

DWARF SPERM WHALE (*Kogia simus*): Western North Atlantic Stock

STOCK DEFINITION AND GEOGRAPHIC RANGE

The dwarf sperm whale (*Kogia simus*) and the pygmy sperm whale (*K. breviceps*) appear to be distributed worldwide in temperate to tropical waters (Caldwell and Caldwell 1994). Sightings of these animals in the northern Gulf of Mexico occur primarily along the continental shelf edge and over the deeper waters off the continental shelf (Mullin et al. 1991; NMFS unpublished data). Pygmy sperm whales and dwarf sperm whales are difficult to distinguish and sightings of either species are often categorized as *Kogia* spp. 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 a 1992 winter, visual sampling, line-transect vessel survey of the U.S. Atlantic Exclusive Economic Zone (EEZ) waters between Miami, Florida, and Cape Hatteras, North Carolina. Abundance was estimated for both species combined because the majority of sightings were not identified to species, and both species are known to occur in the area. The estimated abundance of dwarf sperm whales and pygmy sperm whales combined for the 1992 surveys was 420 animals (coefficient of variation, CV = 0.60) (Hansen et al. 1994). Dwarf sperm whale abundance cannot be estimated due to uncertainty of species identification of sightings.

Minimum Population Estimate

A minimum population size could not be estimated because of the uncertainty in species identification.

Current Population Trend

No information was available evaluate trends in population size.

CURRENT AND MAXIMUM NET PRODUCTIVITY RATES

Current and maximum net productivity rates are not known for this stock.

POTENTIAL BIOLOGICAL REMOVAL

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

ANNUAL HUMAN-CAUSED MORTALITY AND SERIOUS INJURY

The level of past or current, direct, human-caused mortality of dwarf sperm whales in the U.S. Atlantic EEZ is unknown. Available information indicates there is likely little, if any, fisheries interaction with dwarf sperm whales in the U.S. Atlantic EEZ. It is not known whether total fishery-related mortality and serious injury for this stock is less than 10% of PBR and can therefore be considered insignificant and approaching zero mortality and serious injury rate, because PBR cannot be calculated. 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

Current data sources include the Northeast Fisheries Science Center (NEFSC) Weigh Out Data Program and Sea Sampling Observer Program initiated in 1989. In 1986, NMFS established a mandatory logbook system for large pelagic fisheries. In late 1992 and in 1993 the SEFSC provided observer coverage of pelagic longline vessels fishing off the Grand Banks (Tail of the Banks) and provides observer coverage of vessels fishing south of Cape Hatteras.

By-catch has been observed by NMFS Sea Samplers in the swordfish/tuna/shark drift gillnet fishery, but no mortalities have been documented in the Atlantic swordfish/tuna/shark longline, Atlantic swordfish/tuna/shark pair trawl, New England multispecies sink gillnet and Gulf of Maine groundfish trawl fisheries.

Fifty-nine different vessels participated in this fishery at one time or another between 1989 and 1993. Observer coverage, expressed as percent of sets observed, ranged from 8% in 1989, 6% in 1990, 20% in 1991, to 40% in 1992, and 42% in 1993. Effort was concentrated along the southern edge of Georges Bank and off Cape Hatteras. Examination of the species composition of the catch and locations of the fishery throughout the year, suggested that the drift gillnet fishery be stratified into two strata, a southern or winter stratum, and a northern or summer stratum. There were no reports of mortality or serious injury to dwarf sperm whales attributable to this fishery.

There were no reports of incidental mortality or injury of dwarf sperm whales associated with the U.S. longline swordfish/tuna fishery which has been monitored at approximately 5% coverage by NMFS observers since 1992. However, other fisheries which operate in areas frequented by dwarf sperm whales were not monitored by observers.

There were no documented strandings of dwarf sperm whales along the U.S. Atlantic coast during 1987-present which were classified as likely caused by fishery interactions. 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.

Other Mortality

At least 19 dwarf sperm whale strandings have been documented along the U.S. Atlantic coast between Cape Hatteras, North Carolina, and Miami, Florida, during 1987-1994. Three of the stranded animals had plastic, or a plastic bag or bags in their stomachs, and one of these three had possible propeller cuts on or near the flukes.

STATUS OF STOCK

The status of this stock relative to OSP is unknown. This species is not listed as endangered or threatened under the Endangered Species Act. There is insufficient information with which to assess population trends. Upon the advice of the Atlantic Scientific Review Group this stock has been designated a strategic stock because PBR cannot be determined and there is an unknown amount of possible human-caused mortality from the ingestion of marine debris such as plastic bags and from possible boat strikes.

REFERENCES

- 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 1989. Pygmy sperm whale *Kogia breviceps* (de Blainville, 1838): dwarf sperm whale *Kogia simus* Owen, 1866. Pages 235-260 in S. H. Ridgway and R. Harrison, Handbook of marine mammals, Vol. 4: river dolphins and the larger toothed whales. Academic Press, San Diego.
- Hansen, L. J., K. D. Mullin and C. L. Roden. 1994. Preliminary estimates of cetacean abundance in the northern Gulf of Mexico from vessel surveys. Southeast Fisheries Science Center, Miami Laboratory, Contribution No. MIA-93/94-58.
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- Mullin, K., W. Hoggard, C. Roden, R. Lohoefer, C. Rogers and B. Taggart. 1991. Cetaceans on the upper continental slope in the north-central Gulf of Mexico. OCS Study/MMS 91-0027. U.S. Dept. of the Interior, Minerals Management Service, Gulf of Mexico OCS Regional Office, New Orleans, Louisiana, 108 pp.

