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STRIPED DOLPHIN (*Stenella coeruleoalba*): Hawaiian Stock

STOCK DEFINITION AND GEOGRAPHIC RANGE

Striped dolphins are found in tropical to warm-temperate waters throughout the world (Perrin et al. 1994b). They have been documented in the Hawaiian Islands from 20 strandings (Nitta 1991, Maldini 2005), although sightings have historically been infrequent (Shallenberger 1981, Mobley et al. 2000). A comprehensive shipboard survey of the Hawaiian Exclusive Economic Zone (EEZ), resulted in 15 sightings of striped dolphins (Figure 1; Barlow 2003).

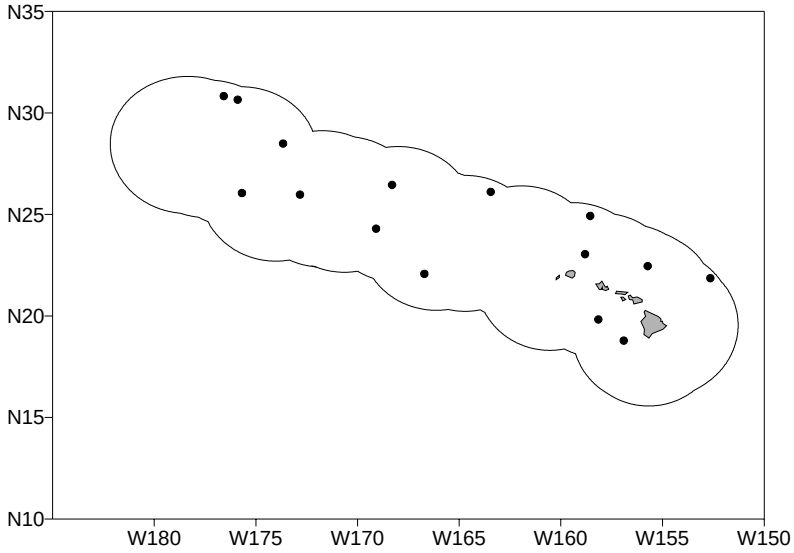

Figure 1. Striped dolphin sighting locations during the 2002 shipboard survey of U.S. EEZ waters surrounding the Hawaiian Islands (Barlow 2003; see Appendix 2 for details on timing and location of survey effort). Outer line represents approximate boundary of survey area and U.S. EEZ.

Striped dolphins have been intensively exploited in the western North Pacific, where three migratory stocks are provisionally recognized (Kishiro and Kasuya 1993). In the eastern Pacific all striped dolphins are provisionally considered to belong to a single stock (Dizon et al. 1994). For the Marine Mammal Protection Act (MMPA) stock assessment reports, striped dolphins within the Pacific U.S. EEZ are divided into two discrete, non-contiguous areas: 1) waters off California, Oregon and Washington, and 2) waters around Hawaii (this report). Striped dolphins involved in eastern tropical Pacific tuna purse-seine fisheries are managed separately under the MMPA.

POPULATION SIZE

Population estimates are available for Japanese waters (Miyashita 1993) and the eastern tropical Pacific (Wade and Gerrodette 1993), but it is not known whether any of these animals are part of the same population that occurs around the Hawaiian Islands. As part of the Marine Mammal Research Program of the Acoustic Thermometry of Ocean Climate (ATOC) study, a total of twelve aerial surveys were conducted within about 25 nmi of the main Hawaiian Islands in 1993, 1995 and 1998. An abundance estimate of 114 (CV=1.19) striped dolphins was calculated from the combined survey data (Mobley et al. 2000). This study underestimated the total number of striped dolphins within the U.S. EEZ off Hawaii, because areas around the Northwestern Hawaiian Islands (NWHI) and beyond 25 nautical miles from the main islands were not surveyed. Furthermore, the data on which this estimate was based are now over 5 years old. A 2002 shipboard line-transect survey of the entire Hawaiian Islands EEZ resulted in an abundance estimate of 10,385 (CV=0.48) striped dolphins (Barlow 2003). This is currently the best available abundance estimate for this stock.

Minimum Population Estimate

The log-normal 20th percentile of the 2002 abundance estimate is 7,078 striped dolphins.

Current Population Trend

No data are available on current population trend.

CURRENT AND MAXIMUM NET PRODUCTIVITY RATES

No data are available on current or maximum net productivity rate.

POTENTIAL BIOLOGICAL REMOVAL

The potential biological removal (PBR) level for this stock is calculated as the minimum population size (7,078) times one half the default maximum net growth rate for cetaceans (½ of 4%) times a recovery factor of 0.50 (for a species of unknown status with no known fishery mortality; Wade and Angliss 1997), resulting in a PBR of 71 striped dolphins per year.

HUMAN-CAUSED MORTALITY AND SERIOUS INJURY

Fishery Information

Information on fishery-related mortality and serious injury of cetaceans in Hawaiian waters is limited, but the gear types used in Hawaiian 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. 1994a).

Interactions with cetaceans have been reported for all Hawaiian pelagic fisheries (Nitta and Henderson 1993), but no interactions with striped dolphins have been documented. None were observed hooked or entangled in the Hawaii-based longline fishery between 1994 and 2002, with approximately 4-25% of all effort observed (Forney 2004). Interaction rates between dolphins and the NWHI bottomfish fishery have been estimated based on studies conducted in 1990-1993, indicating that an average of 2.67 dolphin interactions, most likely involving bottlenose and rough-toothed dolphins, occurred for every 1000 fish brought on board (Kobayashi and Kawamoto 1995). Fishermen claim interactions with dolphins who steal bait and catch are increasing. It is not known whether these interactions result in serious injury or mortality of dolphins, nor whether striped dolphins are involved.

STATUS OF STOCK

The status of striped dolphins in Hawaiian waters relative to OSP is unknown, and there are insufficient data to evaluate trends in abundance. No habitat issues are known to be of concern for this species. They are not listed as "threatened" or "endangered" under the Endangered Species Act (1973), nor as "depleted" under the MMPA. The Hawaiian stock of striped dolphins is not considered strategic under the 1994 amendments to the MMPA given the absence of reported fisheries related mortality. Insufficient information is available to determine whether the total fishery mortality and serious injury for striped dolphins is insignificant and approaching zero mortality and serious injury rate.

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