Center for Independent Experts (CIE) Program
External Independent Peer Review

Independent Peer Review of the Calibration Model Accounting for a
Recreational Fisheries Survey Design Change

Dr. John Whitehead

May 2018

Executive Summary

The proposed weighting approach (raking method) is conceptually superior to the two ratio approaches. It uses all available information in developing weights. The ratio methods used only a limited amount of information. The proposed weighting approach is most likely to be judged the best available science. Another benefit of the proposed weighting approach is that it would preserve the micro time-series data back to 1981.

A description of the individual reviewer's role:

As the lone economist on the review panel, my comparative advantage during the review was as a user of the MRFSS/MRIP data to conduct economic analysis. During the presentations, it became apparent to me that my statistical knowledge was far inferior to some of the other panel members. I focused almost all of my attention on the implications of the various weighting procedures on the two major areas where the MRIP data is used in economics: recreation demand modelling and economic impact analysis.

A brief summary of the findings, science, conclusions and recommendations:

The panel agreed that the proposed weighting approach (raking method) was conceptually superior to the two ratio approaches. The proposed weighting approach uses all available information in developing weights while the ratio methods used a limited amount of information. The panel raised concerns that estimates for some infrequently targeted species may be very sensitive to the weighting adjustment approach taken. The panel concluded that the proposed weighting approach is preferred over the ratio-based approaches. The panel felt that the proposed weighting approach is most likely to be judged the best available science. Another benefit is that the proposed weighting approach would preserve the micro data time-series back to 1981. The panel recommended that the proposed weighing approach should be implemented in an effort to develop a consistent data time-series back to 1981. Further, the panel recommended that an investigation be conducted to determine the extent of extreme changes in weighted and unweighted data.

Answers to the ToR questions:

1.   Evaluate the suitability of the proposed approach for converting historical estimates of mean angler catch rates obtained using the old MRFSS Access Point Angler Intercept Survey (APAIS) sampling design to estimates that best represent what would have been produced had the new MRIP APAIS sampling design been in place prior to 2013.

a.   Does the proposed approach adequately account for consistent differences in estimates that would have been observed if the old MRFSS APAIS had been conducted side-by-side with the new MRIP APAIS in 2013-2017?

Without a side-by-side comparison study, it is difficult to make a determination about the differences that would have been observed in an actual comparison study. The proposed weighting approach (the new raking method) makes a serious effort at adequately accounting

for differences. It employs a modelling approach using several important stratification variables used under the new MRIP sampling design. The method is developed so that the distribution of angler trips over state, year, and wave can be backcasted to 2004. Some evidence of the accuracy of the backcast, relative to estimates made with APAIS pseudo-weights, was presented. The panel was provided with a long series of graphical comparisons of weighted estimates of trips, landings and releases. A single case study was presented for Alabama private boat red snapper landings. The proposed raking approach generated an estimate of landings 29% larger than landings produced with the APAIS pseudo-weights. The confidence intervals for these two estimates overlap, indicating that there are no statistically significant differences between the approaches. The simple and complex ratio methods produced landings estimates 2% and 19% larger than the estimate with the APAIS pseudo-weights. Both of these point estimates appear to be within the confidence interval of the landings estimate from the proposed raking weight method. There do not appear to be systematic differences in the variations in estimated landings using the pseudo-weights ("current landings") and landings estimated with the weights developed by the proposed raking method ("weight adjusted landings").

b. *Is the proposed approach a suitable alternative to the calibration models that were originally developed in the 2014 MRIP Calibration Workshop and later evaluated by MRIP?*

