

STATEMENT OF WORK

Consulting Agreement Between The University of Miami and REVIEWER

Background

In the 1995 Alaska Marine Mammal Stock Assessment Reports, the National Marine Fisheries Service (NMFS) defined three stocks of harbor seal in Alaska, based primarily on broad-scale geographic differences in trends in abundance. NMFS, however, recognized that considerable uncertainty about Alaskan harbor seal stock structure remained and in the fall of 1994 initiated genetic studies of harbor seal stock structure in Alaska. The report resulting from these studies, “The analysis of population genetic structure in Alaskan harbor seals, *Phoca vitulina*, as a framework for the identification of management stocks”, is the subject of this review. .

The format of this review will include an interactive panel to ensure a thorough presentation of the science as well as the management context. Further, the best way to obtain review and scientific recommendations from the panel is to establish a process that allows reviewers with different expertise both to interact with one another and to interact with the scientists responsible for the research being reviewed. These interactive presentations and discussions may require up to two full days of the panel’s time. A third day should be planned for the review panel to provide feedback to the authors and to begin to draft the review. Although this review is for scientific research, the motivation for the research was to provide guidance for resource management. The management context is summarized in the report to be reviewed.


Specific Reviewer Responsibilities

Expertise needed to review this analysis will include reviewers who collectively have the following expertise: (1) knowledge of harbor seal biology, especially expertise in behavior and movements; (2) knowledge of population genetics, including statistical analysis of genetic data to detect/delineate population structure; (3) knowledge of conservation genetics including the different uses of mitochondrial and nuclear DNA in a conservation context; and (4) general knowledge of marine mammal biology bearing on population structure including basic population dynamics and an understanding of metapopulation dynamics.

Documents supplied to reviewers will include draft manuscripts, and a number of background papers (relevant publications and reports) for completeness. At a minimum reviewers should become familiar with references 1 and 3 and 10. Reference 10 provides the details needed to address the “novel method” referred to in point B, below. The reviewer’s duties shall not exceed a maximum total of three weeks, including one week to read all relevant documents, three days to attend a meeting with scientists at the NMFS La Jolla Laboratory, in San Diego, California, and several days to produce a written report of the reviewer’s comments and recommendations. It is expected that each reviewers report shall reflect that reviewer’s area of expertise; therefore,

no consensus opinion (or report) will be required. Specific tasks and timings are itemized below:

1. Read and become familiar with the relevant documents provided in advance;
2. Discuss relevant documents with scientists at the NMFS La Jolla Laboratory, in San Diego, CA, for 3 days, from March 16-18;
3. Specifically address the following points (at a minimum):
 - A) Genetic samples and data:

Were the methods of selecting, collecting, and handling samples adequate relative to the conclusions drawn 

Were limitations of the sampling scheme and data adequately acknowledged and considered?
 - B) Analytical methods:

Were the laboratory analyses appropriate and applied correctly?
Were the statistical analyses appropriate and applied correctly?
Were the novel methods used in the study developed and tested in a scientifically sound manner?
 - C) Discussion and interpretation of other studies:

Was the interpretation of other, non-genetic evidence relevant to harbor seal population structure logical and appropriate?
 - D) Conclusions:

Were the conclusions sound and derived logically from the results? Specifically, were the twelve population units described in the report consistent with the definition of stocks, as provided in the Marine Mammal Protection Act (MMPA)* and as implemented by NMFS (see Wade and Angliss, 1997)*
4. Further, the reviewers reports should address the primary conclusions, copied from the Executive Summary. Specifically, are the following conclusions sound:
 - A. These findings indicate that current stocks of harbor seals in Alaska are too broadly defined to meet the management objectives of the MMPA of maintaining population stocks as functioning elements of their ecosystem.
 - B. These findings also provide a framework for the identification of more meaningful management stocks and highlight the need for a re-appraisal of other information of relevance to stock structure including the interpretation of information on distribution, movement patterns, trends in abundance and foraging ecology as well as the incorporation of traditional ecological knowledge.
 - C. The genetic study is still limited by sample coverage. Substantial gaps exist in areas of high conservation concern (see the non-circled areas in Figure ES-3), including the

Aleutian Islands, the Alaska Peninsula, the northeastern Gulf of Alaska and parts of Southeast Alaska and the Kodiak Archipelago. Active collaboration with Alaska Native subsistence hunters and directed sampling is necessary if these important areas are to be sampled.

