

FALSE KILLER WHALE (*Pseudorca crassidens*): American Samoa Stock

STOCK DEFINITION AND GEOGRAPHIC RANGE

False killer whales are found worldwide mainly in tropical and warm-temperate waters (Stacey et al. 1994). The species is well-documented throughout the tropical and sub-tropical south Pacific, from Papua New Guinea and Australia to the line islands (Reeves et al. 1999). The species has been taken in the drive hunt in the Solomon Islands (Reeves et al. 1999). During small-boat surveys from 2003 to 2006 in the waters surrounding the island of Tutuila, American Samoa, false killer whales were observed during summer surveys on five occasions (Johnston et al. 2008). During a shipboard survey in 2006 false killer whales were also encountered just north of the island of Ta'u, in the Manu'a Group within American Samoa (Johnston et al. 2008). Two false killer whales were entangled near 40-Fathom Bank south of the islands by the American Samoa-based longline fishery in 2008 (Oleson 2009), indicating some false killer whales maintain a more pelagic distribution. Five genetic samples collected near Tutuila are available for comparison to other false killer whale populations throughout the Pacific (Johnston et al. 2008). For the Marine Mammal Protection Act (MMPA) stock assessment reports, there are four Pacific management stocks: 1) The Hawaii Insular Stock, which includes animals found within the 25-75 nmi longline exclusion boundary surrounding the main Hawaiian Islands, 2) The Hawaii Pelagic Stock, which includes animals found within the U.S. EEZ of the Hawaiian Islands but outside the 25-75 nmi longline exclusion zone, 3) The Palmyra Stock, which includes animals found within the U.S. EEZ of the Palmyra Atoll, and 4) The American Samoa Stock, which includes animals found within the U.S. EEZ American Samoa (this report).

POPULATION SIZE

No abundance estimates are currently available for false killer whales in U.S. EEZ waters of American Samoa; however, density estimates for false killer whales in other tropical Pacific regions can provide a range of likely abundance estimates in this unsurveyed region. Published estimates of false killer whales (animals per km²) in the Pacific are: 0.0002 (CV= 0.93) for the U.S. EEZ of the Hawaiian Islands (Barlow and Rankin 2007); 0.0038 (CV=0.65) for the U.S. EEZ around Palmyra, (Barlow and Rankin 2007), 0.0021 (CV=0.64) and 0.0016 (CV=0.31) for the eastern tropical Pacific Ocean (Wade and Gerrodette 1993; Ferguson and Barlow 2003). 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 87 – 1,538 false killer whales.

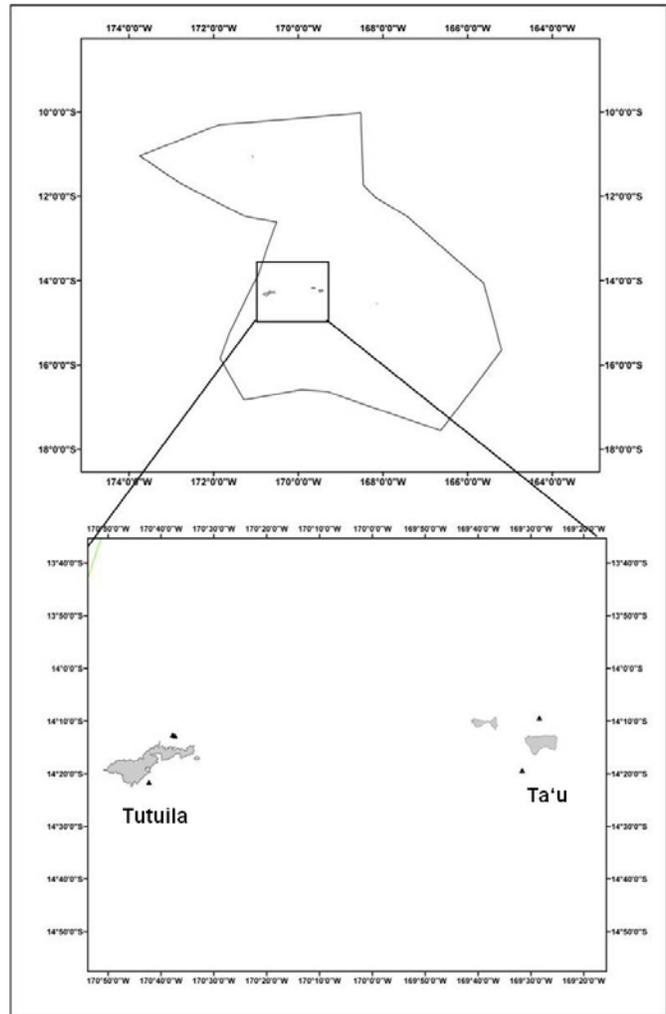


Figure 1. False killer whale sightings during visual surveys from 2003-2006 (Johnston et al. 2008).