The proposed raking weight approach uses most all available information and is an improvement over the simple ratio weights. One reason for the raking procedure to be preferred is that the simple ratios do not account for the differences between coastal and non-coastal anglers. The old MRFSS assumed that catch rates by non-coastal anglers were the same as catch rates from coastal anglers (Total catch = total trips by coast county residents*mean catch per angler fishing trip*(1/proportion of trips by coastal county residents)). This is a questionable assumption since fishing households will make location decisions to minimize the costs of fishing. In other words, they will tend to move closer to their preferred fishing sites at the coast. Because they face lower costs, coastal anglers take more fishing trips and, as a result, become more expert at catching fish. It is likely that coastal anglers have greater catch per unit effort than non-coastal anglers. This characteristic does not seem to be captured in the ratio weighting approaches. In this way the raking procedure may address one component of avidity bias (that intercepted anglers are more expert), but the problem of avidity bias was not a topic covered during the review.

c. *Is it reasonable to conclude that revised 2004-2012 APAIS estimates based on the application of the proposed approach would be more comparable than the current ones to estimates produced since 2013 under the new APAIS design?*

The proposed approach has been applied to the 2004-2012 MRIP catch estimates. This has been compared to the 2004-2012 MRIP catch estimates adjusted by the pseudo-weights. This is a difficult question to answer since there is no data available to conduct a validity study. Accuracy of each time-series is left to the judgement of the reviewer. The proposed approach seems to be preferred due to its rigor and the vast amounts of information used in developing heterogeneous weights. There are differences in the point estimates of catch, but the

confidence intervals are wide for both estimates and overlapping. The review panel could recommend that users of the data and decision makers employ estimates from both methods as inputs in stock assessments, allocation and other analyses. To the extent that these analyses are insensitivity to the two inputs, the question is moot. Where the analyses are sensitive to use of either the pseudo-weights or calibrated weights (the proposed methods) would provide useful information about which method is preferred for the 2004-2012 period.

    c. Given the limitations of the available data, is it reasonable to apply the proposed approach to revise APAIS estimates prior to 2004 (back to 1981)?

Developing weights back to 1981 differs from developing weights back to 2004 because there are no starting weights from 1981 to 2003. It should be expected that the proposed raking method will be less accurate for this time period than the 2004-2013 time period. That said, the Alabama private boat red snapper comparison showed that "adjusted landings" (i.e., adjusted by weights from the proposed raking method) are 29% greater than "current landings" but the confidence intervals are wide and overlap. While it is comforting that confidence intervals overlap, this does not mean that either estimate is correct. What is missing is a validity study that compares the various estimates to a benchmark true estimate. Without that sort of study, which is not feasible in this case, there is little to inform a determinant of accuracy of these estimates.

It was made clear that there is a need to develop weights back to 1981 for stock assessment purposes. It is not clear if the new raking method would produce weights that are superior to M1 and M2 for stock assessment. A study that investigates the sensitivity of a stock assessment to "current landings" and landings produced with M1, M2 and the proposed raking approach would be informative here. If the ratio methods and raking method produce similar stock assessments, then the stock assessment benefit of producing raking weights from the proposed approach back to 1981 is low. If the different methods produce different stock assessments, then the weighting decision is important and has economic implications. A study of this sort has not been conducted, so it is difficult to assess the benefit of the raking method in this context. A study of this sort would be informative if the decision is made to proceed with the proposed raking approach.

Economic analysis with the MRIP data is of two sorts. Second, the NMFS (and others) conducts an expenditure survey to estimate the economic importance of the recreational sector to the U.S. economy. Angler expenditure estimates are combined with effort estimates from the MRIP to estimate total expenditures. The second type of analysis is recreation demand, where the economic value of catch is estimated. Economists assess the effects of fishing costs and benefits (catch) on fishing behavior. These studies can be used for benefit-cost analysis of various management tools (e.g., bag limits), bioeconomic modelling and sector allocation (where the marginal value of commercial and recreational catch should be equalized in order to maximize the economic value of a sector allocation). Both types of studies (expenditure and demand) are typically ex-ante, i.e., forward looking, with a management purpose. Expenditure studies can be used to conduct an economic impact analysis to assess how a fishery management alternative may affect regional spending and jobs. Demand studies can be used to conduct a benefit-cost analysis, allocation or bioeconomic analysis of management

alternatives. Ex-post analysis is important, but this is rarely done in fisheries economics and we might assume that ex-post analysis has limited value (the USEPA has conducted several ex-post benefit-cost analyses of the Clean Air Act).

