

Statement of Work

External Independent Peer Review by the Center for Independent Experts

Stock Assessment Update for the Main Hawaiian Islands Deep7 Bottomfish Complex Through 2013 With Projected Annual Catch Limits Through 2016

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 (COTR), 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: A stock assessment update of the Main Hawaiian Islands (MHI) Deep7 bottomfish complex was conducted through fishing year 2013. This update used the previous benchmark assessment data analysis, modeling, and stock projection approaches with one minor improvement in CPUE standardization. This update was conducted using up-to-date re-audited bottomfish catch and effort data from Hawaii state commercial catch reports for the years 1948-2013. Unreported catch was estimated and included in the model using catch and effort data from the deep-water bottomfish handline fishery. Model selection techniques were applied to select the best structural form to standardize CPUE. An important improvement to this stock assessment model is the inclusion of information on individual fishermen's skill, or license effect, to standardize CPUE from 1994-2013; this resulted in a significant increase in the explanatory power of the CPUE standardization model but did not have a substantial effect on the estimated trend in CPUE. CPUE in the model was split into two time series (1949-1993, and 1994-2013) in order to accommodate the inclusion of license effect, which could only be tracked starting in 1994 when licenses became uniquely assigned to a fisher/vessel through time. A Bayesian production model was used to estimate time series of Deep7 bottomfish exploitable biomasses and harvest rates and was also used to conduct stochastic short-term projections of future catches, stock status conditions, and associated risks of overfishing in 2015-2016. These projections explicitly included uncertainty in the distribution of estimated bottomfish biomass in 2014 and population dynamics parameters. Results of the catch and CPUE analyses, production modeling, and stock projections are summarized and are used to characterize uncertainty of Deep7 ACLs for fishing years 2015-2016 assuming alternative commercial catch amounts in 2014. Overall, the Deep7 complex in the Main Hawaiian Islands is not currently experiencing

overfishing and is not currently depleted relative to the best available information on biological reference points.

The scientific information and assessment to be reviewed have not undergone independent peer review and there is a need to evaluate the data and assessment methods to improve the scientific basis for management. Further, the scientific information to be reviewed has a large potential impact on a valuable fishery important to commercial and recreational fishers in Hawaii and fish consumers in the state. It will be the foundation of bottomfish management decisions by the Western Pacific Regional Fishery Management Council (WPFMC), NMFS, and the State of Hawaii.

The Terms of Reference (ToRs) of the peer review are attached in **Annex 2**. The tentative agenda of the panel review meeting is attached in **Annex 3**.

Requirements for CIE Reviewers: Three CIE reviewers shall conduct an impartial and independent peer review as part of a panel review under the auspices of the Western Pacific Stock Assessment Review (WPSAR) process, and in accordance with the SoW and ToRs herein. CIE reviewers shall have excellent oral and written communication skills in addition to working knowledge in fish population dynamics, with experience in the application of stock assessment models in data poor situations sufficient to complete the primary task of providing peer-review advice in compliance with the workshop Terms of Reference.

Each CIE reviewer's duties shall not exceed a maximum of 14 days to complete all work tasks of the peer review described herein.

Location of Peer Review: Each CIE reviewer shall conduct an independent peer review during the panel review meeting scheduled in Honolulu, Hawaii during 9-12 December 2014.

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

Prior to the Peer Review: Upon completion of the CIE reviewer selection by the CIE Steering Committee, the CIE shall provide the CIE reviewer information (full name, title, affiliation, country, address, email) to the COTR, 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 the CIE reviewers. The NMFS Project Contact is responsible for providing the CIE reviewers with the background documents, reports, foreign national security clearance, and other information concerning 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 COTR prior to the commencement of the peer review.

Foreign National Security Clearance: When CIE reviewers 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 reviewers who are non-US citizens. For this reason, the CIE reviewers 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/>
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 the CIE reviewers the 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 Lead Coordinator on where to send documents. CIE reviewers are responsible only for the pre-review documents that are delivered to the reviewer in accordance to the SoW scheduled deadlines specified herein. The CIE reviewers shall read all documents in preparation for the peer review, including:

Andrews, A. H., R. L. Humphreys, E. E. DeMartini, R. S. Nichols, and J. Brodziak. 2011. Bomb radiocarbon and lead-radium dating of opakapaka (*Pristipomoides filamentosus*). Pacific Islands Fish. Sci. Cent., Natl. Mar. Fish. Serv., NOAA, Honolulu, HI 96822- 2396. Pacific Islands Fish. Sci. Cent. Admin. Rep. H-11-07, 58 p. + Appendices.

