

Baird comments on Pseudorca draft SAR

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David Cottingham, Chief
Marine Mammal and Sea Turtle Conservation Division
Office of Protected Resources
National Marine Fisheries Service
1315 East-West Highway
Silver Spring, MD 20910-3226
Attn: Stock Assessments
Submitted via e-mail to mmsar.2008@noaa.gov

Dear David,

I am writing to provide comments on the 5/20/08 draft stock assessment report for false killer whales for the Pacific Islands Region Stock Complex, as part of the public comment period as noted in the Federal Register (73(135):40299-40300).

The draft stock assessment report divides a single previous Hawaiian EEZ stock of false killer whales into two stocks, a Hawai'i insular stock and a Hawai'i pelagic stock, as well as adding a new stock for Palmyra Atoll. The primary justification for the division of the Hawaiian EEZ stock into an insular and pelagic stock is the availability of genetic data from biopsy samples collected from around the main Hawaiian Islands and from larger areas of the central and eastern tropical Pacific (Chivers et al. 2007).

The boundary between the insular and pelagic stocks has been set to equal the long-line exclusion zone (noted as a 25-75 nm boundary in the draft SAR). By definition this boundary results in zero potential bycatch (death or serious injury) in the long-line fishery for the insular stock, with the result that this stock is no longer listed as "strategic". While convenient from a management perspective, such a definition ignores available evidence on movements of false killer whales and their potential for interactions with the long-line fishery. At the January 2008 Pacific Scientific Review Group (PSRG) meeting at which the draft SAR was originally reviewed by the PSRG, I presented information on movements of a false killer whale (known from photo-identification to be part of the insular population) that was satellite tagged in August 2007 that traveled as far as 96 km (~51 nm) from the main Hawaiian Islands (Baird et al. 2008a). In September 2008 a different false killer whale (also known based on photo-identification to be from the insular population) satellite tagged in July 2008 traveled as far as 83 km from the main Hawaiian Islands (Baird et al. unpublished). A GIS analysis of the long-line boundary indicates that between October 1 and January 31 approximately 25% of the long-line fishery boundary falls between 45-50 km from shore, and thus individuals from the insular population may overlap with the long-line fishery. Photographic evidence of scarring and dorsal fin disfigurement of individuals from the insular population supports that such interactions occur (Baird and Gorgone 2005).

The draft SAR assumes that no individuals from the insular stock are killed or seriously injured in the long-line fishery based on the population identify (insular versus pelagic) of bycaught individuals, determined from genetic analyses of individuals that have been biopsy sampled. Using the population identity from existing samples collected from bycaught animals to

conclude that insular animals are not taken in the long-line fishery is inappropriate for several reasons. The stock identity of bycaught animals is largely unknown at present. As noted in the draft SAR, observer coverage in the tuna (deep-set) component of the fishery, where most of the false killer whale bycatch occurs, is only about 20%, thus only 20% of the bycaught animals are potentially available to be genetically sampled. Samples have not been collected from all of those animals actually observed to be hooked. Based on information presented at the PSRG those samples that have been collected were from animals hooked far from the main Hawaiian Islands, and thus have no bearing as to whether animals hooked closer to the islands are from the insular or pelagic populations. Given the known movements of an insular individual to 96 km from shore, any known bycatch within that distance may have been of animals from the insular population. Consequently, the de facto loss of the “strategic” classification by setting the stock boundary to be the same as the fishery exclusion zone is unwarranted. Due to the small population size (noted as 123 individuals (CV = 0.72) in the draft SAR), evidence of fishery interactions, and movements of animals from the insular stock up to 96 km off shore, the precautionary approach would suggest the using 96 km (~51 nm) as the stock boundary. Such an approach would mean that mortality and serious injury would have to be estimated for the insular stock, likely based on estimating the amount of long-line fishing effort that occurs within 96 km from shore and apportioning the estimated false killer whale mortality and serious injury between the insular and pelagic stocks based on this.