PYGMY SPERM WHALE (*Kogia breviceps*): Western North Atlantic Stock

STOCK DEFINITION AND GEOGRAPHIC RANGE

The dwarf sperm whale (*Kogia breviceps*) and the pygmy sperm whale (*K. simus*) appear to be distributed worldwide in temperate to tropical waters (Caldwell and Caldwell 1994). Sightings of these animals in the northern Gulf of Mexico occur primarily along the continental shelf edge and over the deeper waters off the continental shelf (Mullin et al. 1991; Southeast Fisheries Science Center unpublished data). Pygmy sperm whales and dwarf sperm whales are difficult to distinguish and sightings of either species are often categorized as *Kogia* spp. 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 a 1992 winter, visual sampling, line-transect vessel survey of the U.S. Atlantic Exclusive Economic Zone (EEZ) waters between Miami, Florida, and Cape Hatteras, North Carolina. Abundance was estimated for both species combined because the majority of sightings were not identified to species, and both species are known to occur in the area. The estimated abundance of dwarf sperm whales and pygmy sperm whales combined for the 1992 surveys was 420 animals (coefficient of variation, CV = 0.60) (Hansen et al. 1994). Pygmy sperm whale abundance cannot be estimated due to uncertainty of species identification of sightings.

Minimum Population Estimate

A minimum population size could not be estimated because of the uncertainty in species identification.

Current Population Trend

No information was available to evaluate trends in population size.

CURRENT AND MAXIMUM NET PRODUCTIVITY RATES

Current and maximum net productivity rates are not known for this stock.

POTENTIAL BIOLOGICAL REMOVAL

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

ANNUAL HUMAN-CAUSED MORTALITY AND SERIOUS INJURY

The level of past or current, direct, human-caused mortality of pygmy sperm whales in the U.S. Atlantic EEZ is unknown. Available information indicates there is likely little, if any, fisheries interaction with pygmy sperm whales in the U.S. Atlantic EEZ.

There were no documented strandings of pygmy sperm whales along the U.S. Atlantic coast during 1987-present which were classified as likely caused by fishery interactions. 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.

It is not known whether total fishery-related mortality and serious injury for this stock is less than 10% of PBR and can therefore be considered insignificant and approaching zero mortality and serious injury rate, because PBR cannot be calculated. 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

Current data sources include the Northeast Fisheries Science Center (NEFSC) Weighout Data Program and Sea Sampling Observer Program initiated in 1989. In 1986, NMFS established a mandatory logbook system for large pelagic fisheries. In late 1992 and in 1993, the SEFSC provided observer coverage of pelagic longline vessels fishing off the Grand Banks (Tail of the Banks) and provides observer coverage of vessels fishing south of Cape Hatteras.

By-catch has been observed by NMFS Sea Samplers in the swordfish/tuna/shark drift gillnet fishery, but no mortalities have been documented in the Atlantic swordfish/tuna/shark longline, Atlantic swordfish/tuna/shark pair trawl, New England multispecies sink gillnet and Gulf of Maine groundfish trawl fisheries.

The estimated total number of hauls in the Atlantic large pelagic drift gillnet fishery increased from 714 in 1989 to 1,144 in 1990; thereafter, with the introduction of quotas, effort was severely reduced. The estimated number of hauls in 1991, 1992, and 1993 were 233, 243, and 232 respectively. Fifty-nine different vessels participated in this fishery at one time or another between 1989 and 1993. Observer coverage, expressed as percent of sets observed, ranged from 8% in 1989, 6% in 1990, 20% in 1991, to 40% in 1992, and 42% in 1993. Effort was concentrated along the southern edge of Georges Bank and off Cape Hatteras. Examination of the species composition of the catch and locations of the fishery throughout the year, suggested that the drift gillnet fishery be stratified into two strata, a southern or winter stratum, and a northern or summer stratum. There were no reports of fishery-related mortality or serious injury to pygmy sperm whales attributable to this fishery.

There were no reports of incidental mortality or injury of pygmy sperm whales associated with the U.S. swordfish/tuna longline fishery which has been monitored at approximately 5% coverage by NMFS observers since 1992. However, other fisheries which operate in areas frequented by pygmy sperm whales were not monitored by observers.

Other Mortality

At least 142 pygmy sperm whale strandings were documented along the U.S. Atlantic coast between Cape Hatteras, North Carolina, and Miami, Florida, during 1987-1994. Two of the stranded animals had plastic, or a plastic bag or bags in their stomachs, and one additional animal had possible propeller cuts on its flukes.

STATUS OF STOCK

The status of this stock relative to OSP is unknown. This species is not listed as endangered or threatened under the Endangered Species Act. There is insufficient information with which to assess population trends. Upon the advice of the Atlantic Scientific Review Group this stock has been designated a strategic stock because PBR cannot be determined and there is an unknown amount of possible human-caused mortality from the ingestion of marine debris such as plastic bags and from possible boat strikes.

REFERENCES

- 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.
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