In the recreation economics literature, the MRFSS suffered from two types of bias: endogenous stratification (The National Academy review calls "coverage bias", but recreation demand economists call it endogenous stratification since Shaw (1988)) and avidity bias. The MRFSS sampled fishing sites with stratification rules and interviewer effort was biased in favor of hot spots and times. While the MRFSS was a stratified sample with some convenience sample characteristics, it was treated as a random sample for estimation of catch. This problem was addressed by the NAS in 2006 leading to the APAIS survey. The APAIS survey samples sites and times of day focusing on accurate coverage instead of meeting quotas. The sampling of sites and times may not reflect differences in the demand for fishing. Assumptions that non-chosen sites and times are the same as chosen sites and times are wrong, so that sampling weights are needed to correct for the endogenous stratification.

Avidity bias results because anglers who are more likely to be at an interview site tend to fish more days increasing their chance of being interviewed. These anglers are also more likely to be better at catching fish. So, anglers who fish more and catch more fish are more likely to be represented in on-site surveys. The MRFSS intercepted anglers at their chosen site and time of day. The process of choosing an angler for the sample is related to the angler behavior behind that choice. Anglers tend to choose sites with lower travel costs and higher catch per unit effort. Thomson (1991) finds that avidity bias leads to inflated estimates of effort and catch in intercept (and other) surveys. More avid anglers are more likely to be interviewed and have higher catch. Corrections for avidity bias will decrease both. It is not clear how the APAIS addresses avidity bias. But, the new Fishing Effort Survey (FES) is designed to better estimate overall effort and should address avidity bias.

There is limited evidence that weighting of recreation demand functions to correct endogenous stratification with MRFSS/MRIP data is important for economic analysis. Hindsley, Landry and Gentner (2011) use the MRFSS data and develop their own weights from the intercept and coastal household telephone survey for 2003-04 private boat trips in the South Atlantic and Gulf of Mexico. They find that estimates of the economic value of recreational catch are biased upwards unless weighting for endogenous stratification and avidity bias. The new APAIS survey design was developed to address endogenous stratification. Lovell and Carter (2014) estimate recreation demand models with and without APAIS pseudo-weights for Gulf of Mexico trips in 2009. They find that there are differences in recreation demand parameter estimates, but the estimates of the value of snapper and grouper catch is not statistically different between weighted and unweighted models. It is not clear whether the results of Hindsley, Landry and Gentner (2011) is due to the weighting for endogenous stratification or avidity bias.

Finally, one concern with all the approaches is that the weights are being developed in one regulatory regime and applied to behavior in another. Bag limits, size limits and seasons affect fishing behavior. Other economic shifts also affect behavior. These issues will make the 1981 to 2013 weights less accurate than if this information was incorporated.

Backcasting weights would allow for the conduct of a number of historical studies and ex-post analysis of fishery management decisions. For example, weighted data back to 1981 would allow for a better understanding of fishing behavior under differing regulatory regimes, economic conditions, biological stock and climate change (if time-series of these variables are available). Note also that recreation demand models with the MRFSS/MRIP have relied on economic add-on surveys to collect information necessary to more accurately estimate the cost of a fishing trip (i.e., angler income is necessary to estimate the opportunity cost of travel time). The first add-on survey was conducted in 1994 so that recreation demand analysis with these older data is limited, but possible if inaccuracies in the cost of a fishing trip are acceptable, as in many historical studies. While these potential ex-post studies are interesting and valuable in an academic sense, there may be little value of these economic analyses to current fishery management issues. In that context, the weighting approach most appropriate for the 1981-2003 data is more of a stock assessment issue.

