

November 1, 2013

National Marine Fisheries Service  
Pacific Islands Regional Office,  
1601 Kapiolani Blvd.,  
Suite 1110, Honolulu, HI 96814.  
ATTN: Irene Kelly

Dear Irene,

I'm writing in regards to the Notice of Intent to prepare a Recovery Plan ("Plan") for the main Hawaiian Islands (MHI) insular false killer whale Distinct Population Segment (DPS). I believe the National Marine Fisheries Service (NMFS) should convene a Recovery Team for this DPS, to help in preparation of the Plan and to guide and monitor the Plan implementation. Below I provide a number of specific comments on MHI insular false killer whales in relation to Plan preparation.

I have undertaken research on MHI insular false killer whales since 2000, and resulting publications and reports from this research are available on our website<sup>1</sup>. Cascadia Research Collective (CRC) curates photo-identification catalogs for three different populations of false killer whales in Hawaiian waters: the MHI insular population, the Northwestern Hawaiian Islands (NWHI) population, and the pelagic population, with contributions of photographs to all three catalogs from our own work and from other researchers, including those from the Pacific Islands Fisheries Science Center. Taking into account photos obtained between January 1, 2006 and October 31, 2013, restricted to distinctive and very distinctive individuals (hereafter distinctive individuals), these catalogs contain 76 individuals (NHWI population), 148 individuals<sup>2</sup> (MHI insular population), and 60 individuals (pelagic population).

One of the main threats identified in a Marine Mammal Commission review of this population (Baird 2009) and in the NMFS Status Review (Oleson et al. 2010) are interactions with fisheries. While there is an observer program for the offshore long-line fishery, from which information on fisheries-related serious injuries and mortalities can be determined, there are no observer programs for the numerous other fisheries that MHI insular false killer whales may interact with. Before information was available on the range of MHI insular false killer whales, we had assessed line injuries on the dorsal fins of individuals from the MHI population, and suggested that interactions with fisheries, likely the long-line fishery, were regularly occurring (Baird and

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<sup>1</sup> [www.cascadiaresearch.org/hawaii/falsekillerwhale.htm](http://www.cascadiaresearch.org/hawaii/falsekillerwhale.htm) and [www.cascadiaresearch.org/hawaii/publications.htm](http://www.cascadiaresearch.org/hawaii/publications.htm)

<sup>2</sup> It should be noted that given the almost 8-year span of these photos, these numbers contain individuals likely born during the 8-year span, as well as some that have likely died within the 8-year period, thus should not be interpreted as indicative of population size.

Gorgone 2005). Using a much larger sample size, we have now re-examined the proportion of individuals in the MHI insular population with fisheries-related line injuries and dorsal fin disfigurements, and have similarly calculated such rates for the NWHI population and the pelagic population. Restricting analyses to the catalog sizes of distinctive individuals, the proportion of individuals from the MHI insular population with fisheries-related dorsal fin injuries (6.76%) is more than four times higher than for the pelagic population (1.67%), and more than five times higher than for the NWHI population (1.32%).<sup>3</sup>

Baird and Gorgone (2005) discuss these types of line injuries on the leading edge of the dorsal fin, and note that such injuries would likely have involved an animal hooked and struggling against a line, as observed in the long-line fishery. Hook ingestion is generally considered a serious injury by NMFS. How often such interactions lead to death of individuals, either immediately or subsequently due to hook ingestion (see Wells et al. 2008)<sup>4</sup> is unknown, but is likely a significant source of mortality for the population. Furthermore, our results suggest that fishery interactions with the MHI insular population likely occur at a greater rate than for the NWHI population, or the pelagic population. This is particularly alarming given the small size of the MHI insular population, and considering that the rate of serious injury and mortality for pelagic false killer whales is higher than their Potential Biological Removal (PBR) level. The discovery of five fishing hooks in the stomach of a MHI insular false killer whale<sup>5</sup> that stranded and died at South Point, Hawaii Island, in October 2013, provides further evidence of interactions with local, non-long-line fisheries. Of the five hooks in the stomach, two of them were circle hooks, both with wire diameters greater than 4.0 mm (i.e., the maximum diameter of hooks currently allowed in the long-line fishery)<sup>6</sup>. The other three hooks in the stomach were J-hooks, thus are not currently allowed in the long-line fishery. Based on the degree of pitting and damage to the hooks<sup>6</sup>, they were likely ingested over a period of weeks to months, rather than days, suggesting the hooks were ingested from multiple depredation events, rather than a single event. Based on the hook types, these hooks appear to have originated from several different near-shore fisheries. Combined, this evidence suggests that assessing and mitigating interactions with near-shore fisheries in Hawaiian waters should be a high priority for the Plan. Assessment of interactions should include: (1) examining mouth-line injuries on MHI insular false killer whales to determine the proportion of the population that may have non-lethal hooking related injuries, and how this varies by social cluster (see below); (2) examining the spatial overlap between local fisheries and false killer whale high use areas; (3) ensuring rapid and thorough response to any strandings of false killer whales in the main Hawaiian Islands to investigate cause of death and the potential for fishery interactions; and (4) instituting an observer program in fisheries that are most likely to interact with MHI insular false killer whales, to determine interaction rates. At the least, mitigating these interactions should involve implementation of the same types of hook and gear modifications that have been implemented in the long-line fishery to reduce serious injury and mortality of false killer whales (e.g., weak circle hooks, strong

