

## **SPINNER DOLPHIN (*Stenella longirostris*): Western North Atlantic Stock**

### **STOCK DEFINITION AND GEOGRAPHIC RANGE**

Spinner dolphins are distributed in oceanic and coastal tropical waters (Leatherwood *et al.* 1976). This is presumably an offshore, deep-water species (Schmidly 1981; Perrin and Gilpatrick 1994), and its distribution in the Atlantic is very poorly known. In the western North Atlantic, these dolphins occur in deep water along most of the U.S. coast south to the West Indies and Venezuela, including the Gulf of Mexico. Spinner dolphin sightings have occurred exclusively in deeper (>2,000 m) oceanic waters (CETAP 1982; Waring *et al.* 1992; NMFS unpublished data) off the northeast U.S. coast. Stranding records exist from North Carolina, South Carolina, Florida and Puerto Rico in the Atlantic and in Texas and Florida in the Gulf of Mexico. 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 spinner dolphins off the U.S. or Canadian Atlantic coast are unknown, and seasonal abundance estimates are not available for this stock since it was rarely seen in any of the surveys.

#### **Minimum Population Estimate**

Present data are insufficient to calculate a minimum population estimate.

#### **Current Population Trend**

There are insufficient data to determine the 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 life history (Barlow *et al.* 1995).

### **POTENTIAL BIOLOGICAL REMOVAL**

Potential Biological Removal (PBR) is the product of minimum population size, one-half the maximum productivity rate, and a “recovery” factor (MMPA Sec. 3. 16 U.S.C. 1362; Wade and Angliss 1997). The minimum population size is unknown. The maximum productivity rate is 0.04, the default value for cetaceans. The “recovery” factor, which accounts for endangered, depleted, threatened stocks, or stocks of unknown status, relative to optimum sustainable population (OSP), is assumed to be 0.5 because this stock is of unknown status. PBR for the western North Atlantic spinner dolphin is unknown because the minimum population size is unknown.

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

#### **Fishery Information**

Detailed fishery information is reported in Appendix III. Total annual estimated average 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 spinner dolphins.

### **EARLIER INTERACTIONS**

There was no documentation of spinner dolphin mortality or serious injury in distant-water fleet (DWF) activities off the northeast U.S. coast (Waring *et al.* 1990). No takes were documented in a review of Canadian gillnet and trap fisheries (Read 1994).

Bycatch has been observed in the now prohibited pelagic drift gillnet fishery, and in the pelagic longline fishery (one dolphin hooked and released alive without serious injury in 1997) but no mortalities or serious injuries have been documented in the pelagic pair trawl, Northeast sink gillnet, Mid-Atlantic coastal gillnet, and North Atlantic

bottom trawl fisheries (Yeung 1999).

**Pelagic Drift Gillnet**

One spinner dolphin mortality was observed in the pelagic driftnet between 1989 and 1993 and occurred east of Cape Hatteras in March 1993 (Northridge 1996). Estimates of total annual bycatch for 1994 and 1995 were estimated from the sum of the observed caught and the product of the average bycatch per haul and the number of unobserved hauls as recorded in self-reported fisheries information. Variances were estimated using bootstrap resampling techniques. Estimated annual mortality and serious injury attributable to this fishery (CV in parentheses) was 0.7 in 1989 (1.00), 1.7 in 1990 (1.00), 0.7 in 1991 (1.00), 1.4 in 1992 (0.31), 0.5 in 1993 (1.00) and zero from 1994-1996. This fishery is no longer in operation.

**Other Mortality**

From 2001-2005, 10 spinner dolphins were reported stranded between Maine and Puerto Rico (Table 1). The total includes 2 animals stranded in North Carolina in 2001, 2 animals stranded in Puerto Rico in 2002, 4 mass stranded live animals in December 2003 in Flagler, Florida (all died on the scene), 1 animal stranded in Florida 2003 and in 2004. There were no indications of fishery or human interactions for these stranded animals.

