

Statement of Work

External Independent Peer Review by the Center for Independent Experts

Review of Pacific sardine and Pacific hake joint acoustic-trawl survey

Scope of Work and CIE Process: The National Marine Fisheries Service's (NMFS) Office of Science and Technology coordinates and manages a contract providing external expertise through the Center for Independent Experts (CIE) to conduct independent peer reviews of NMFS scientific projects. The Statement of Work (SoW) described herein was established by the NMFS Project Contact and Contracting Officer's Technical Representative (COR), and reviewed by CIE for compliance with their policy for providing independent expertise that can provide impartial and independent peer review without conflicts of interest. CIE reviewers are selected by the CIE Steering Committee and CIE Coordination Team to conduct the independent peer review of NMFS science in compliance the predetermined Terms of Reference (ToRs) of the peer review. Each CIE reviewer is contracted to deliver an independent peer review report to be approved by the CIE Steering Committee and the report is to be formatted with content requirements as specified in **Annex 1**. This SoW describes the work tasks and deliverables of the CIE reviewer for conducting an independent peer review of the following NMFS project. Further information on the CIE process can be obtained from www.ciereviews.org.

Project Description: The CIE reviewers will serve on a methodology review panel to perform an independent peer review of the Pacific sardine and Pacific hake joint acoustic-trawl survey conducted by the NMFS's Southwest Fisheries Science Center (SWFSC) and Northwest Fisheries Science Center (NWFSC). In 2012, a newly integrated acoustic-trawl survey of both Pacific Hake and Pacific sardine was implemented in waters off the US and Canada. This effort was the result of a unique collaboration and partnership between SWFSC and NWFSC fishery scientists, as well as Canada's Department of Fisheries and Oceans (DFO) and the fishing industry. The survey's primary goal was to measure the distributions and abundances of Pacific hake and Pacific sardine. In addition, oceanographic and environmental data were sampled to estimate the physical oceanographic habitats for each target species. Results of this survey were used in the 2013 assessment of the Pacific hake stock in US and Canadian waters. A review of the joint acoustic-trawl survey of Pacific hake and Pacific sardine will be conducted to review the survey methodology and analytical approaches to estimate abundance, distribution and biomass of Pacific hake and Pacific sardine resources.

Requirements for CIE Reviewer:

Four CIE experts, three independent reviewers and one panel Chair, shall participate in a panel peer review in accordance with the SoW and ToRs herein. The three CIE reviewers shall have the combined expertise and working knowledge in acoustic-trawl survey design, operation, sampling and analysis; ecosystem survey design, operation, sampling and analysis; spatial sampling and analysis with experience in geo-statistics; and familiarity with groundfish and/or coastal pelagic species with annual migration. At least one reviewer shall have working knowledge and expertise in the application of acoustic fish surveys in stock assessments. Experience (and/or familiarity) with acoustic sampling for mid-water, bottom and pelagic species

is desirable. In addition to the three CIE reviewers, one CIE expert will serve as Panel Chair. The Panel Chair shall have excellent facilitation and communication skills and expertise in acoustic-trawl surveys and/or one of the areas of expertise outlined above. The primary role of the Panel Chair will be to facilitate an impartial review panel and provide a summary report of the panel proceedings. The Panel Chair may also actively participate in panel discussion and provide feedback during the panel meeting. The CIE reviewer's duties shall not exceed a maximum of 16 days to complete all work tasks of the peer review process. The Panel Chair's duties shall not exceed a maximum of 18 days to complete all work tasks of the facilitation and summary report process. The agenda for the Panel review meeting will be provided to reviewers along with background materials two weeks prior to the panel meeting.

Location/Date of Peer Review: Four CIE experts, one of which will serve as the Panel Chair, shall participate during a panel review meeting in Seattle, Washington to be held January 21-24, 2014.

Statement of Tasks: Each CIE expert shall complete the following tasks in accordance with the SoW, ToRs and Schedule of Milestones and Deliverables specified herein.

