Peer Review of the Hawaii Insular False Killer Whale Status Review Report

Date: 20 June 2010

Introduction

The review was conducted according to the Statement of Work and Terms of Reference (Appendix A). Referencing in the Status Review Report seems adequate but a few items have been noted that should be checked at least, if not also cited (Appendix B).

The review procedure was to read the entire document and 'word-track' proposed editorial changes, some of which are minor/cosmetic and some of which are substantive and meant to influence the information or arguments. Also, just shy of 200 'comments' have been inserted in the document explaining points of disagreement, noting areas where there were problems following the meaning or logic, and offering alternative ways to present the information.

Review of Information used in the Status Review document (as outlined in the table of contents in the Status Review)

Review of the Findings Made in the Status Review

<u>DPS assessment</u>

The discreteness issue seems to have been resolved convincingly, the significance issue less so. As noted a number of times in the mark-up, the assumption of 'uniqueness' needs to be qualified, or perhaps qualified more often than it is at present. Apart from anything else, this population of FKWs is unique with respect to the detail and intensity with which it has been studied. Similarly detailed and intensive research in other regions could reveal small, 'local' populations of these animals that are at least broadly adapted to particular conditions in ways similar to Hawaii insulars.

The strict meaning of the term 'colonization' or 'colonization event' needs to be checked and if necessary, reconciled with usage in this document. If colonization is synonymous with immigration, then perhaps there is no need to revisit present wording.

<u>Population biology, abundance and trends</u>

Biology and current abundance seem to be well covered. The question of trend is difficult and cannot be finally resolved from the available data. The approaches taken to compensate for the shortage of trend data are reasonable.

There are some problematic statements, e.g. that FKW's are "common" in the western North Atlantic – see Comments in mark-up. Some of the information on reproductive rates is muddled, and the Comments try to help sort that out. There is also concern (as indicated in the Comments) about the extent to which the authors may be underestimating the role of squid and other deep-living or small-bodied prey in the diet of these FKWs. This has implications for how credible the 'threats' of both prey depletion and inter-predator competition for prey are considered.

As indicated in the Comments, it is difficult to reconcile the sightings reported by Reeves et al. (1989) with the low numbers of FKWs in the 1990s and early 2000s if the whales they saw were in fact insulars. The possibility that there is more movement into and out of nearshore waters by

'offshore' FKWs (and vice versa by insulars) probably needs to be credited more than it is at present. However, it is difficult to see how that would affect any of the arguments about the small size of the insular population. The only thing it would affect is the perception of the extent and rate of population decline.

Risk factors

This is probably the weakest part of the story. The impression given is that these whales have been living on a knife edge, and that a host of factors have been converging to drive them ever downward.

The question of whether this population is nutritionally stressed could probably be addressed more rigorously. For example, no mention is made of how one might assess the animals' 'condition' – perhaps something along these lines has already been done by Baird and co. using either visual assessment or chemical analyses of tissues from biopsies. Also, there is no mention of calf production and recruitment even though some kind of analysis of these aspects should be feasible from the photo-ID database.

The Team's conclusion that "Overall the BRT considered the effects of small population size, hooking, entanglement, and intentional harm by fishers to be the greatest threats to Hawaiian insular false killer whales" is reasonable and sufficiently well supported although as the authors acknowledge, the evidence for direct operational interactions with fishing and 'fishers' is meagre. Presumably, the Team would be faulted for not being thorough if the many 'maybe' factors were not noted and given their due. So they certainly have been exhaustive in this regard.

As noted above re colonization vs immigration, it's important here to clarify the meaning of Allee effects and inbreeding depression. Are they synonymous? Or is inbreeding depression subsumed under Allee effects but not vice versa?

There are some real difficulties in this section where the authors seem to equate disease and predation with environmental (chemical) contaminants. The links are at best unconfirmed.

Extinction risk analysis

The authors include individuals who are among the best in this field and their analyses should therefore be sufficiently robust.

As noted in the mark-up several times, the authors should take greater care in their use of the term 'viability' so that there is no suggestion, implicit or explicit, that this population is non-viable. It may be non-viable, but at this stage, in the absence of evidence to support such a finding, the default assumption should be that it is viable and therefore 'worth' trying to protect (including protection of the whales themselves as well as the habitat, including prey base) so that the population can recover.

Bringing the IUCN Red List categories and criteria into the discussion might be a good idea, but if that is done, the decline criterion (Criterion A) needs to be scrutinized and applied much more

rigorously than it has been, and the authors should consider whether it would be prudent to drop it given that it is not necessary to make their point.