> 2.   *Briefly describe the panel review proceedings highlighting pertinent discussions, issues, effectiveness, and recommendations.*

The review panel heard a number of presentations. The morning session was focused on background material, setting the stage for presentation of the proposed weighting approach (Van Vorhees). First, there was background on MRIP transition and the APAIS. This presentation provided details of survey changes and the corresponding changes to the fishing effort survey. Next the panel heard presentations on the economic (Didden) and stock assessment (Drew) importance of a calibrated landings time-series for fisheries management. The panel then heard a presentation describing weighted estimation of the APAIS and its review in the first calibration workshop (Van Voorhees). This presentation included a description of problems with the old APAIS and the information available from old APAIS that is necessary to conduct the backcasting. The proposed weighting method was presented. An initial comparison of the MRIP and MRFSS estimates was made with the MRFSS estimates within the confidence interval of MRIP. Then, there was a presentation describing the new APAIS survey (Sminkey). This highlighted the improvements made in the APAIS from 2004 and 2013. The second calibration workshop was described with discussion of initial suggestion of the two ratio weighting methods and a third approach that was not implemented (Carmichael).

Following lunch, the panel heard presentations on the three weighting approaches. First, the ratio calibration weighting approach was presented (Kitts-Jensen). The ratio approaches are developed at the subregion, state, mode, wave and species. The simple ratio approach (M1) always results in a systematic increase in catch estimates because it is directed at accounting for temporal coverage bias (e.g., the MRFSS sampling did not intercept trips that ended late in the fishing day). The limitations are that the approach doesn't make use of all available MRIP data and it is difficult to develop weights for the microdata. The complex ratio approach (M2) leads to less of a difference between MRFSS and MRIP, and produces increases and decreases in catch estimates. The proposed APAIS calibration method (Opsomer) and results (Foster) was presented. While the ratio approaches can lead to constant differences across species, the proposed approach leads to heterogeneous differences across species.

The panel had ample opportunity for questions, but few were asked. The panel chose to have little discussion time until the presentations were completed at lunch on the second day. While the presentations lasted until lunch on the second day, a full morning past the agenda, the panel had plenty of time for discussion. The panel met in closed session in the afternoon of the second day and discussed various issues. Presenters returned for a question and answer session and the panel adjourned for the second day. The panel met again during the morning of the third day and reached a general consensus.

References

Hindsley, Paul, Craig E. Landry, and Brad Gentner. "Addressing onsite sampling in recreation site choice models." Journal of Environmental Economics and Management 62, no. 1 (2011): 95-110.

Lovell, Sabrina J., and David W. Carter. "The use of sampling weights in regression models of recreational fishing-site choices." Fishery Bulletin 112, no. 4 (2014): 243-253.

Shaw, Daigee. "On-site samples' regression: Problems of non-negative integers, truncation, and endogenous stratification." Journal of Econometrics 37, no. 2 (1988): 211-223.

Thomson, C.J. 1991. "Effects of the avidity bias survey estimates of fishing effort and economic value." In: Creel and angler surveys in fisheries management, D. Guthrie et al., eds. American Fisheries Society Symposium, 12: 356-366.

Elaboration on any points raised in the summary report that they believe might require further clarification:

When considering developing the weights back to 1981, the summary report mentions the absence and impossibility of a validity study. While this is true, it would be possible to conduct a comparative study of the different weighting approaches on the older data to determine the sensitivity of catch estimates to the different weighting approaches. Further, it would be interesting to conduct sensitivity analysis on the factors using in the ranking method, which is quite complex. Would similar weights be obtained with less researcher effort?

As mentioned above, it is not clear if there will be any demand amongst economists for MRFSS post-weighted micro data from 1981 to 2004.

A critique of the NMFS review process, including suggestions for improvements of both process and products:

In a pre-review conference call, the Panel asked for an illustration of results from the recommended weighting approach. After what appears to be a herculean effort, John Foster gave an hours long presentation presenting some of these results. On the reviewers' end, it was difficult to fully comprehend and digest these results without a briefing document.

