

## **Statement of Work**

*(Task T004, revised 25 September 2008)*

### **External Independent Peer Review by the Center for Independent Experts**

#### **Impacts of Potential Increases in Hawaii Shallow-set Swordfish Longline Effort on Sea Turtle Populations**

##### **Project Background:**

The Hawaii Longline Association has proposed to expand the Hawaii-based shallow-set longline fishery, which will likely increase the level of sea turtle interactions. There is very little demographic information for these populations except for time series of nesting beach census data so a relatively simple population viability assessment approach was taken using diffusion approximation on these time series.

Snover and Heppell (in press) present a quasi-extinction risk index based on diffusion approximation called susceptibility to quasi-extinction (SQE) that can be used to classify populations based on relative risks. Using population simulations, they show that the method is robust in assessing actual risk (in terms of a binary assessment of at risk or not at risk) for a population based on nesting beach census data, assuming that current conditions remain the same over the time period of the projection. As they use long time frames of 3 generations (following IUCN criteria) they clarify that SQE values are primarily useful as an index for comparing populations and assessing the impacts of increased mortalities by comparing SQE values between perturbed and non-perturbed populations.

This technique was applied to nest census data for Pacific loggerheads and leatherbacks to assess the population-level impacts of increased mortality resulting from the Hawaii Longline Association's (HLA) proposed expansion of the Hawaii-based shallow-set longline fishery. Anticipated increases in SQE for turtle populations from mortalities associated with this fishery were estimated. As the SQE index is based on nest census data, only units of adult females are considered and the turtles interacting with the fishery are converted to adult female 'equivalents' by assuming a 65% female sex ratio and mean reproductive values of 0.41 for loggerheads and 0.85 for leatherbacks. Nesting data from Japan (loggerheads), Jamursba Medi, Papua, Indonesia (leatherbacks) and Costa Rica (leatherbacks) were used.

Results of this study indicated that to minimize increased risks of quasi-extinction, mortalities of adult female (or 'equivalent) Japanese loggerheads should be less than 4, from Jamursba Medi the mortalities should be less than 3 adult females, and for the Costa Rica population, no adult females should be killed. The proposed interaction levels of the expanded fishery are 46 loggerheads and 19 leatherbacks. These levels are estimated to result in 2.51 adult female mortalities for loggerheads in Japan, 1.56 adult female mortalities for leatherbacks from Jamursba-Medi, and 0.12 adult female leatherbacks from Costa Rica.

The manuscript presenting the SQE index has received full peer review and is now in press with *Ecological Applications*. The specific application of SQE to determining appropriate take levels for protected marine turtle population has not received a full peer review; and as these analyses are designed to be a general tool for managers to assess how different levels of fishery interactions may impact the extinction risk of marine turtle populations, a CIE review is warranted.

### **Overview of CIE Peer Review Process:**

The National Marine Fisheries Service's (NMFS) Office of Science and Technology coordinates and manages a contract for obtaining external expertise through the Center for Independent Experts (CIE) to conduct independent peer reviews of stock assessments and various scientific research projects. The primary objective of the CIE peer review is to provide an impartial review, evaluation, and recommendations in accordance to the Statement of Work (SoW), including the Terms of Reference (ToR), to ensure the best available science is utilized for the National Marine Fisheries Service management decisions.

The NMFS Office of Science and Technology serves as the liaison with the NMFS Project Contact to establish the SoW which includes the expertise requirements, ToR, statement of tasks for the CIE reviewers, and description of deliverable milestones with dates. The CIE, comprised of a Coordination Team and Steering Committee, reviews the SoW to ensure it meets the CIE standards and selects the most qualified CIE reviewers according to the expertise requirements in the SoW. The CIE selection process also requires that CIE reviewers can conduct an impartial and unbiased peer review without the influence from government managers, the fishing industry, or any other interest group resulting in conflict of interest concerns. Each CIE reviewer is required by the CIE selection process 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 CIE peer review. The CIE reviewers conduct the peer review, often participating as a member in a panel review or as a desk review, in accordance with the ToR producing a CIE independent peer review report as a deliverable. At times, the ToR may require a CIE reviewer to produce a CIE summary report. The Office of Science and Technology serves as the Contract Officer's Technical Representative (COTR) for the CIE contract with the responsibilities to review and approve the deliverables for compliance with the SoW and ToR. When the deliverables are approved by the COTR, the Office of Science and Technology has the responsibility for the distribution of the CIE reports to the Project Contact. Further details on the CIE Peer Review Process are provided at <http://www.rsmas.miami.edu/groups/cie/>