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.

Table 1. Spinner dolphin ( <i>Stenella longirostris</i> ) strandings along the U.S. Atlantic coast, 2001-2005						
STATE	2001	2002	2003	2004	2005	TOTALS
North Carolina	2	0	0	0	0	2
South Carolina	0	0	0	0	0	0
Georgia	0	0	0	0	0	0
Florida	0	0	5 <sup>a</sup>	1	0	6
Puerto Rico	0	2	0	0	0	2
TOTALS	2	2	5	1	0	10

<sup>a</sup> Includes live mass stranding of 4 animals in Flagler, FL in December 2003.

**STATUS OF STOCK**

The status of spinner dolphins, relative to OSP, in the U.S. western North Atlantic EEZ is unknown. The species is not listed as threatened or endangered under the Endangered Species Act. There are insufficient data to determine the population size or trends and PBR cannot be calculated for this stock. No fishery-related mortality and serious injury has been observed since 1999; therefore, total fishery-related mortality and serious injury rate can be considered insignificant and approaching zero mortality and serious injury. This is not a strategic stock.

**REFERENCES CITED**

Barlow, J., S.L. Swartz, T.C. Eagle, and P.R. Wade. 1995. U.S. Marine Mammal Stock Assessments: Guidelines for Preparation, Background, and a Summary of the 1995 Assessments. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-OPR-6, 73 pp.

CETAP. 1982. A characterization of marine mammals and turtles in the mid- and north Atlantic areas of the U.S. outer continental shelf. Cetacean and Turtle Assessment Program, University of Rhode Island. Final Report, Contract AA51-C78-48, Bureau of Land Management, Washington, DC, 538 pp.

Leatherwood, S., D.K. Caldwell, and H.E. Winn. 1976. Whales, dolphins, and porpoises of the western North Atlantic. A guide to their identification. U.S. Dep. Commer., NOAA Tech. Rep. NMFS Circ. 396, 176 pp.

Northridge, S. 1996. Estimation of cetacean mortality in the U.S. Atlantic swordfish and tuna drift gillnet and pair trawl fisheries. Final report to the Northeast Fisheries Science Center, Contract No. 40ENNF500045, 18 pp.

Perrin, W. F. and J. W. Gilpatrick, Jr. 1994. Spinner dolphin. pp. 99-128. *In*: S. H. Ridgway and R. Harrison (eds.) Handbook of marine mammals, Volume 5: The first book of dolphins. Academic Press, San Diego, California. 418 pp.

- Read, A. J. 1994. Interactions between cetaceans and gillnet and trap fisheries in the northwest Atlantic. pp. 133- 147. *In*: W.F. Perrin, G.P. Donovan and J. Barlow (eds.) Gillnets and Cetaceans. Rep. int. Whal. Commn (Special Issue) 15: I-ix + 629 pp.
- Schmidly, D. J. 1981. Marine mammals of the southeastern United States coast and the Gulf of Mexico. Pub. No. FWS/OBS-80/41, U.S. Fish and Wildlife Service, Office of Biological Services, Washington, DC, 163 pp.
- 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. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-OPR- 12, 93 pp.
- Waring, G.T., P. Gerrior, P.M. Payne, B.L. Parry, and J.R. Nicolas. 1990. Incidental take of marine mammals in foreign fishery activities off the northeastern United States 1977-1998. Fish. Bull., US. 88(2):347-360.
- Waring, G. T., C. P. Fairfield, C. M. Ruhsam, and M. Sano. 1992. Cetaceans associated with Gulf Stream features off the northeastern USA shelf. ICES Marine Mammals Comm. CM 1992/N:12, 29 pp.
- Yeung, C. 1999. Estimates of marine mammal and marine turtle bycatch by the U.S. Atlantic pelagic longline fleet in 1992-1997. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-SEFSC-429, 23 pp. Available from: NMFS, Southeast Fisheries Science Center, 75 Virginia Beach Dr., Miami, FL, 33149.