Andrews, A. H., R. L. Humphreys, E. E. DeMartini, R. S. Nichols, and J. Brodziak. 2012. Comprehensive validation of a long-lived life history for a deep-water snapper (*Pristipomoides filamentosus*) using bomb radiocarbon and lead-radium dating, with daily increment data. *Can. J. Fish. Aquat. Sci.* 69:1-20. doi:10.1139/f2012-109.

Brodziak, J., D. Courtney, L. Wagatsuma, J. O'Malley, H. Lee, W. Walsh, A. Andrews, R. Humphreys, and G. DiNardo. 2011. Stock assessment of the Main Hawaiian Islands Deep7 bottomfish complex through 2010. U.S. Dep. Commer., NOAA Tech. Memo., NOAA-TM-NMFS-PIFSC-29, 176 p. + Appendix.

Brodziak, J., A. Yau, J. O'Malley, A. Andrews, R. Humphreys, E. DeMartini, M. Pan, M. Parke, and E. Fletcher. 2014. Stock Assessment Update for the Main Hawaiian Islands Deep7 Bottomfish Complex Through 2013 With Projected Annual Catch Limits Through 2016. 59p.

Courtney, D. and J. Brodziak. 2011. Review of unreported to reported catch ratios for bottomfish resources in the Main Hawaiian Islands. Pacific Islands Fish. Sci. Cent., Natl. Mar. Fish. Ser., NOAA, Honolulu, HI 96822-2396. Pacific Islands Fish. Sci. Cent. Internal Rep. IR-11-017, 45 p.

Hospital, J., and C. Beavers. 2013. Catch shares and the Main Hawaiian Islands bottomfish fishery: Linking fishery conditions and fisher perceptions. *Marine Policy*
<http://dx.doi.org/10.1016/j.marpol.2013.08.006>.

Stokes, K. 2009. Report on the Western Pacific stock assessment review 1 Hawaii deep slope bottomfish. Center for Independent Experts, stokes.net.nz Ltd., Wellington 6035, New Zealand, 27 p.

Panel Review Meeting: Each CIE reviewer shall conduct the independent peer review in accordance with the SoW and ToRs, and shall not serve in any other role unless specified herein. **Modifications to the SoW and ToRs can not be made during the peer review, and any SoW or ToRs modifications prior to the peer review shall be approved by the COTR and CIE Lead Coordinator.** Each CIE reviewer shall actively participate in a professional and respectful manner as a member of the meeting review panel, and their peer review tasks shall be focused on the ToRs as specified herein. The NMFS Project Contact is responsible for any facility arrangements (e.g., conference room for panel review meetings or teleconference arrangements). The NMFS Project Contact is responsible for ensuring that the Chair understands the contractual role of the CIE reviewers as specified herein. 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.

Other Tasks – Contribution to Summary Report: Each CIE reviewer may assist the Chair of the panel review meeting with contributions to the Summary Report, based on the terms of reference of the review. Each CIE reviewer is not required to reach a consensus, and should provide a brief summary of the reviewer’s views on the summary of findings and conclusions reached by the review panel in accordance with the ToRs.

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 at the Honolulu Service Center, NOAA Fisheries Pier 38, Honolulu Harbor, 1139 N. Nimitz Hwy, Suite 220, Honolulu, HI 96817 during 9-12 December 2014.
- 3) LOCATION and DATES as specified herein, and conduct an independent peer review in accordance with the ToRs (**Annex 2**).
- 4) No later than REPORT SUBMISSION DATE, each CIE reviewer shall submit an independent peer review report addressed to the “Center for Independent Experts,” and sent to Dr. 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.

Each CIE report shall be written using the format and content requirements specified in Annex 1, and 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.

1 November 2014	CIE sends reviewer contact information to the COTR, who then sends this to the NMFS Project Contact
21 November 2014	NMFS Project Contact sends the CIE Reviewers the pre-review documents
9-12 December 2014	Each reviewer participates and conducts an independent peer review during the panel review meeting
2 January 2015	CIE reviewers submit draft CIE independent peer review reports to the CIE Lead Coordinator and CIE Regional Coordinator
12 January 2015	CIE submits CIE independent peer review reports to the COTR
16 January 2015	The COTR distributes the final CIE reports to the NMFS Project Contact and regional Center Director

Modifications to the Statement of Work: This ‘Time and Materials’ task order may require an update or modification due to possible changes to the terms of reference or schedule of milestones resulting from the fishery management decision process of the NOAA Leadership, Fishery Management Council, and Council’s SSC advisory committee. A request to modify this SoW must be approved by the Contracting Officer at least 15 working days prior to making any permanent changes. The Contracting Officer will notify the COTR within 10 working days after receipt of all required information of the decision on changes. The COTR can approve changes to the milestone dates, list of pre-review documents, and ToRs within the SoW as long as the role and ability of the CIE reviewers to complete the deliverable in accordance with the SoW is not adversely impacted. The SoW and ToRs shall not be changed once the peer review has begun.