The draft SAR also notes that there is no information on population trend for the insular stock. This is incorrect. A 1993 review by the National Marine Fisheries Service of information on cetacean/fishery interactions in Hawai‘i (Nitta and Henderson 1993, cited in the draft SAR) cited a report by Leatherwood and Reeves (1989) noting that “a minimum of 470 individuals” were documented along the northwestern coast of the island of Hawai‘i. Information presented in the Mobley et al. (2000, 2001, 2002, 2003, 2004, cited in the draft SAR) aerial survey references indicate a strong decline in sighting rates of false killer whales around the main Hawaiian Islands. Reeves et al. (in press) have subsequently re-assessed the data from the Leatherwood and Reeves (1989) report and the Mobley et al. aerial surveys, concluding that “the population of false killer whales around the main Hawaiian Islands may have declined substantially since 1989.” This evidence for a large population decline, combined with evidence that individuals in the insular population have had interactions with long-line fisheries (Baird and Gorgone 2005), the known movements of individuals to 96 km offshore (and thus the overlap between the insular population and the long-line fishery, at least during four months of the year), and the uncertainty in stock identity of the bycaught animals, suggest that removing the “strategic” categorization is unwarranted. Before this can be done, additional information is needed on movements of the insular population of false killer whales during the four month period when the long-line fishery boundary contracts (with 25% of the boundary within 50 km of shore).

In the status of stock assessment in the draft SAR, it also notes that “no habitat issues are known to be of concern for this species”. False killer whales are one of the highest trophic level predators among Hawaiian cetaceans, based both on observations of predation (Baird et al. 2008b) and analyses of stable isotopes (Atwood et al. 2007). Thus, like other high trophic level predators (e.g., southern resident killer whales) accumulation of persistent toxins and potential reproductive or immunosuppression effects of such toxins, as well as reduction in their prey base due to competition with fisheries, are both potential habitat issues. With specific reference to the Hawaiian insular population, Reeves et al. (in press) note that catch rates of yellowfin tuna, one of the important prey species for false killer whales around the main Hawaiian Islands, have

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declined in the Hawai'i troll fishery, as has average body weights of mahimahi (another important prey species) in the Hawai'i long-line fishery. While the potential impacts of these habitat issues are difficult to quantify, when combined with the small population size and the evidence of a large population decline, they suggest that this population is at risk.

The draft SAR notes that no false killer whales were observed killed or injured in the shallow-set portion of the long-line fishery during 2002-2006. While true, as noted in the draft SAR the long-line fishery has undergone a series of regulatory changes, which has resulted in a dramatic decrease in the amount of shallow-set (swordfish) fishing effort since 2001 (see Figure 26 in Anonymous 2008). Forney and Kobayashi (2007) do document two cases where false killer whales within the Hawaiian EEZ were hooked and considered to be seriously injured in either swordfish sets or swordfish-style (shallow) sets (their Table 2). These cases were documented in 1997 and 1998, when observer coverage for swordfish sets was estimated to only be 22.7% and 15.2%, respectively, of all swordfish sets (their Table 1), with only 7.2% and 8.2% observer coverage of the swordfish sets within the Hawaiian EEZ. In addition, Forney and Kobayashi (2007) note that the observer program does not always positively identify hooked individuals to species, and two additional possible false killer whales were recorded hooked in swordfish sets outside of the Hawai'i EEZ (their Table 2). The preferred option in the fishery management plan for the shallow-set fishery (Anonymous 2008) proposes removing effort limits, and states that "anticipated fishing effort is expected to gradually increase to historic levels between 4,000 and 5,000 sets per year" (page 187 in Anonymous 2008). Annual swordfish long-line sets since 2001 have averaged less than 1,000 sets per year (Anonymous 2008). If the proposed preferred option of the fishery management is adopted, there is likely to be increased bycatch of both insular and pelagic stocks of false killer whales.

Best regards,



Robin W. Baird, Ph.D.
Research Biologist
Cascadia Research Collective
218 ½ W. 4th Avenue, Olympia, WA 98501
rwbaird@cascadiaresearch.org

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