Prior to the Peer Review: Upon completion of the CIE expert selection by the CIE Steering committee, the CIE shall provide the CIE expert information (name, affiliation, and contact details) to the COR, who forwards this information to the NMFS Project Contact no later the date specified in the Schedule of Milestones and Deliverables. The CIE is responsible for providing the SoW and ToRs to each CIE expert. The NMFS Project Contact is responsible for providing the CIE experts with the background documents, reports, foreign national security clearance, and information concerning other pertinent meeting arrangements. The NMFS Project Contact is also responsible for providing the Chair a copy of the SoW in advance of the panel review meeting. Any changes to the SoW or ToRs must be made through the COR prior to the commencement of the peer review.

Foreign National Security Clearance: When CIE experts participate during a panel review meeting at a government facility, the NMFS Project Contact is responsible for obtaining the Foreign National Security Clearance approval for CIE experts who are non-US citizens. For this reason, the CIE experts shall provide requested information (e.g., first and last name, contact information, gender, birth date, passport number, country of passport, travel dates, country of citizenship, country of current residence, and home country) to the NMFS Project Contact for the purpose of their security clearance, and this information shall be submitted at least 30 days before the peer review in accordance with the NOAA Deemed Export Technology Control Program NAO 207-12 regulations available at the Deemed Exports NAO website: http://deemedexports.noaa.gov/compliance_access_control_procedures/noaa-foreign-national-registration-system.html

Pre-review Background Documents: Two weeks before the peer review, the NMFS Project Contact will send by electronic mail or make available at an FTP site to each CIE expert all necessary background information and reports for the peer review. In the case where the documents need to be mailed, the NMFS Project Contact will consult with the CIE on where to send documents. Pre-review documents will be provided 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, including a SoW modification to the schedule of milestones and deliverables. Furthermore, the CIE experts are responsible only for the pre-review documents that are delivered to them in accordance to the SoW scheduled deadlines specified herein.

Panel Review Meeting: Each CIE reviewer shall conduct the independent peer review in accordance with the SoW and ToRs. **Modifications to the SoW and ToR cannot be made during the peer review, and any SoW or ToR modification prior to the peer review shall be approved by the COR and CIE Lead Coordinator.** Each CIE expert shall actively participate in a professional and respectful manner as a member of the meeting review panel, and their tasks shall be focused on the ToRs as specified in the contract SoW.

The NMFS Project Contact is responsible for any facility arrangements (e.g., conference room for panel review meetings or teleconference arrangements). The CIE Lead Coordinator can contact the Project Contact to confirm any peer review arrangements, including the meeting facility arrangements.

Contract Deliverables - Independent CIE Peer Review Reports: Each CIE reviewer shall complete an independent peer review report in accordance with the SoW. Each CIE reviewer shall complete the independent peer review according to required format and content as described in Annex 1. Each CIE reviewer shall complete the independent peer review addressing each ToR as described in Annex 2. The CIE expert serving as Panel Chair shall complete a summary report of the panel proceedings including a summary of the individual reviewers' major findings and recommendations. The summary report shall not be a consensus report.

Specific Tasks for CIE Reviewers: The following chronological list of tasks shall be completed by each CIE reviewer in a timely manner as specified in the **Schedule of Milestones and Deliverables**.

- 1) Conduct necessary pre-review preparations, including the review of background material and reports provided by the NMFS Project Contact in advance of the peer review;
- 2) Participate during the panel review meeting in Seattle, Washington during 21-24 January 2014, and conduct an independent peer review in accordance with the ToRs (Annex 2);
- 3) No later than February 7, 2014, each CIE reviewer shall submit an independent peer review report addressed to the "Center for Independent Experts," and sent to Mr. Manoj Shivlani, CIE Lead Coordinator, via email to shivlanim@bellsouth.net, and Dr. David Die., CIE Regional Coordinator, via email to ddie@rsmas.miami.edu. The CIE report shall be written using the format and content requirements specified in Annex 1, and address each ToR in Annex 2.
- 4) Work with the CIE Chair in providing comments and elaboration on any points raised in the CIE Chair's summary report that might require further clarification.

