

FRASER'S DOLPHIN (*Lagenodelphis hosei*): Hawaiian Stock

STOCK DEFINITION AND GEOGRAPHIC RANGE

Fraser's dolphins are distributed worldwide in tropical waters (Dolar 2009 in Perrin et al. 2009). They have only recently been documented within the U.S. Exclusive Economic Zone (EEZ) of the Hawaiian Islands, during a 2002 cetacean survey (Barlow 2006, Figure 1). No strandings of Fraser's dolphins have been documented in the Hawaiian Islands (Nitta 1991; Maldini et al. 2005), though there is one sighting off the island of Hawaii from April 2008 (Baird unpublished). For the Marine Mammal Protection Act (MMPA) stock assessment reports, there is a single Pacific management stock including animals found both within the Hawaiian Islands EEZ and in adjacent international waters. Because data on abundance, distribution, and human-caused impacts are largely lacking for international waters, the status of this stock is evaluated based on data from U.S. EEZ waters of the Hawaiian Islands (NMFS 2005).

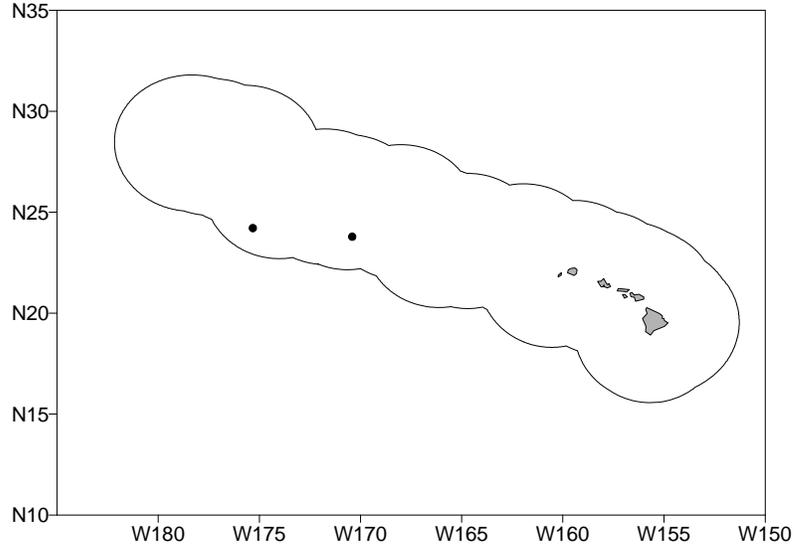


Figure 1. Fraser's dolphin sighting locations during the 2002 shipboard cetacean survey of U.S. waters surrounding the Hawaiian Islands (Barlow 2006; see Appendix 2 for details on timing and location of survey effort). Outer line indicates approximate boundary of survey area and U.S. EEZ.

POPULATION SIZE

Population estimates for Fraser's dolphins have 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 and in the central North Pacific. A 2002 shipboard line-transect survey of the entire Hawaiian Islands EEZ resulted in an abundance estimate of 10,226 (CV=1.16) Fraser's dolphins (Barlow 2006). This is currently the best available abundance estimate for this stock.

Minimum Population Estimate

The log-normal 20th percentile of the 2002 abundance estimate (Barlow 2006) is 4,700 Fraser's 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 for the Hawaiian stock of Fraser's dolphin.

POTENTIAL BIOLOGICAL REMOVAL

The potential biological removal (PBR) level for this stock of Fraser's dolphin is calculated as the minimum population size within the U.S. EEZ of the Hawaiian Islands (4,700) 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 stock of unknown status with no known fishery mortality or serious injury within the Hawaiian Islands EEZ; Wade and Angliss 1997), resulting in a PBR of 47 Fraser's 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 cetaceans (Perrin et al. 1994). Interactions with cetaceans have been reported for all Hawaiian pelagic fisheries (Nitta and Henderson 1993), but none of these interactions are known to have involved Fraser's dolphins. There are currently two distinct longline fisheries based in Hawaii: a deep-set longline (DSL) fishery that targets primarily tunas, and a shallow-set longline fishery (SSL) that targets swordfish. Both fisheries operate within U.S. waters and on the high seas. Between 2004 and 2008, no Fraser's dolphins were observed hooked or entangled in the SSL fishery (100% observer coverage) or the DSL fishery (20-28% observer coverage) (McCracken & Forney 2010).

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 that steal bait and catch are increasing. It is not known whether these interactions result in serious injury or mortality of dolphins, nor whether Fraser's dolphins are involved.

STATUS OF STOCK

The status of Fraser's 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. It is not listed as "threatened" or "endangered" under the Endangered Species Act (1973), nor as "depleted" under the MMPA. Given the absence of recent fishery-related mortality or serious injuries, the Hawaiian stock of Fraser's dolphins is not considered strategic under the 1994 amendments to the MMPA, and the total fishery mortality and serious injury can be considered to be insignificant and approaching zero.

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