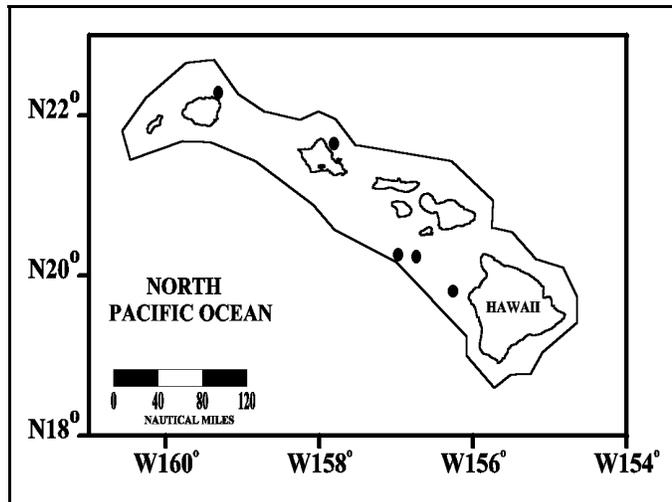


## ROUGH-TOOTHED DOLPHIN (*Steno bredanensis*): Hawaiian Stock

### STOCK DEFINITION AND GEOGRAPHIC RANGE

Rough-toothed dolphins are found throughout the world in tropical and warm-temperate waters (Miyazaki and Perrin 1994). They are present around all the main Hawaiian islands (Shallenberger 1981; Tomich 1986) and have been observed at least as far northwest as French Frigate Shoals (Nitta and Henderson 1993). Recent sighting locations around the main Hawaiian Islands are shown in Figure 1. Five strandings have been reported from Maui, Oahu, and the island of Hawaii (Nitta 1991). Nothing is known about stock structure for this species in the North Pacific. For the Marine Mammal Protection Act (MMPA) stock assessment reports, there is a single Pacific management stock including only animals found within the U.S. Exclusive Economic Zone of the Hawaiian Islands.



**Figure 1.** Rough-toothed dolphin sighting locations during 1993-98 aerial surveys within about 25 nmi of the main Hawaiian Islands (see Appendix 2 for details on timing and location of survey effort). Outer line indicates approximate boundary of survey area.

### POPULATION SIZE

A population estimate for this species has been made in the eastern tropical Pacific (Wade and Gerrodette 1993), but it is not known whether 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 123 (CV=0.63) rough-toothed dolphins was recently calculated from the combined survey data (Mobley et al. 2000). This abundance underestimates the total number of rough-toothed dolphins within the U.S. EEZ off Hawaii, because areas around the Northwest Hawaiian Islands (NWHI) and beyond 25 nautical miles from the main islands were not surveyed.

### Minimum Population Estimate

The log-normal 20th percentile of the combined 1993-98 abundance estimate is 76 rough-toothed dolphins. As with the best abundance estimate above, this includes only areas within about 25 nmi of the main Hawaiian Islands and is therefore an underestimate.

### 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 (76) times one half the default maximum net growth rate for cetaceans ( $\frac{1}{2}$  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 0.8 rough-toothed dolphins per year.

### HUMAN-CAUSED MORTALITY AND SERIOUS INJURY

#### Fishery Information

No estimate of annual human-caused mortality and serious injury is available, as no mortality of this species has been documented in Hawaiian fisheries (Nitta and Henderson 1993). However, mortality of other cetacean species has been observed in Hawaiian fisheries, and the gear types used in these fisheries are responsible for marine mammal mortality and serious injury in other fisheries throughout U.S. waters. Gillnets are used in Hawaiian waters and 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).

Interactions with cetaceans have been reported for all Hawaiian pelagic fisheries, and some of these interactions involved rough-toothed dolphins (Nitta and Henderson 1993). None were observed hooked in the Hawaiian longline fishery between 1994 and 1998, with approximately 4.4% of all effort (measured as the number of hooks fished) observed (Kleiber 1999). They are known to take bait and catch from Hawaiian sport and commercial fisheries operating near the main islands and in a portion of the northwestern islands (Shallenberger 1981; Schlais 1984; Nitta and Henderson 1993), and they have been specifically reported to interact with the day handline fishery for tuna (palu-ahi) and the troll fishery for billfish and tuna (Schlais 1984; Nitta and Henderson 1993). 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.

### **Other Removals**

At least 22 rough-toothed dolphins were live-captured in Hawaiian waters between 1963 and 1976 (Shallenberger 1981).

### **STATUS OF STOCK**

The status of rough-toothed 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. Although information on rough-toothed dolphins in Hawaiian waters is limited, this stock would not be considered strategic under the 1994 amendments to the MMPA given the absence of reported fisheries related mortality. However, there is no systematic monitoring of gillnet fisheries that may take this species, and the potential effects of interactions with the bottomfish fishery in the NWHI are not known. Insufficient information is available to determine whether the total fishery mortality and serious injury for rough-toothed dolphins is insignificant and approaching zero mortality and serious injury rate.

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