Specific Tasks for CIE Chair: The following chronological list of tasks shall be completed in a timely manner as specified in the **Schedule of Milestones and Deliverables**.

- 1) Conduct necessary pre-review preparations, including the review of background material and reports provided by the NMFS Project Contact in advance of the peer review;
- 2) Participate as the CIE Chair during the panel review meeting in Seattle, Washington during 21-24 January 2014, and facilitate the panel review maintaining the focus of the peer review in accordance with the ToRs (Annex 2);
- 3) Produce a Summary Report of the proceedings. The summary report shall not comprise a consensus report and will instead include a synopsis of each term of reference as per the chair's summary of each reviewer's determination. The CIE reviewers should have an opportunity to review and provide comments or elaboration on any points raised in the summary report that they feel might require further clarification. No later than February 21, 2014, the CIE Chair shall submit a Summary Report addressed to the "Center for Independent Experts," and sent to Mr. Manoj Shivlani, CIE Lead Coordinator, via email to shivlanim@bellsouth.net, and Dr. David Die., CIE Regional Coordinator, via email to ddie@rsmas.miami.edu. The Summary Report shall address each ToR in Annex 2.

Schedule of Milestones and Deliverables: CIE shall complete the tasks and deliverables described in this SoW in accordance with the following schedule.

<i>17 December 2013</i>	CIE sends the experts' contact information to the COR, who then sends this to the NMFS Project Contact
<i>07 January 2014</i>	NMFS Project Contact sends each CIE reviewer and the CIE Chair the pre-review documents
<i>21-24 January, 2014</i>	The CIE reviewers participate and conduct an independent peer review during the panel review meeting. The CIE Chair facilitates the impartial peer review and participates in panel discussion.
<i>07 February 2014</i>	Each CIE reviewer submits a draft CIE independent peer review report to the CIE Lead Coordinator and CIE Regional Coordinator. These reports will be forwarded to the CIE Chair by the CIE Lead Coordinator
<i>14 February 2014</i>	The CIE Chair submits the working Summary Report to the CIE reviewers
<i>17 February 2014</i>	The CIE reviewers provide their comments and elaborate on any points raised in the summary report that require additional explanation to the CIE Chair
<i>21 February 2014</i>	The CIE Chair submits the draft Summary Report to the CIE Lead Coordinator and CIE Regional Coordinator
<i>28 February 2014</i>	CIE submits the CIE independent peer review reports and CIE Chair's Summary Report to the COR
<i>6 March 2014</i>	The COR distributes the final CIE reports to the NMFS Project Contact and regional Center Directors

Modifications to the Statement of Work: Requests to modify this SoW must be made through the Contracting Officer's Technical Representative (COR) who submits the modification for

approval to the Contracting Officer at least 15 working days prior to making any permanent substitutions. The Contracting Officer will notify the CIE within 10 working days after receipt of all required information of the decision on substitutions. The COR can approve changes to the milestone dates, list of pre-review documents, and Terms of Reference (ToR) of the SoW as long as the role and ability of the CIE experts to complete the SoW deliverable in accordance with the ToRs and deliverable schedule are not adversely impacted. The SoW and ToRs cannot be changed once the peer review has begun.

Acceptance of Deliverables: Upon review and acceptance of the CIE independent peer review reports and summary report by the CIE Lead Coordinator, Regional Coordinator, and Steering Committee, these reports shall be sent to the COR for final approval as contract deliverables based on compliance with the SoW. As specified in the Schedule of Milestones and Deliverables, the CIE shall send via e-mail the contract deliverables (the CIE independent peer review reports) to the COR (William Michaels, via William.Michaels@noaa.gov).

Applicable Performance Standards: The contract is successfully completed when the COR provides final approval of the contract deliverables. The acceptance of the contract deliverables shall be based on three performance standards: (1) the CIE reports shall have the format and content in accordance with Annex 1, (2) the CIE reports shall address each ToR as specified in Annex 2, (3) the CIE reports shall be delivered in a timely manner as specified in the schedule of milestones and deliverables.