Summary of findings made by the peer reviewer

There seems to be plenty of evidence to establish that this population of whales is discrete and significant based on the best scientific information presently available. Also, there is strong evidence that the number of these whales is small and for that reason alone, the population is at high risk of extinction. The other risk factors (i.e. apart from effects of small population size) are poorly understood and this makes it difficult to identify appropriate management measures.

Conclusions and Recommendations (based on the Terms of Reference in Annex 1 of Appendix A)

Yes to all five questions in Annex 1 of Appendix A regarding adequacy, appropriateness and application of data.

Also, the information presented supports recognition of the Hawaiian insular population of FKWs as a DPS and results of the Extinction Risk Analysis are well supported by the information presented.

Among the highest priorities for further research should be:

- Analyze tissue samples to assess trophic level and diet at the finest resolution possible. Also use whatever other tools are available to better assess diet. Are these insular FKWs really obligate predators of large pelagic fish as implied from surface observations? Or are they more 'versatile' and varied in their 'foraging strategies' than has been assumed?
- More aerial surveys to expand time series and check trend.
- Continue photo-ID work to check trend and absolute numbers.
- Investigate 'condition' by reference to photographic evidence of skin and robustness of appearance.
- Estimate calf percentages annually and attempt to get some idea of recruitment from photographic records.
- Mine all available data and information for evidence of interactions with the fisheries that have taken place recently and are continuing to take place within the population's known range. At the same time, implement an observer program to collect new data on interactions in these fisheries.

Although there will be strong scientific interest in pushing forward with more genetic analyses and broader-scale geographic sampling, it seem that the case for this population's discreteness and significance is sufficiently resolved and that investments in threat diagnosis and mitigation should be assigned highest priority in the near term.

Appendix A

Statement of Work

External Independent Peer Review of the Hawaii Insular False Killer Whale Status Review Report

Background:

The subject of this peer review is a Status Review of Hawaii insular false killer whales (*Pseudorca crassidens*) prepared for the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS) by a team of expert Federalscientists in response to a petition to list these cetaceans under the Endangered Species Act (ESA). NMFS received a petition in October 2009 requesting that the Secretary of Commerce list Hawaii insular false killer whales as an endangered species under the ESA and designate critical habitat concurrent with listing. NMFS found that the petition presented substantial scientific or commercial information indicating that the petitioned action may be warranted and accordingly commenced a Status Review to determine (1) if Hawaii insular false killer whales are a distinct population segment (DPS) under the ESA; and, if so (2) the risk of extinction to this DPS. Based on the results of the Status Review and review of regulatory factors, NMFS will determine whether listing of Hawaii insular false killer whales is warranted.

The Status Review report reviews all aspects of the biology and ecology of Hawaii insular false killer whales, makes a determination on whether the population is a DPS, and provides both a quantitative assessment of and the Team's finding on extinction risk. The Report does not make a recommendation with respect to the petitioned action to list.

NMFS is required to use the best available scientific and commercial data in making determinations and decisions under the ESA. The scientific and commercial information presented in the Status Review should contain essential elements upon which NMFS can base an ESA listing determination. To carry out the Status Review, NMFS assembled a Biological Review Team (BRT) consisting of Federal scientists with a range of expertise relevant to this species and possible threats.. The team was charged with compiling and reviewing the best available commercial and scientific information on the biology, abundance, habitat and threats to Hawaii insular false killer whales and presenting its findings to NMFS in the Status Review. The team was further charged with evaluating this information relevant to the possible designation of Hawaii insular false killer whales as a DPS as well as the risk of extinction of this DPS.

Requirements for Peer Reviewers:

Reviewers are expected to conduct an impartial and unbiased peer review without influence from government managers, the fishing industry, non-governmental organizations, or any other interest group that would result in a conflict of interest.

Prior to engagement in a Peer Review, each reviewer will be required to complete a Lack of Conflict of Interest Statement ensuring no advocacy or funding concerns exist that may adversely affect the perception of impartiality of the peer review.

Tasks and Terms of Reference for Peer Reviewers:

A PIFSC Point of Contact will provide the reviewer with an electronic copy of the Status Review document:

Hawaii Insular False Killer Whale Biological Review Team. 2010. Status Review of Hawaii Insular False Killer Whales (*Pseudorca crassidens*). Report to National Marine Fisheries Service, Pacific Islands Regional Office. [Date completed]. [xxx] pp.