The panel had an opportunity to read background material for all the other presentations. While I understand that developing a written document in such a short time period was not possible given time constraints, presenting a summary of the results along with the Foster, Breidt and Opsomer (March 11, 2018) methods paper would have been very helpful to the panel.

Appendix 1. Bibliography of Materials

F. Jay Breidt, Han-Lin Lai, Jean D. Opsomer, and David A. Van Voorhees, A Report of the MRIP Sampling and Estimation Project: Improved Estimation Methods for the Access Point Angler Intercept Survey Component of the Marine Recreational Fishery Statistics Survey (+3 review reports and response).

F. Jay Breidt et al., A pilot Study of a New Sampling Design for the Access Point Angle rIntercept Survey, Submitted by the MRIP Design and Analysis Workgroup: (+ peer reviews and response).

John Boreman, Consultant's Report: Summary of the MRFSS/MRIP Calibration Workshop, 27-29 March 2012, Raleigh, NC.

John Carmichael and Dave Van Vorhees, Editors, Final Report: MRIP Calibration Workshop II, September 8 –10, 2014, North Charleston SC.

MRIP Staff, Internal Report: A Descriptive Analysis of the Access Point Angler Intercept Survey 2013 Design Change.

Katherine J. Papacostas and John Foster, National Marine Fisheries Service's Marine Recreational Information Program Survey Design and Statistical Methods for Estimation of Recreational Fisheries Catch and Effort.

Atlantic Coastal Cooperative Statistics Program, Field Procedures Manual: Access-Point Angler Intercept Survey.

Deming, W. Edwards, and Frederick F. Stephan. "On a least squares adjustment of a sampled frequency table when the expected marginal totals are known." The Annals of Mathematical Statistics 11, no. 4 (1940): 427-444.

Hernandez-Stumpfhauser, Daniel, F. Jay Breidt, and Jean D. Opsomer. "Hierarchical Bayesian small area estimation for circular data." Canadian Journal of Statistics 44, no. 4 (2016): 416-430.

John Foster, F. Jay Breidt, Jean D. Opsomer, APAIS data calibration methodology report.

Committee on the Review of the Marine Recreational Information Program, Review of the Marine Recreational Information Program.

Committee on the Review of Recreational Fisheries Survey Methods, National Research Council, Review of Recreational Fisheries Survey Methods.

Appendix 2. Statement of Work

National Oceanic and Atmospheric Administration (NOAA)
National Marine Fisheries Service (NMFS)
Center for Independent Experts (CIE) Program
External Independent Peer Review

Calibration Model Accounting for a Recreational Fisheries Survey Design Change

Background

The National Marine Fisheries Service (NMFS) is mandated by the Magnuson-Stevens Fishery Conservation and Management Act, Endangered Species Act, and Marine Mammal Protection Act to conserve, protect, and manage our nation's marine living resources based upon the best scientific information available (BSIA). NMFS science products, including scientific advice, are often controversial and may require timely scientific peer reviews that are strictly independent of all outside influences. A formal external process for independent expert reviews of the agency's scientific products and programs ensures their credibility. Therefore, external scientific peer reviews have been and continue to be essential to strengthening scientific quality assurance for fishery conservation and management actions.

Scientific peer review is defined as the organized review process where one or more qualified experts review scientific information to ensure quality and credibility. These expert(s) must conduct their peer review impartially, objectively, and without conflicts of interest. Each reviewer must also be independent from the development of the science, without influence from any position that the agency or constituent groups may have. Furthermore, the Office of Management and Budget (OMB), authorized by the Information Quality Act, requires all federal agencies to conduct peer reviews of highly influential and controversial science before dissemination, and that peer reviewers must be deemed qualified based on the OMB Peer Review Bulletin standards.
(http://www.cio.noaa.gov/services_programs/pdfs/OMB_Peer_Review_Bulletin_m05-03.pdf).
Further information on the CIE program may be obtained from www.ciereviews.org.

