

SPINNER DOLPHIN (*Stenella longirostris longirostris*): American Samoa Stock

STOCK DEFINITION AND GEOGRAPHIC RANGE

Gray's spinner dolphins (*Stenella longirostris longirostris*) are the most widely distributed subspecies of spinner dolphins and are found in tropical and subtropical waters of the Atlantic, Indian, central and western Pacific Oceans (Perrin et al. 1991, Norris et al. 1994, Oremus *et al.* 2007, Johnston et al. 2008). Spinner dolphins are considered common in American Samoa (Reeves et al. 1999). During small-boat surveys from 2003 to 2006 in the waters surrounding the island of Tutuila, the spinner dolphin was the most frequently encountered species (i.e., 34 of 52 sightings) and was found in waters with a mean depth of 44m (Johnston et al. 2008). Photo-identification data collected during the surveys indicate the presence of a resident population of spinner dolphins in the waters surrounding Tutuila (Johnston et al. 2008). Approximately 1/3 of the individuals within the photo-id catalog were sighted in multiple years (Johnston et al. 2008). In addition, some of these individuals demonstrated strong site fidelity and were encountered within only a few kilometers from one year to the next (Johnston et al. 2008). During a shipboard survey in 2006 spinner dolphins were also encountered just south of the island of Ta'u, American Samoa (Johnston et al. 2008).

Genetic analyses of biopsy samples collected during the 2003-2006 small boat surveys around Tutuila indicate that spinner dolphins in American Samoa are distinct from those of the Hawaiian Archipelago. Pairwise F-statistical analyses revealed significant ($p < 0.001$) genetic distinction, at both mtDNA and microsatellite loci, between spinner dolphins sampled in American Samoa and those sampled in the Hawaiian Islands (Johnston et al. 2008, Andrews 2009). For the Marine Mammal Protection Act (MMPA) stock assessment reports, there are eight Pacific management stocks, six of these extend from the Hawaiian archipelago to 10 nmi offshore: 1) Kure/Midway, 2) Pearl and Hermes Reef, 3) French Frigate Shoals, 4) Kauai/Niihau, 5) Oahu/4-Islands, and 6) Hawaii Island, The Hawaii Pelagic Stock, which includes animals within the U.S. EEZ of the Hawaiian Islands, but more than 10 nmi from the shore where insular populations exist, and 8) the American Samoa Stock, which include animals inhabiting the EEZ waters around American Samoa (this report). Spinner dolphins involved in eastern tropical Pacific tuna purse-seine fisheries are managed separately under the MMPA.

POPULATION SIZE

No abundance estimates are currently available for spinner dolphins in U.S. EEZ waters of American Samoa; however, density estimates for spinner dolphins in other tropical Pacific regions can provide a range of likely abundance estimates in this unsurveyed region. Published estimates of spinner dolphins (animals per km²) in the Pacific are: 0.0014 (CV=0.74) for the U.S. EEZ of the Hawaiian Islands (Barlow 2006); 0.0443 (CV=0.37) for nearshore waters surrounding the main Hawaiian Islands (Mobley et al. 2000), 0.0532 (CV=0.19) and 0.0473