D. Although further sampling is needed to refine stock boundaries, the conclusion that there are multiple small units that need to be managed as separate stocks is not likely to change.

5. No later than May 3, 2004, submit a written report of findings, analysis, and conclusions. The report should be addressed to the “UM Independent System for Peer Reviews, “ and sent to David Die, UM/RSMAS, 4600 Rickenbacker Causeway, Miami, FL 33149 (or via email to ddie@rsmas.miami.edu).

References to be supplied:

1. O’Corry-Crowe, G. M., K. K. Martien, and B. L. Taylor. 2003. **The analysis of population genetic structure in Alaskan harbor seals, *Phoca vitulina*, as a framework for the identification of management stocks.** Administrative Report LJ-03-08. Southwest Fisheries Science Center, 8604 La Jolla Shores Drive, La Jolla, CA, 92037.
2. The Marine Mammal Protection Act (MMPA; specifically Sections 2 [findings and declaration of policy], 3(11) [definition of population stock], and 117 [stock assessments]).
3. Taylor, B.L. 1997. Defining “populations” to meet management objectives for marine mammals. pp. 49-65 in Molecular Genetics of Marine Mammals (A.E. Dizon, S.J. Chivers, and W.F. Perrin, eds.) Special Publication 3. Society of Marine Mammalogy, Lawrence, Kansas.
4. NMFS' guidelines for identifying population stocks (Wade, P.R., and R.A. Angliss. 1997. Report of the GAMMS Workshop, April 3-5, Seattle, Washington. NOAA Technical Memorandum NMFS-OPR-12. National Marine Fisheries Service, Office of Protected Resources, Silver Spring, MD. 69 pp.).
5. ANHSC and NMFS. 1999. Agreement between the Alaska Native Harbor Seal Commission and the National Marine Fisheries Service, for conservation and management of harbor seals. 12 pp.
6. Westlake, R. L., and G.M. O’Corry-Crowe. 2002. Macrogeographic structure and

patterns of genetic diversity in harbor seals (*Phoca vitulina*) from Alaska to Japan. *Journal of Mammalogy* 83(4): 1111-1126.

7. Federal Register notice 67[165]:54792-54794.

8. Martien, K. K., and B. L. Taylor. 2003. Limitations of hypothesis-testing in defining management units for continuously distributed species. *Journal of Cetacean Research and Management*.

9. Taylor, B. L. 2003. Determining Units to Conserve. Unpublished manuscript presented at the Marine Mammal Commission Workshop on Future Directions in Marine Mammal Research, August, 2003, Portland, OR.

10. Martien, K. K., A. B. Sellas, P. E. Rosel, B. L. Taylor, and R. S. Wells. Submitted. Defining management units in Gulf of Mexico bottlenose dolphins in the absence of long-term observational data.

Signed _____ Date _____

ANNEX I: REPORT GENERATION AND PROCEDURAL ITEMS

1. The report should be prefaced with an executive summary of comments and/or recommendations.
2. The main body of the report should consist of a background, description of review activities, summary of comments, and conclusions/recommendations.
3. The report should also include as separate appendices the bibliography of materials provided by the Center for Independent Experts and a copy of the statement of work.
4. Individuals shall be provided with an electronic version of a bibliography of background materials sent to all reviewers. Other material provided directly by the center must be added to the bibliography that can be returned as an appendix to the final report.

Please refer to the following website for additional information on report generation:
http://www.rsmas.miami.edu/groups/cimas/Report_Standard_Format.html