Scope

The Office of Science and Technology requests an independent peer review of a calibration model proposed for use in revising statistics produced by a survey of marine recreational fishing catch rates on the Atlantic coast and in the Gulf of Mexico. This calibration model is considered by the Marine Recreational Information Program (MRIP) to be very important to adjust historical time series of recreational catch estimates in order to account for biases in past sampling and estimation methods that have become apparent with the development of a new, more statistically sound method. The calibration model is intended to account for past biases in catch rate estimates for the shore, private/rental boat, and charter boat fishing modes that have resulted from the continued use of a legacy sampling design for the Access Point Angler

Intercept Survey (APAIS). A more statistically sound sampling design for the APAIS was implemented in March of 2013

Calibration Model for the APAIS Design Change
In 2014, a Calibration Workshop was held to evaluate the potential consistent effects of implementing a new sampling design for the APAIS on the Atlantic and Gulf coasts in 2013. Workshop participants included three expert statistical consultants and representatives from NOAA Fisheries, the regional fishery management councils, the interstate marine fisheries commissions, and several state agencies. The participants determined that analyses conducted by the NOAA Fisheries Office of Science and Technology showed there was sufficient evidence that the more complete temporal coverage of the new design resulted in consistent changes in APAIS angler catch rate statistics for at least some species. They developed three different calibration models to evaluate for possible use in correcting the pre-2013 APAIS statistics. The statistical consultants concluded the simplest of the three proposed models was appropriate for use in the short term until a more complete evaluation of all three calibration models could be completed using three years of new APAIS data (2013-2015). The plan was to complete that evaluation by the end of 2016, so that one method could be selected as the best for use in 2017 to revise APAIS estimates prior to 2013.

Requirements
 NMFS requires three (3) reviewers to conduct an impartial and independent peer review in accordance with the SoW, OMB Guidelines, and the Terms of Reference (ToRs) below. The CIE reviewers shall have working knowledge and recent experience in the design of sampling surveys and the evaluation of non-sampling errors (i.e., undercoverage, nonresponse, and response errors) associated with changes to survey designs over time. In addition, they should have experience with complex, multi-stage sampling designs, time series analyses, regression estimators, and small domain estimation methods. Some recent knowledge and experience in current surveys of marine recreational fishing is desirable but not required.

NMFS will provide a Chair who has experience with U.S. fisheries stock assessments and their application to fisheries management. The Chair would ensure that reviewers understand the importance of maintaining a comparable time series of marine recreational fisheries catch statistics for use in stock assessments and their application to fisheries management. The Chair will not be selected by the contractor and will be responsible for facilitating the meeting, developing and finalizing a summary report and working with the CIE reviewers to make sure that the ToRs are addressed in their independent reviews.

Tasks for Reviewers
Pre-review Background Documents
The following background materials and reports prior to the review meeting include:

APAIS Design Change Calibration Workshop Report:
http://www.st.nmfs.noaa.gov/Assets/recreational/pdf/MRIPCalibrationWorkshopII_FinalReport.pdf

NC APAIS Pilot Study Report: *A Pilot Study of a New Sampling Design for the Access Point Angler Intercept Survey.*
https://www.st.nmfs.noaa.gov/pims/main/public?method=DOWNLOAD_FR_PDF&record_id=772

Report on APAIS Calibration Model:
This report will be provided by the contractor (via electronic mail or make available at an FTP site) to the CIE reviewers.

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. 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 meeting will consist of presentations by NOAA and other scientists to facilitate the review, to provide any additional information required by the reviewers, and to answer any questions from reviewers.

Contract Deliverables - Independent CIE Peer Review Reports
The CIE reviewers shall complete an independent peer review report in accordance with the requirements specified in this SoW and OMB guidelines. 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
The CIE reviewers may assist the Chair of the panel review meeting with contributions to the Summary Report, based on the terms of reference of the review. The CIE reviewers are not required to reach a consensus, and should provide a brief summary of each reviewer's views on the summary of findings and conclusions reached by the review panel in accordance with the ToRs.