Distribution of Approved Deliverables: Upon notification of acceptance by the COR, the CIE Lead Coordinator shall send via e-mail the final CIE reports in *.PDF format to the COR. The COR will distribute the approved CIE reports to the NMFS Project Contact and regional Center Director.

Support Personnel:

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Annex 1: Format and Contents of CIE Independent Peer Review Report

1. Each CIE independent peer review report shall be prefaced with an Executive Summary providing a concise summary of the findings and recommendations.
2. The main body of each peer review report shall consist of a Background, Description of the Individual Reviewer's Role in the Review Activities, Summary of Findings for each ToR, and Conclusions and Recommendations in accordance with the ToRs.
 - a. Reviewers should describe using their own words, the review activities completed during the panel review meeting, including a detailed summary of findings, conclusions, and recommendations.
 - b. Reviewers should discuss their independent views on each ToR even if these were consistent with those of other panelists, and especially where there were divergent views.
 - c. Reviewers shall provide a critique of the NMFS review process, including suggestions for improvements of both process and products.
 - e. Each CIE independent peer review report shall be a stand-alone document for others to understand the proceedings and findings of the meeting, regardless of whether or not they read the summary report. Each CIE independent report shall be an independent peer review of each ToRs, and shall not simply repeat the contents of the summary report.
3. Each report shall include the appendices as follows:
 - Appendix 1: Bibliography of materials provided for review
 - Appendix 2: A copy of the CIE Statement of Work
 - Appendix 3: Panel Membership and other pertinent information from the panel review meeting.

Annex 2: Terms of Reference (ToR) for the Center for Independent Experts Panel Review of the Joint Pacific Sardine and Pacific hake (SaKe) acoustic-trawl survey The CIE Chair shall facilitate the panel review on the ToR, and each CIE reviewer shall conduct an independent peer review addressing each ToR;

- 1) Review background materials and documents that detail acoustic-trawl survey design and methods, and data analysis methods and results for:
 - a. Pacific sardine surveys;
 - b. Pacific hake survey;
 - c. Joint sardine and hake (SaKe) surveys.
- 2) Evaluate the historic, independent sardine and hake survey designs, methods, and analytical approaches including data preparations and statistical (e.g. geostatistical) analyses to estimate target species abundances, distributions, and biomasses, and associated uncertainties.
- 3) Evaluate the current joint SaKe survey design, methods, and analytical approaches including data preparations and statistical (e.g. geostatistical) analyses to estimate target species abundances, distributions, and biomasses, and associated uncertainties.
- 4) Evaluate the tradeoffs, in terms of costs, benefits, and consequences, of transitioning from independent surveys to a joint sardine-hake survey, particularly regarding its potential to provide population trend information to each of the assessments.
- 5) Evaluate the potential of the SaKe survey design and analysis, or an alternative, to evaluate the status and trends of hake, as managed by the International Hake Treaty, the southern stock of sardine, and other stocks in the Pacific Fisheries Management Council's Coastal Pelagic Fisheries Management Plan (CPS-FMP) including: northern anchovy (northern and central stocks), Pacific mackerel, jack mackerel, market squid, and krill.
- 6) Evaluate the tradeoffs, in terms of costs, benefits, and consequences, of:
 - a. separate hake and sardine surveys every year or every other year, with or without ecosystem sampling
 - b. joint sardine and hake surveys every year or every other year, with or without ecosystem sampling,
 - c. Alternative joint survey options for hake or sardine every year or every other year, with or without ecosystem sampling,particularly regarding their potentials to: i) estimate population parameters for hake, sardine, and other forage species; ii) put that information into the context of their biotic and abiotic environments; and iii) characterize their roles in the California Current Ecosystem. Provide specific recommendations for short- and long-term improvements to anticipated compromises associated with sardine-hake-ecosystem surveys.
- 7) Evaluate proposals and provide recommendations to increase the efficacies and efficiencies (e.g., through advanced technologies) of sardine, hake, sardine-hake and sardine-hake-ecosystem surveys, based on Sake 2012 and 2013 survey experiences.