Main Hawaiian Islands Insular False Killer Whale
Species Status Assessment and Draft Recovery Plan (ID 360)

Peer Review Summary
-- June 2019 --

We solicited review of the Draft Species Status Assessment (note: name has changed to Recovery Status Review as of August 2019) and the Draft Recovery Plan for the main Hawaiian Islands insular false killer whale (*Pseudorca crassidens*) distinct population segment from three reviewers and all three provided reviews. Reviewer comments are compiled below from the peer review summary feedback and are not in the order of the reviewer identification list below.

Reviewers (listed alphabetically):

Robin Baird, Ph.D.
Research Biologist
Cascadia Research Collective
Olympia, WA

Nancy Young, M.S.
Marine Mammal Biologist
NOAA Fisheries
West Coast Regional Office
Seattle, WA

Jochen Zaeschmar, M.S.
Research Biologist
Far Out Ocean Research Collective
Paihia, New Zealand

Responses to Peer Reviewer Questions

1. *In general, does the Draft Species Status Assessment include and cite the best scientific and commercial information available on the species, its biology, population structure, habitat, and threats? If you are aware of additional or more current relevant information, please provide the suggested reference(s) and, if possible, a copy of the paper(s).*

Reviewer #1
The Draft SSA does an excellent job summarizing the 2010 status review and 2012 listing and provides a significant amount of scientific and commercial information that has become available since then. The use of blue text to differentiate the new information was helpful. I provided edits and comments throughout the document, including suggestions for a couple references.

Review #2
Yes, it does. I recommended some minor improvements. References attached.

Reviewer #3
The SSA does generally provide a detailed review of the best information available, although levels of uncertainty have not been properly explained or qualified. For example, more could be done with the sighting data from Mobley et al. (2000 and unpublished), in particular a GIS analysis of sighting depths/distances from shore in relation to the known high-density areas for the MHI IFKW population and where pelagic false killer whales have been documented. As noted in my comments on the draft, the majority of the Mobley et al. sightings were in shallower depths than pelagic false killer whales have been documented. In the CRC dataset, with 73 FKW sightings within 40 km of shore, only one group was pelagic. These suggest that the likelihood that any (or many) of the Mobley et al. sightings, or the large groups seen by Reeves et al. (2009), were from the pelagic population is extremely small.

The most up-to-date effective population size estimate is from Martien et al. (unpublished), and this should be cited, rather than the estimate presented in Oleson et al. (2010). As noted in my comments on the SSA (and RP), effective population size calculations are based entirely on genetics, thus the abundance estimates (from mark-recapture analyses) at the time of the estimates are irrelevant.

2. *Does the discussion of potential threats and other stressors in the Draft Species Status Assessment accurately consider and reflect the risk to the species?*

Reviewer #1
The Draft SSA provides a comprehensive evaluation of potential threats. Some of the severity scores could be better justified. I provided edits and comments throughout Section 3.

Review #2
Considering the available evidence, it does. Some of the rankings of the threats discussed may change as new evidence comes to light.

Reviewer #3
In characterizing the potential for incidental take in non-longline commercial and recreational fisheries, it should be noted that fishing methods as reported in the State Commercial Marine License (CML) reporting system is subject to a number of known biases and limitations. For example, if fishers are using more than one gear type they may report "mixed" gear. Some types of fishing are more likely to allow for multiple methods (e.g., when shortlines are soaking other hook and line methods may be used), and thus some methods may be underrepresented in the CML data. This may be particularly the case for Category II fisheries (e.g., shortline), since there is an incentive for fishermen not to report they are in Category II fishery. Similarly, there is a disincentive for fishermen to report depredation and bycatch, thus it is important to acknowledge that increased reporting requirements alone will not provide a thorough assessment of bycatch that is occurring. As noted by fishermen on the false killer whale Take Reduction Team (TRT) at one of the in-person meetings in 2010,

there is also a possibility that regulatory changes to the longline fishery (e.g., closing the Southern Exclusion Zone) could result in an increase in fishing effort with shortline gear inside the range of the MHI IFKW population.

The threat faced by a potential oil spill does not acknowledge that the most likely areas for an oil spill in Hawaiʻi are at the trans-shipment location at Barbers Point and along the south shore of Oʻahu, and this area is an important travel corridor for the MHI IFKWs. One group of MHI IFKWs satellite tagged off Oʻahu in October 2016 moved past Barbers Point on seven different days in less than a month. Recognizing that this was just a single tagged group, the probability of one or more of the social clusters of MHI IFKWs coming into contact with a spill at one of those locations seems relatively high. Even if the likelihood of a spill is low, this needs to be taken into account when assessing relative concern levels and in planning for responding to a spill.

3. Regarding the Draft Recovery Plan, do you have any comments or concerns regarding the proposed recovery criteria?

Reviewer #1
The proposed criteria are specific, objective, and for the most part, measurable. They represent a thoughtful consideration of the characteristics of a recovered population. As discussed in my comments in the document itself, it would be helpful to clarify how a couple of the criteria would be measured. The only criterion that potentially concerns me is the effective population size, and I suggest speaking to genetics experts to ensure the criterion is measurable and appropriately justified.