### **Requirements for CIE Reviewers:**

Three CIE reviewers shall conduct an independent peer review in accordance with the Statement of Work (SoW). The CIE reviewers shall have strong quantitative expertise in the population dynamics including critical analysis in stock assessment and alternative methods for improving stock assessment methods using limited datasets such as are typically available for protected species. It is desirable to have one CIE reviewer with experience in population dynamics or

ecology of sea turtles. Each CIE reviewer shall have the ability to conduct the necessary pre-review preparations, desk review (no travel is necessary), and completion of the peer review report in accordance to the ToR and schedule of milestone and deliverables specified herein, and the number of days for each CIE reviewer shall not exceed 14 days.

The CIE reviewers shall have the requested expertise necessary to complete an impartial peer review and produce the deliverables in accordance with the SoW and ToR as stated herein (refer to the ToR in Annex 1).

(1). Strong quantitative expertise in the population dynamics including population viability assessment methods using limited datasets such as are typically available for protected species. Knowledge of diffusion approximation methods as they apply to quantifying quasi-extinction risks would be helpful.

(2). An understanding of the difficulties inherent in marine turtle research, nesting beach monitoring and the interpretation of these data

(3). As this analysis was driven by immediate needs of management in preparing an EA/EIS and in an ESA section 7 consultation, and understanding of endangered species regulations that drive these management needs would also be helpful

#### **Statement of Tasks for CIE Reviewers:**

The CIE reviewers shall conduct necessary preparations prior to the peer review, conduct the peer review, and complete the deliverables in accordance with the ToR and milestone dates as specified in the Schedule section.

Prior to the Peer Review: The CIE shall provide the CIE reviewers contact information (name, affiliation, address, email, and phone) to the Office of Science and Technology COTR no later than the date as specified in the SoW, and this information will be forwarded to the Project Contact.

Pre-review Documents: Approximately two weeks before the peer review, the Project Contact will send the CIE reviewers the necessary documents for the peer review, including supplementary documents for background information. The CIE reviewers shall read the pre-review documents in preparation for the peer review (see tentative list below).

- 1) Snover, M.L. and S.S. Heppell. In press. Application of diffusion approximation for risk assessment of sea turtle populations. Ecological Applications.
- 2) Snover, M.L. 2008. Assessment of the population-level impacts of potential increases in marine turtle interactions from a Hawaii Longline Association proposal to expand the Hawaii-based shallow-set fishery. NOAA/NMFS/Internal Report IR-08-010.

This tentative list of pre-review documents may be updated up to two weeks before the peer review. Any delays in submission of pre-review documents for the CIE peer review will result

in delays with the CIE peer review process. Furthermore, the CIE reviewers are responsible for only the pre-review documents that are delivered to them in accordance to the SoW scheduled deadlines specified herein.

#### Desk Peer Review:

The primary role of the CIE reviewer is to conduct an impartial peer review in accordance to the Terms of Reference (ToR) herein, to ensure the best available science is utilized for the National Marine Fisheries Service (NMFS) management decisions.

#### **Terms of Reference:**

CIE reviewers shall conduct an independent peer review addressing each of the following Term of Reference:

(1). Background information on the diffusion approximation methods used to estimate quasi-extinction risks has been peer reviewed and is found in the Snover and Heppell (in press) document. Comments and criticisms on this document are welcome but should not be the focus of the reviews.

(2). An application of the methods presented in the Snover and Heppell (in press) document is contained in the Snover (2008) report which is being used by the Pacific Islands Regional Office in a section 7 consultation to determine conservative interaction levels for marine turtles in the Hawaii-based shallow-set fishery. The peer review reports should contain an assessment of this report, including input on the following questions:

- Is the overall approach appropriately conservative for species listed on the Endangered Species list?
- Do the methods used to determine 'adult equivalents' appear adequate?
- Are the methods used to determine population specific takes appropriate?
- Is the range of allowed adult female anticipated mortalities appropriately conservative for the status of the populations?

(3) Overall, the reports should contain a critical review of the methods used to determine conservative interaction levels for marine turtle populations as presented in the Snover 2008 internal report, including recommendations for improvements.