Minimum Population Estimate

No minimum population estimate is currently available for waters surrounding American Samoa, but the false killer whale density estimates from other tropical Pacific regions (Barlow and Rankin 2007, 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 45 – 936 false killer whales.

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

No PBR can presently be calculated for false killer whales within the American Samoa EEZ, but based on the range of plausible minimum abundance estimates (45 - 936), a recovery factor of 0.40 (for a species of unknown status with a fishery mortality and serious injury rate $CV > 0.80$ within the American Samoa EEZ; Wade and Angliss 1997), and the default growth rate ($\frac{1}{2}$ of 4%), the PBR would likely fall between 0.4 and 7.5 false killer whales per year.

ANNUAL HUMAN-CAUSED MORTALITY AND SERIOUS INJURY

Information on fishery-related mortality of cetaceans in American Samoa waters is limited, but the gear types used in American Samoa 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). 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. 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). Two false killer whales were killed or seriously injured by the fishery in 2008 (Oleson 2009). The average annual serious injury and mortality in commercial fisheries for false killer whales in American Samoa waters is 7.8 (CV=1.7) animals per year (Table 1).

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.

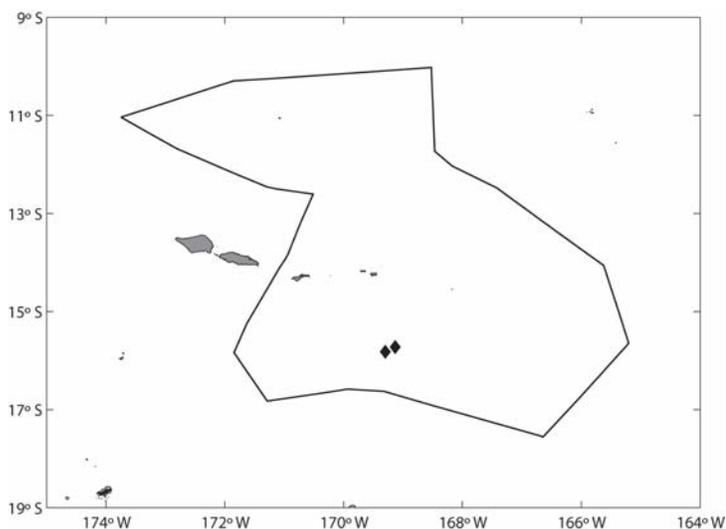


Figure 2. Locations of observed false killer whale takes (filled diamonds) in the American Samoa longline fishery, 2006-2008. Solid line represents the U.S. EEZ. Set locations in this fishery are summarized in Appendix 1.

STATUS OF STOCK

The status of false killer whales in American Samoan 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 stock. False killer whales are not listed as “threatened” or “endangered” under the Endangered Species Act (1973), nor as “depleted” under the MMPA. The status of the American Samoa stock of false killer whales under the 1994 amendments to the MMPA cannot be determined at this time because no abundance estimates are available and PBR cannot be calculated. However, the estimated rate of fisheries related mortality and serious injury within the American Samoa EEZ (7.8 animals per year) exceeds the range of likely PBRs (0.4 – 7.5) for this region, suggesting that this stock would probably be strategic if abundance estimates were available. Additional research on the abundance of false killer whales in American Samoa is required to resolve this stock's status. Insufficient information is available to determine whether the total fishery mortality and serious injury for false killer whales is insignificant and approaching zero, but this appears unlikely given the estimated takes and likely PBR range.

Table 1. Summary of available information on incidental mortality and serious injury of false killer whales (American Samoa stock) in commercial fisheries operating within the U.S. EEZs (Oleson 2009). Longline fishery take estimates represent only those trips with at least 10 sets/trip (Oleson 2009). Mean annual takes are based on 2006-2008 data unless otherwise indicated.

Fishery Name	Year	Data Type	Percent Observer Coverage	Observed and estimated mortality and serious injury of false killer whales in the American Samoa EEZ		
				American Samoa EEZ		
				Obs.	Estimated (CV)	Mean Annual Takes (CV)
American Samoa-based longline fishery	2006	observer data	9.0%	0	0 (-)	7.8 (1.7)
	2007		7.7%	0	0 (-)	
	2008		8.5%	2	23.5 (1.9)	
Minimum total annual takes within U.S. EEZ waters						7.8 (1.7)

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