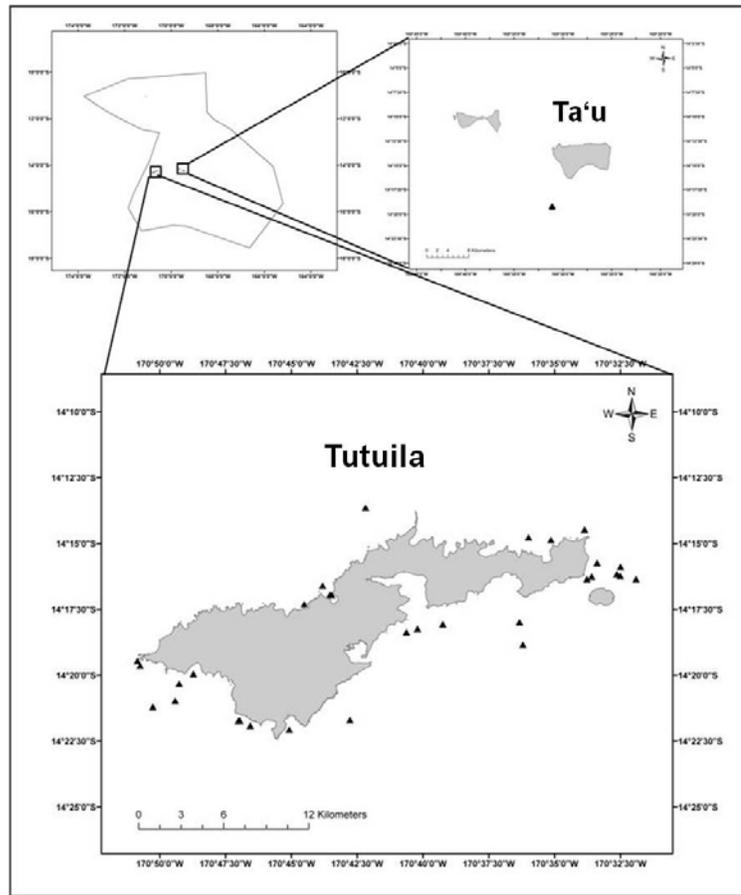


Figure 1. Spinner dolphin sightings from visual sighting surveys, 2003-2006 (Johnston et al 2008).

(CV=0.15) for the eastern tropical Pacific Ocean (Wade and Gerrodette 1993; Ferguson and Barlow 2003), and 0.1280 (CV=0.27) for eastern tropical Pacific waters west of 120°W and north or south of 10°, a region with similar oceanographic conditions to those around American Samoa. Applying the lowest and highest of these density estimates to U.S. EEZ waters surrounding American Samoa (area size = 404,578 km²) yields a range of plausible abundance estimates of 553 – 51,773 spinner dolphins.

Minimum Population Estimate

No minimum population estimate is currently available for waters surrounding American Samoa, but the spinner dolphin density estimates from other tropical Pacific regions (Barlow 2003, Mobley et al. 2000, Wade and Gerrodette 1993, Ferguson and Barlow 2003, see above) can provide a range of likely values. The lognormal 20th percentiles of plausible abundance estimates for the American Samoa EEZ, based on the densities observed elsewhere, range from 317 – 41,483 spinner dolphins.

Current Population Trend

No data are available on current population trend.

CURRENT AND MAXIMUM NET PRODUCTIVITY RATES

No data are available on current and maximum net productivity rate in American Samoan waters.

POTENTIAL BIOLOGICAL REMOVAL

No PBR can presently be calculated for spinner dolphins within the American Samoa EEZ, but based on the range of plausible minimum abundance estimates (317 – 41,483), a recovery factor of 0.50 (for a species of unknown status with no fishery mortality and serious injury within the American Samoa EEZ; Wade and Angliss 1997), and the default growth rate (½ of 4%), the PBR would likely fall between 3.2 and 415 spinner dolphins per year.

HUMAN-CAUSED MORTALITY AND SERIOUS INJURY

Fishery Information

Information on fishery-related mortality of cetaceans in American Samoan waters is limited, but the gear types used in American Samoa's fisheries are responsible for marine mammal mortality and serious injury in other fisheries throughout U.S. waters. Gillnets appear to capture marine mammals wherever they are used, and float lines from lobster traps and longlines can be expected to occasionally entangle whales (Perrin et al. 1994). The primary fishery in American Samoa is the commercial pelagic longline fishery that targets tunas, which was introduced in 1995 (Levine and Allen 2009). In 2008, there were 28 federally permitted vessels within the longline fishery in American Samoa (Levine and Allen 2009). The fishery has been monitored since March 2006 under a mandatory observer program, which records all interactions with protected species (Pacific Islands Regional Office 2009). No interactions with spinner dolphins have been recorded. Prior to 1995, bottomfishing and trolling were the primary fisheries in American Samoa but became less prominent after longlining was introduced (Levine and Allen 2009). Nearshore subsistence fisheries include spear fishing, rod and reel, collecting, gill netting, and throw netting (Craig 1993, Levine and Allen 2009). Information on fishery-related mortality of cetaceans in the nearshore fisheries is unknown, but the gear types used in American Samoan fisheries are responsible for marine mammal mortality and serious injury in other fisheries throughout U.S. waters. Gillnets appear to capture marine mammals wherever they are used. Although boat-based nearshore fisheries have been randomly monitored since 1991, by the American Samoa Department of Marine and Wildlife Sources (DMWR), no estimates of annual human-caused mortality and serious injury of cetaceans are available.

STATUS OF STOCK

The status of spinner dolphins in American Samoan waters relative to OSP is unknown, and there are insufficient data to evaluate trends in abundance. No habitat issues are known for spinner dolphins in American Samoa. Spinner dolphins are not listed as “threatened” or “endangered” under the Endangered Species Act (1973), nor as “depleted” under the MMPA. The American Samoan stock of spinner dolphins is not considered a strategic stock under the 1994 amendments to the MMPA because the estimated rate of mortality and serious injury within the American Samoa EEZ is zero. Insufficient information is available to determine whether the total fishery mortality and serious injury for spinner dolphins is insignificant and approaching zero mortality and serious injury rate.

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