Foreign National Security Clearance
When 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 reviewers who are non-US citizens. For this reason, the 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/ and
http://deemedexports.noaa.gov/compliance_access_control_procedures/noaa-foreign-

national-registration-system.html. The contractor is required to use all appropriate methods to safeguard Personally Identifiable Information (PII).

Place of Performance
The place of performance shall be at the contractor's facilities, and at the NOAA Fisheries Service Headquarters in Silver Spring, Maryland.

Period of Performance
The period of performance shall be from the time of award through April 31, 2018. Each reviewer's duties shall not exceed 14 days to complete all required tasks.

Schedule of Milestones and Deliverables: The contractor shall complete the tasks and deliverables in accordance with the following schedule.

Within two weeks of award	Contractor selects and confirms reviewers
Approximately 2 weeks later	Contractor provides the pre-review documents to the reviewers
March 2018	each reviewer participates and conducts an independent peer review during the panel review meeting
Within two weeks of panel review meeting	Contractor receives draft reports
Within two weeks of receiving draft reports	Contractor submits final reports to the Government

Applicable Performance Standards
The acceptance of the contract deliverables shall be based on three performance standards:
(1) The reports shall be completed in accordance with the required formatting and content (2) The reports shall address each ToR as specified (3) The reports shall be delivered as specified in the schedule of milestones and deliverables.

Travel
All travel expenses shall be reimbursable in accordance with Federal Travel Regulations (http://www.gsa.gov/portal/content/104790). International travel is authorized for this contract. Travel is not to exceed $12,000.

Restricted or Limited Use of Data
The contractors may be required to sign and adhere to a non-disclosure agreement.

NOAA Fisheries Project Contact:
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Annex I: Format and Contents of CIE Independent Peer Review Report

1. The report must be prefaced with an Executive Summary providing a concise summary of the findings and recommendations, and specify whether or not the science reviewed is the best scientific information available.

2. The report must contain a background section, description of the individual reviewers' roles 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 must describe in their own words the review activities completed during the panel review meeting, including 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, but especially where there were divergent views.

   c. Reviewers should elaborate on any points raised in the summary report that they believe 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 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 report shall represent the peer review of each ToR, and shall not simply repeat the contents of the summary report.

3. The report shall include the following appendices:

   Appendix 1: Bibliography of materials provided for review
   Appendix 2: A copy of this 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

Calibration Model Accounting for Changes in Recreational Fisheries Survey Methods

1. Evaluate the suitability of the proposed approach for converting historical estimates of mean angler catch rates obtained using the old Marine Recreational Fisheries Statistics Survey (MRFSS) Access Point Angler Intercept Survey (APAIS) sampling design to estimates that best represent what would have been produced had the new MRIP APAIS sampling design been in place prior to 2013.

    1. Does the proposed approach adequately account for consistent differences in estimates that would have been observed if the old MRFSS APAIS had been conducted side-by-side with the new MRIP APAIS in 2013-2017?

    2. Is the proposed approach a suitable alternative to the calibration models that were originally developed in the 2014 MRIP Calibration Workshop and later evaluated by MRIP?

    3. Is it reasonable to conclude that revised 2004-2012 APAIS estimates based on the application of the proposed approach would be more comparable than the current ones to estimates produced since 2013 under the new APAIS design?

    4. Given the limitations of the available data, is it reasonable to apply the proposed approach to revise APAIS estimates prior to 2004 (back to 1981)?

2. Briefly describe the panel review proceedings highlighting pertinent discussions, issues, effectiveness, and recommendations.

Tentative Agenda

Calibration Model Accounting for a Recreational Fisheries Survey Design Change

TBD

NOAA Fisheries

Office of Science and Technology

1315 East-West Highway

Silver Spring, MD

March 2018

Point of contact: Front Desk

Appendix 3: Panel membership

Michael D. Murphy (Chair)
Carolyn Belcher
Mary Christman (CIE Reviewer)
James Chromy (CIE Reviewer)
Matthew Cieri
Paul Rago
John Whitehead (CIE Reviewer)