.P. Fairfield. 2002. U.S. Atlantic and Gulf of Mexico marine mammal stock assessments -2002. NOAA Tech. Memo. NMFS-NE-169. 328 pp.