#### Independent CIE Peer Review Reports:

The primary deliverable of the SoW is for each CIE reviewer shall complete and submit an independent CIE peer review report in accordance with the ToR, and this report shall be formatted as specified in the attached Annex 1.

**Schedule of Milestones and Deliverables:**

Each CIE Reviewer shall complete the independent peer review in accordance with the following schedule of milestones and deliverables.

|                     |   |
|---------------------|---|
| September 29, 2008  | The Project Contact will send the background documents and report for the CIE peer review to the CIE Coordinator (Manoj Shivlani) via email to <a href="mailto:shivlanim@bellsouth.net">shivlanim@bellsouth.net</a> |
| October 10, 2008    | CIE shall provide the COTR with the CIE reviewer contact information, which will then be sent to the Project Contact  |
| October 13-30, 2008 | Each reviewer shall conduct an independent peer review  |
| November 14, 2008   | CIE shall submit draft CIE independent peer review reports to the COTR  |
| November 14, 2008   | CIE will submit final CIE independent peer review reports to the COTR   |
| December 21, 2008   | The COTR will distribute the final CIE reports to the Project Contact   |

**Acceptance of Deliverables:**

Each CIE reviewer shall complete and submit an independent CIE peer review report in accordance with the ToR, which shall be formatted as specified in Annex 1. Upon review and acceptance of the CIE reports by the CIE Coordination and Steering Committees, CIE shall send via e-mail the CIE reports to the COTR (William Michaels [William.Michaels@noaa.gov](mailto:William.Michaels@noaa.gov) at the NMFS Office of Science and Technology by the date in the Schedule of Milestones and Deliverables. The COTRs will review the CIE reports to ensure compliance with the SoW and ToR herein, and have the responsibility of approval and acceptance of the deliverables. Upon notification of acceptance, CIE shall send via e-mail the final CIE report in \*.PDF format to the COTRs. The COTRs at the Office of Science and Technology have the responsibility for the distribution of the final CIE reports to the Project Contacts.

**Key Personnel:**Contracting Officer's Technical Representative (COTR):

William Michaels  
NMFS Office of Science and Technology  
1315 East West Hwy, SSMC3, F/ST4, Silver Spring, MD 20910  
[William.Michaels@noaa.gov](mailto:William.Michaels@noaa.gov)  
Phone: 301-713-2363 ext 136

Contractor Contacts:

Manoj Shivlani, CIE Lead Coordinator  
10600 SW 131 Court  
Miami, FL 33186  
[shivlanim@bellsouth.net](mailto:shivlanim@bellsouth.net) Phone: 305-968-7136

Project Contact:

Pacific Islands Fisheries Science Center, 2570 Dole Street, Honolulu HI, 96822  
Melissa Snover 808/983-5372, [Melissa.Snover@noaa.gov](mailto:Melissa.Snover@noaa.gov)  
Bud Antonelis, 808/944-2170, [Bud.Antonelis@noaa.gov](mailto:Bud.Antonelis@noaa.gov)

**Request for Changes:**

Requests for changes shall be submitted to the Contracting Officer at least 15 working days prior to making any permanent substitutions. The Contracting Officer will notify the Contractor within 10 working days after receipt of all required information of the decision on substitutions. The contract will be modified to reflect any approved changes. The Terms of Reference (ToR) and list of pre-review documents herein may be updated without contract modification as long as the role and ability of the CIE reviewers to complete the SoW deliverable in accordance with the ToR are not adversely impacted.

## ANNEX 1

### **Format and Contents of CIE Independent Reports**

1. The report should be prefaced with an Executive Summary with concise summary of goals for the peer review, findings, conclusions, and recommendations.
2. The main body of the report should consist of an Introduction with
  - a. Background
  - b. Terms of Reference
  - c. Panel Membership
  - d. Description of Review Activities
3. Summary of Findings in accordance to the Term of Reference
4. Conclusions and Recommendations in accordance to the Term of Reference
5. Appendix for the Bibliography of Materials used prior and during the peer review.
6. Appendix for the Statement of Work
7. Appendix for the final panel review meeting agenda.
8. Appendix for other pertinent information for the CIE peer review.

Please refer to the following website for additional information on report generation:

[http://www.rsmas.miami.edu/groups/cimas/Report\\_Standard\\_Format.html](http://www.rsmas.miami.edu/groups/cimas/Report_Standard_Format.html)