

## SPINNER DOLPHIN (*Stenella longirostris 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 almost exclusively in deeper (>2,000 m) oceanic waters (CETAP 1982; Waring *et al.* 1992; NMFS unpublished data) off the northeast U.S. coast, but there was one recent sighting during summer 2011 in oceanic waters off North Carolina (Figure 1). Stranding records exist from North Carolina, South Carolina, Florida and Puerto Rico in the Atlantic, and in Texas, Alabama and Florida in the Gulf of Mexico. The western North Atlantic population is 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) or the Puerto Rico and U.S. Virgin Islands stock. 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. 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

A trend analysis has not been conducted for this stock. The statistical power to detect a trend in abundance for this stock is poor due to the relatively imprecise abundance estimates and long survey interval. For example, the power to detect a precipitous decline in abundance (i.e., 50% decrease in 15 years) with estimates of low precision (e.g., CV > 0.30) remains below 80% ( $\alpha = 0.30$ ) unless surveys are conducted on an annual basis (Taylor *et al.* 2007).

### 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

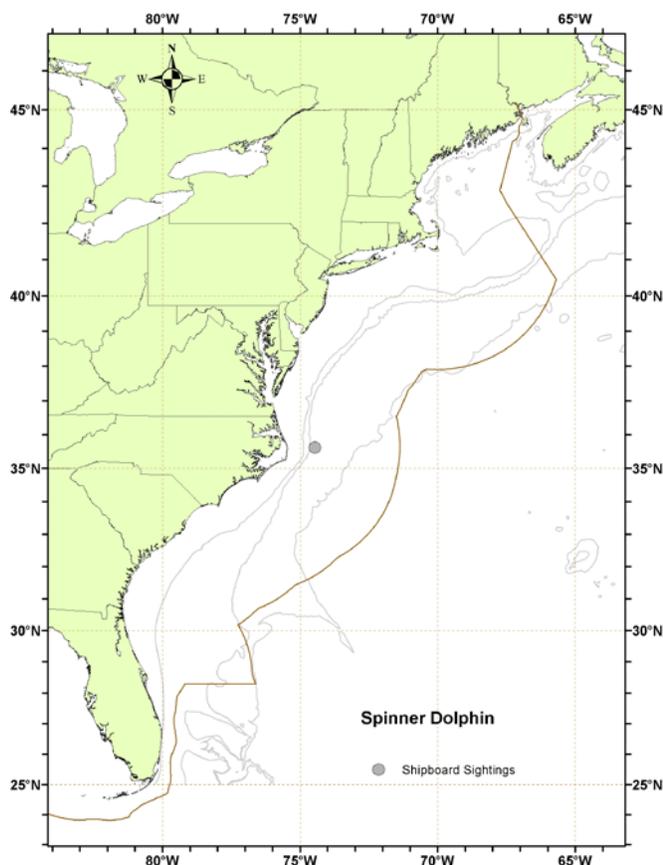


Figure 1. Location of a spinner dolphin sighting from an SEFSC shipboard survey during summer 2011. Isobaths are the 100-m, 1,000-m and 4,000-m depth contours.

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**

### **New Serious Injury Guidelines**

NMFS updated its serious injury designation and reporting process, which uses guidance from previous serious injury workshops, expert opinion, and analysis of historic injury cases to develop new criteria for distinguishing serious from non-serious injury (Angliss and DeMaster 1998; Andersen *et al.* 2008; NOAA 2012). NMFS defines serious injury as an “*injury that is more likely than not to result in mortality*”. Injury determinations for stock assessments revised in 2013 or later incorporate the new serious injury guidelines, based on the most recent 5-year period for which data are available.

### **Fishery Information**

Detailed fishery information is reported in Appendix III. Total annual estimated average fishery-related mortality and serious injury to this stock during 2007-2011 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 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).

### **Other Mortality**

From 2007-2011, 2 spinner dolphins were reported stranded between Maine and Florida (NOAA National Marine Mammal Health and Stranding Response Database unpublished data, accessed 13 September 2012). Both animals stranded in Florida during 2008. No evidence of human interaction was present for 1 animal, but the other animal had propeller wounds from a boat strike. It is possible the boat strike was post-mortem.

Stranding data probably underestimate the extent of human-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 human interactions. Finally, the level of technical expertise among stranding network personnel varies widely as does the ability to recognize signs of human interactions.

## **STATUS OF STOCK**

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

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