

HAWAII'S FALSE KILLER WHALES ARE AT RISK: SHOULD THEY BE INCLUDED AS A "RESOURCE" IN THE HAWAIIAN ISLANDS HUMPBACK WHALE NATIONAL MARINE SANCTUARY?

Robin W. Baird

Cascadia Research Collective, Olympia, WA www.cascadiaresearch.org
(rwbaird@cascadiaresearch.org)

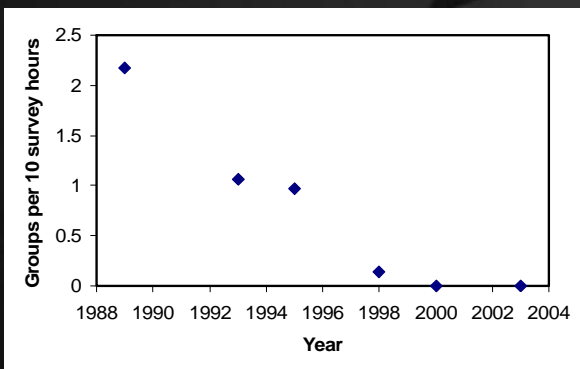
THERE IS A SMALL ISLAND-ASSOCIATED POPULATION OF FALSE KILLER WHALES IN HAWAII

- Genetic and photo-identification evidence indicates there are two populations of false killer whales in Hawaii, an insular population and an offshore population (Chivers et al. 2007; Baird et al. 2008a)
- The most recent estimate for the insular population indicates the population is very small (123 individuals, CV = 0.72; Baird et al. 2005)
- Sighting and satellite tagging data from false killer whales indicate regular use of the Hawaiian Islands Humpback Whale National Marine Sanctuary (HIHWNMS) waters (Baird et al. 2008a, 2008b)

A VARIETY OF FACTORS PLACE HAWAIIAN FALSE KILLER WHALES AT RISK

- A NMFS EEZ-wide survey in 2002 found that false killer whales had the smallest population size of any of the 18 species of odontocetes (Barlow 2006)
- Bycatch of false killer whales in the Hawaii long-line fishery has exceeded the Potential Biological Removal (PBR) level since 2000 (Carretta et al. 2007)
- They are long-lived, slow-to-reproduce upper trophic level predators

THERE ARE MULTIPLE LINES OF EVIDENCE FOR A LARGE DECLINE OF THE INSULAR POPULATION



Aerial survey data (J. Mobley, University of Hawaii) from 1993 to 2003 indicate a strong decline in sighting rates. The largest groups documented in a 1989 survey (Reeves et al. 2009) were ~4 times larger than the entire estimated population size between 2000-2004. False killer whales were the 3rd-most frequently observed species in the 1989 survey (16.7% of odontocete sightings); in boat-based surveys from 2000-2008 they are the 9th-most frequently encountered species (2.6% of odontocete sightings).

POSSIBLE CAUSES OF THE DECLINE

- Bycatch in near-shore "short" (<1 mile) long-lines – there is no monitoring of this fishery so impossible to assess the extent of bycatch
- Shooting of whales by fishermen when whales take their catch
- Bycatch in the offshore long-line fishery – no genetic samples of bycaught animals <200 km from the islands have been collected so impossible to assess what proportion of the bycaught individuals are insular versus offshore
- Reduction in their prey base – false killer whales in Hawaii feed on large game fish whose populations have declined
- High levels of persistent organic pollutants may lead to immuno-suppression

WHAT CAN BE DONE?

- Management action often follows only after political or legal pressure
- Hawaiian false killer whales lack a constituency – most residents are unaware of their existence, fishermen dislike them due to their tendency to take fish off lines
- Addition as a Sanctuary "resource" to the Hawaiian Islands Humpback Whale National Marine Sanctuary would raise public awareness for this population and the factors influencing it
- Addition as a Sanctuary "resource" would also encourage the Sanctuary to consider issues that don't influence humpback whales in Hawaii – accumulation of persistent organic pollutants and competition between humans and cetaceans over fish stocks

WHAT ELSE SHOULD BE DONE?

- Bycatch has exceeded PBR since 2000. This should have triggered the formation of a Take Reduction Team. Forming a TRT is needed to help address the bycatch issue
- Solving the bycatch issue is going to be difficult, but reducing uncertainty in the situation is much more feasible – studies should be undertaken to reduce the uncertainty in population size of the insular population, assess how often insular individuals use areas where long-line (both "short" and offshore) fishing occurs, examine the reactions of insular animals to playbacks of fishing vessel noise, and monitoring the short long-line fishery for bycatch

FOR MORE INFORMATION

www.cascadiaresearch.org/robin/falsekillerwhale.htm

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- Chivers, S.J., R.W. Baird, D.J. McSweeney, D.L. Webster, N.M. Hedrick and J.C. Salinas. 2007. Genetic variation and evidence for population structure in eastern North Pacific false killer whales (*Pseudorca crassidens*). *Can. J. Zool.* 85:783-794.
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