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

Applicable Performance Standards: The contract is successfully completed when the COTR provides final approval of the contract deliverables. The acceptance of the contract deliverables shall be based on three performance standards:

- (1) The CIE report shall be completed with the format and content in accordance with **Annex 1**,
- (2) The CIE report 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 acceptance by the COTR, the CIE Lead Coordinator shall send via e-mail the final CIE reports in *.PDF format to the COTR. The COTR will distribute the CIE reports to the NMFS Project Contact and Center Director.

Support Personnel:

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Key Personnel:

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

1. The CIE independent report shall be prefaced with an Executive Summary providing a concise summary of the findings and recommendations, and specify whether the science reviewed is the best scientific information available.
2. The main body of the reviewer report shall consist of a Background, Description of the Individual Reviewer's Role in the Review Activities, Summary of Findings for each ToR in which the weaknesses and strengths are described, and Conclusions and Recommendations in accordance with the ToRs.
 - a. Reviewers should describe in their own words the review activities completed during the panel review meeting, including providing a brief summary of findings, of the science, 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 should elaborate on any points raised in the Summary Report that they feel might require further clarification.
 - d. Reviewers shall provide a critique of the NMFS review process, including suggestions for improvements of both process and products.
 - e. The CIE independent report shall be a stand-alone document for others to understand the weaknesses and strengths of the science reviewed, regardless of whether or not they read the summary report. The CIE independent report shall be an independent peer review of each ToRs, and shall not simply repeat the contents of the summary report.
3. The reviewer report shall include the following appendices:
 - Appendix 1: Bibliography of materials provided for review
 - Appendix 2: A copy of the CIE Statement of Work
 - Appendix 3: Panel Membership or other pertinent information from the panel review meeting.

Annex 2: Terms of Reference for the Peer Review

Stock Assessment Update for the Main Hawaiian Islands Deep7 Bottomfish Complex Through 2013 With Projected Annual Catch Limits Through 2016

1. Review the assessment methods used: determine if they are reliable, properly applied, and adequate and appropriate for the species, fisheries, and available data.
2. Evaluate the implementation of the assessment model: configuration, assumptions, and input data and parameters (fishery life history); more specifically determine if data are properly used, if choice of input parameters seem reasonable, if models are appropriately specified and configured, assumptions are reasonably satisfied, and primary sources of uncertainty accounted for.
3. Comment on the scientific soundness of the estimated population benchmarks and management parameters (e.g. MSY, Fmsy, Bmsy, MSST, and MFMT) and their potential efficacy in addressing the management goals stated in the relevant FMP or other documents provided to the review panel.
4. Evaluate the adequacy, appropriateness, and application of the methods used to project future population status.
5. Determine whether the science reviewed is considered to be the best scientific information available.
6. Suggest research priorities to improve our understanding of essential population and fishery dynamics necessary to formulate best management practices. Comment on alternative data sources and modeling, including any potential fishery independent data sources that could be used to supplement fisheries data. Include guidance on single species models, and whether this is possible given the current nature of this multispecies fishery, and difficulties in partitioning fishing effort between species.
7. Draft a report of the WPSAR Panel conclusions and findings, addressing each Term of Reference.

Annex 3: Tentative Agenda

Stock Assessment Update for the Main Hawaiian Islands Deep7 Bottomfish Complex Through 2013 With Projected Annual Catch Limits Through 2016

Honolulu Service Center, NOAA Fisheries Pier 38, Honolulu Harbor, 1139 N. Nimitz
Hwy, Suite 220, Honolulu, HI 96817

9-12 December 2014

Tuesday December 9

1. Introduction
2. Objectives and Terms of Reference (DiNardo, PIFSC; Neilson, CIE)
3. Fishery (Alton Miyasaka, HI DAR)

4. Data

State of Hawaii System (Jessica Miller, HI DAR)

Biological data (Allen Andrews, PIFSC)

5. Management - implementation of assessment results (Jarad Makaiau and Marlowe Sabater)

Wednesday December 10

5. Review of Stock Assessment

Thursday December 11

6. Continue Assessment Review (1/2 day)
7. Panel discussions (Closed)

Friday December 12

8. Panel Discussions (1/2 day)
9. Present Results (afternoon)
10. Adjourn