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<sup>3</sup> Cascadia Research Collective unpublished data; see Baird and Gorgone 2005 for an early assessment of such injuries. For the NWHI and pelagic populations, these catalogs represent only a low proportion of the total estimated population sizes.

<sup>4</sup> Wells et al. 2008. Consequences of injuries on survival and reproduction of common bottlenose dolphins (*Tursiops truncatus*) along the west coast of Florida. *Marine Mammal Science* 24:774-794.

<sup>5</sup> Based on dorsal fin markings this individual was identified as HIPc162 in the CRC photo-identification catalog, an individual from Cluster 3 of the MHI insular population, first identified off Oahu in 2003 and subsequently seen on a number of occasions with other individuals from this population.

<sup>6</sup> K. West, Hawaii Pacific University, unpublished data.

terminal gear). In addition, the scope of the false killer whale Take Reduction Team (TRT) should be expanded to include those near-shore fisheries that are most likely to be involved in interactions, and the TRT membership should be expanded to include representatives from these fisheries.

There are three different social groups that have been identified from the MHI insular population, termed Cluster 1, 2 and 3 (Baird et al. 2012). We have assessed the proportion of individuals from each cluster that have fisheries-related dorsal fin injuries, and the results suggest that fisheries interactions do not occur at equal rates for the three different clusters. For Cluster 1, which contains 66 distinctive individuals, 3.0% have fisheries-related injuries, while for Cluster 2, which contains 41 distinctive individuals, 7.3% have fisheries-related injuries. For Cluster 3, which includes the individual that stranded with hooks in the stomach in October 2013, and which also contains 41 distinctive individuals, 12.2% have fisheries-related injuries on the dorsal fins. A preliminary analysis of average annual survival rates for marked individuals (i.e., non calves) for each of these three different social clusters (Baird et al. 2013a) indicates that survival is lower for individuals in Cluster 3 (0.951) and Cluster 2 (0.965) than individuals in Cluster 1 (0.973). These results demonstrate that the Plan should take into account the social organization of the population, the different high density areas for each social cluster (see Baird et al. 2012), and the likelihood that different social groups (clusters) vary in their interactions with fisheries.

For small populations, like MHI insular false killer whales, estimating abundance and examining trends is most feasible and appropriate with mark-recapture analyses of photo-identification data. High density areas for two of the three clusters of MHI insular false killer whales (Clusters 1 and 3) have been identified based on satellite tag data (Baird et al. 2012), but these areas are largely on the windward sides of the islands, where very little boat-based effort has been conducted. Encounter rates with the MHI insular population on the leeward sides of the islands are low (Baird et al. 2013b), although working conditions there are more suitable for extended encounters during which individual identification photographs can be obtained and other types of sampling (biopsy, tagging, prey sampling) can be undertaken. Assessing the status and monitoring the recovery of MHI insular false killer whales will require sufficient sample size of photo-identifications, which will require extensive survey effort on both the leeward and windward sides of the islands. Determining the best strategy for obtaining sufficient sample sizes of individual identification photographs to monitor population abundance and trends needs to be incorporated in the Plan. In addition, given the relatively high rate of fisheries-related injuries for Cluster 2 individuals, information is needed on the movements and high density areas of this social cluster, since no satellite tags have been deployed on Cluster 2 individuals (Baird et al. 2012).

Sincerely,

A handwritten signature in black ink, appearing to read 'RW Baird', enclosed within a hand-drawn oval.

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Research Biologist  
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## References

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