This document is expected to be approximately 150 pages in length and include the following chapters:

1. Introduction
2. Background on false killer whale biology, ecology, and threats to Hawaii false killer whales
3. Determination of the DPS
4. Assessment of extinction risk
5. Conclusions from the Status Review

The following documents, available online, provide useful background information:

- Endangered Species Act text at: http://www.nmfs.noaa.gov/pr/laws/esa/text.htm
- "Recognition of Distinct Vertebrate Population Segments (DPS) Under the Endangered Species Act (FWS and NMFS) (61 FR 4722; February 7, 1996)" at: http://www.nmfs.noaa.gov/pr/pdfs/fr/fr61-4722.pdf
- Petition to list at: http://www.fpir.noaa.gov/Library/PRD/False%20Killer%20Whale/petition%20for%20FKW%20HI%20insular%20popn.pdf
- NMFS 90-day Petition Finding at: http://www.fpir.noaa.gov/Library/PRD/False%20Killer%20Whale/False%20Killer%20Whale%2090-day%20finding%20FR%20Notice.pdf

Any of the reports and papers cited in the Status Review will be made available to the reviewers upon their request.

The reviewer shall conduct an impartial, independent peer review of the Status Review document in accordance with the Terms of Reference (TOR), attached as Annex 1.

The reviewer shall complete and submit an independent Peer Review Report in accordance with the TOR and the guidance in Annex 2.

Schedule and Deliverables:

The reviewer shall conduct the peer review, complete the Peer Review Report in accordance with the TOR (Annex 1) and outline (Annex 2) and submit the report to the PIFSC Points of Contact by June 20, 2010.

PIFSC Points of Contact:

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ANNEX 1

Terms of Reference

Peer Review of the Hawaii Insular False Killer Whale Status Review Report

Evaluate the adequacy, appropriateness and application of data used in the Status Review document.

1. In general, does the Status Review include and cite the best scientific and commercial information available on the species, its biology, stock structure, habitats, threats, and risks of extinction?

2. Are methods used valid and appropriate?

3. Are the scientific conclusions factually supported, sound, and logical?

4. Where available, are opposing scientific studies or theories acknowledged and discussed?

5. Are uncertainties assessed and clearly stated?

Evaluate the findings made in the Status Review.

1. Concerning Distinct Population Segments, is the species delineation supported by the information presented?

2. Are the results of the Extinction Risk Analysis supported by the information presented?

All information associated with the Status Review document is to remain strictly confidential until the Status Review is posted to the PIFSC website and/or the Federal Register by NMFS.

ANNEX 2

Peer Review Report -- Suggested Outline and Contents

The Peer Review Report is the end product of an independent peer review. The reviewer should ensure that the peer review report is scientifically accurate, editorially sound, and well organized, that the report meets all the tasks required of the independent review, and that the report remains confidential.

Following is a suggested report outline:
1. Introduction
a. Brief background of review (refer to Statement of Work and Terms of Reference)
b. Description of any references not cited in Status Review (list in appendix).
2. Review of Information used in the Status Review document (as outlined in the table of contents in the Status Review)
3. Review of the Findings made in the Status Review
a. DPS assessment
b. Population biology, abundance and trends
c. Risk factors
d. Extinction risk analysis
4. Summary of findings made by the peer reviewer
5. Conclusions and Recommendations (based on the Terms of Reference in Annex I)
6. Appendices
a. Statement of Work (including Terms of Reference)
b. References not included in Status Review

Appendix B. References not included in Status Review

I found the references cited in the Status Review to be sufficient and appropriate and have only a few suggested additions.

One other point about referencing is that the convention is for only authors to cite their 'unpublished data' or 'unpublished observations'. If unpublished material from a third party (in this manuscript usual R. Baird) is to be cited, it has to be as 'personal communication' or 'in letter' (*in litt.*).

IWC. 2007. Annex L. Report of the Sub-committee on Small Cetaceans. Journal of Cetacean Research and Management 9 (Suppl.):297-325.

Kasuya, T. and Marsh, H. 1984. Life history and reproductive biology of the short-finned pilot whale, *Globicephala macrorhynchus*, off the Pacific coast of Japan. Report of the International Whaling Commission, Special Issue 6:259-310.

Kasuya, T. and Tai, S. 1993. Life history of short-finned pilot whale stocks off Japan and a description of the fishery. Report of the International Whaling Commission, Special Issue 14:439-473.

Martin, A.R. and Rothery, P. 1993. Reproductive parameters of female long-finned pilot whales (*Globicephala melas*) around the Faroe Islands. Report of the International Whaling Commission, Special Issue 14:263-304.

Nowacek, D.P., Thorne, L.H., Johnston, D.W. and Tyack, P.L. 2007. Responses of cetaceans to anthropogenic noise. Mammal Review 37:81-115.

Waring, G.T., Josephson, E. and others. 2010. U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments – 2009. NOAA Technical Memorandum NMFS NE 213. Accessed 28 June 2010 at: http://www.nefsc.noaa.gov/publications/tm/tm213/