Review #2
The Plan is very comprehensive and, if completely implemented, should greatly aid the recovery of the population. The downside is perhaps, that it seems a very ambitious project and I am not sure how much of it will be achievable. To that end it may be prudent to not only rank threats according to their severity but also rank proposed remedial measures according to their realistic achievability (i.e. cost-benefit analyses).

Reviewer #3
One of the criteria is that the effective population size is greater than the current estimate. Effective population size estimates are essentially a mean estimate, with associated uncertainty. By definition any new estimate, even if the true effective population size was known to be identical, has a 50% chance of being higher (or lower) than the current estimate. Thus a recovery criteria specifically focusing on effective population size should be along the lines of a "statistically significant higher effective population size" or something along those lines.

4. *Do recovery action priorities presented in the Implementation Table (Table 5–1) of the Draft Recovery Plan reflect a biologically sound conservation approach for the MHI IFKW DPS?*

Reviewer #1
The state of knowledge regarding MHI IFKWs doesn't specifically fit the recovery priority number definitions (e.g., the current population trend is unknown, so it is somewhat unclear what actions are needed as Priority 1 to prevent extinction or prevent an irreversible decline). However, the relative prioritization of the recovery actions seems appropriate based on the threats assessment in the Draft SSA, and the actions reflect a comprehensive and biologically sound conservation approach.

Review #2
To the best of my knowledge, yes, they do.

Reviewer #3
The priorities as presented generally do reflect a biologically sound conservation approach.

5. *Are the proposed research, monitoring, management, and outreach recovery actions appropriate and sufficient?*

Reviewer #1
The actions are generally appropriate and sufficient. For some threats, actions are mostly monitoring, so I suggest also noting "and manage as necessary."

Some of the actions are likely to be less achievable than others, so the proposed development of trigger-dependent emergency action(s) (action 1.5) seems like an important "backstop."

I made a few suggestions in comments on the document.

Review #2
Yes, they are. However, I can see issues with voluntary reporting of false killer whale- fishery interactions. Despite increased awareness, it is likely that fishermen will choose the least troublesome solution for them, which is unlikely to be the best solution for false killer whales. I think some additional approaches may be needed, given that interactions with non-longline fisheries are suspected to be one of the main drivers of population decline.

Reviewer #3
The proposed components are generally appropriate, although there are deficiencies in some components or synergies among research methods that are not recognized. For example, modifying the state CML reporting forms by itself will not be sufficient to obtain accurate information on non-longline commercial fisheries. Improving the quality of data collection is needed (e.g., installing VMS systems on every 10th commercial vessel, or all vessels that fish

in particular areas or with particular gear types), eliminating loopholes for reporting (e.g., "mixed" gear masking one or more gear types), and implementing independent efforts to assess fishing methods and effort (e.g., on-the-water surveys of fishing, particular in high density areas for MHI IFKWs). Given the challenges overcoming the deficiencies in the State system, NMFS should consider federalizing the shortline fishery, and mandating EMS on boats that have shortline gear. Assessing whether the implementation of the TRT or subsequent measures (e.g., closure of the SEZ) has resulted in an increase in shortline or other fishing effort inside the range of the MHI IFKW population is needed.

Synergies among research methods include comparing contaminant loads to body condition (from UAS-based photogrammetry), pathogen loads (e.g., through examination of the respiratory microbiome), reproductive history (from sighting histories), and history of fishery interactions (based on mouthline scarring), to see how all of these factors may be related.

Examining age structure of the population through epigenetic aging could be used to help assess population trajectory (and whether particular social clusters have strong age biases that may reflect whether they are increasing or decreasing).

Outreach, in particular to fishermen, is key to addressing the fishery interaction problems. A single workshop, or even multiple workshops, are not going to get to a very large proportion of the fishing communities. A dedicated outreach coordinator is needed.

6. *Are there other recovery actions that should be considered for inclusion in the plan?*

Reviewer #1
I have not identified any other specific recovery actions that should be considered. The recovery plan is comprehensive, addresses all potential threats known at this time, and includes additional research/monitoring to inform adaptive management.

Review #2
I think the plan is very comprehensive and covers a wide range of actions.

Reviewer #3
False killer whales are one of a handful species that are prone to mass strandings. Given a single mass stranding (for example of an entire social cluster) could result in a dramatic and immediate population decline, a detailed and thoroughly vetted mass stranding response plan specific for MHI IFKWs should be written up. Given the strong social structure for this population, with individuals associating in discrete social clusters, a protocol needs to be in place to direct trained photographers to obtained appropriate photos for individual identification, particularly of difficult to identify individuals (e.g., juveniles and calves), to allow for assessment of survival if animals are returned to the water (or are never fully beached and thus swim away).