Bering Sea and Aleutian Islands Crab Fisheries Economic Data Collection Program
External Independent Peer Review by the Center for Independent Experts
Panel Review Meeting
9:00-4:30, August 23-25, 2011
NOAA Alaska Fishery Science Center
7600 Sand Point Way NE, Seattle, WA
Building 4, Observer Training Room

Meeting Chair: Dr. Chris Anderson

Meeting Agenda
(draft 8/12/11)

Tuesday, August 23	**Building 4, Observer Training Room**	Presenters
9:00	Introductions and Overview	Chair
9:30	Background of EDR Program - Analytical objectives and survey development and design process to date	R. Felthoven
10:30	Data quality assessment: methods and findings	B. Garber-Yonts
12:00	Lunch	
1:15	Data analysis: methods, and findings	B. Garber-Yonts/ESSRP staff
2:45	Public Comment	Public attendees
4:00	Panel comments and requests for information to be prepared for Days 2-3	Panelists
4:30	Adjourn	
Wednesday, 8/24	**Building 4, Observer Training Room**	
9:00	Administration	Chair
9:15	Presentation: Survey Administration Process and Database Management	PSMFC/AKFIN Staff
10:00	Panel discussion and questions for presenters	
12:00	Lunch	
1:00	Panel discussion and questions for presenters	
4:30	Adjourn	
Thursday, 8/25	Location TBA	
9:00	Closed session: Review and report preparation AFSC staff will be on hand to assist panelists as needed	
4:30	Adjourn	

Point of contact for attendee security & check-in: Brian Garber-Yonts, (206) 526-6301

Public Announcement

Bering Sea and Aleutian Islands Crab Fisheries Economic Data Collection Program
External Independent Peer Review by the Center for Independent Experts
Panel Review Meeting
9:00-4:30, August 23-25, 2011
NOAA Alaska Fisheries Science Center
7600 Sand Point Way NE, Seattle, WA
Building 4, Observer Training Room
Meeting Chair: Dr. Chris Anderson, University of Rhode Island

Summary: NOAA Fisheries, Alaska Fisheries Science Center (AFSC) has partnered with the Center for Independent Experts (CIE) to undertake an expert panel review of methodological practices employed in the development and administration of the BSAI Crab Economic Data Report (EDR) program. The crab EDR program was implemented by AFSC under the direction of the North Pacific Fishery Management Council (Council) and in accordance with 50 CFR 680.6 in 2005, concurrent with the transition to the rationalized management regime, and annually to-date. The program is currently under consideration by the North Pacific Fishery Management Council for substantial revisions to address changing analytical objectives, data quality limitations, and excessive submitter burden. Final action by the Council to identify mandatory economic reporting requirements is expected in December 2011, with regulatory changes and implementation procedures to be developed subsequently. To support implementation of the Council's final action concerning the BSAI crab EDR program using best scientific and methodological practices, AFSC seeks guidance from independent experts in the fields of applied economic analysis of fishery resource management, design and testing of economic surveys of business establishments, and methods for data quality assessment and data quality control. To facilitate the development of guidelines for best scientific practices, the CIE has appointed an expert panel to provide a review of methods and practices employed to date and provide independent reviews and recommendations for methodological improvements and appropriate standards.

CIE has selected panelists for this review on the basis of their expertise and record of publication in these respective fields. Panel members will perform a review of the documented record of the process of crab EDR design, evaluation, testing, and data QA/QC employed to date in order to identify process and technical/scientific shortcomings, develop recommended best practices, objective standards, and evaluative criteria in these areas as applicable to the program setting and objectives set forth by the Council. The panel will meet in public at AFSC from August 23-24, 2011 to receive presentations from AFSC staff and contractors as well as public comments, to discuss the review materials and presentations, and question presenters and other meeting participants. The panel will spend the final day of the meeting in private session with the panel chair. Terms of Reference (ToR's) for the review have been established to guide the reviewers and focus the meeting on a tractable range of issues. Independent written peer reviews will be prepared by the panelists subsequent to the meeting, to be delivered to the CIE by September 9, 2011. The reviews, as well as a written summary of the panel meeting proceedings and findings prepared by the panel chair will be delivered to AFSC by September 30.

Background: In 2005 the Bering Sea and Aleutian Islands (BSAI) crab fisheries underwent a drastic change in management regime, under the direction of the North Pacific Fishery Management Council (Council) and implemented by NOAA Fisheries. Prior to the regime change, the fishery was regulated as a limited access "derby-style" fishery in which the pool of licensed harvesters effectively competed to maximize their catch of the harvestable crab, specified by fishery managers as the Total Allowable Catch (TAC) before the fishery closed. Under the new management regime, qualified harvesters and processors (buyers) were allocated individually transferable quota shares in the fishery, which grant the holder the privilege to harvest and (in the case of processors) purchase a specified share of the TAC for each of eight rationalized crab stocks. The resulting Quota Share privileges (QS, denominated as percentage shares) are transferrable to qualified buyers, and the annually issued Individually Transferable Quota (IFQ, denominated in pounds as determined by QS and the annual TAC). The particular catch share system implemented in BSAI crab fisheries of one of many potential share allocation systems, referred to generally as "rationalization." Among the Council's objectives in rationalizing the crab fisheries were addressing excess harvesting and processing capacity, and improving the economic performance of the crab fisheries by addressing low economic returns and economic instability for harvesters, processors, and communities. In anticipation of potential changes in the magnitude and distribution of benefits, employment, and other social and economic effects of the fishery, the North Pacific Fishery Management Council (Council) tasked the Alaska Fisheries Science Center (AFSC) with leading the development and implementation of an extensive and mandatory annual economic data collection program (referred to as Economic Data Reports, or EDRs). The EDR program was designed to collect detailed cost, earnings, and employment data from crab fishery participants to support computation of a number of specific performance metrics to evaluate the effects of rationalization on fishery participants and to provide data and analysis in support of future management changes.

The final design of the data collection, including data elements and survey instruments/questionnaires, was developed with extensive industry consultation and review by the Council. The EDR reporting requirement went into effect in 2005, with EDR baseline data submission required retroactively for 1998, 2001, and 2004 and subsequently, on an annual basis, for calendar year crab fishing activities for 2005 to present. The annual deadline for completed data reporting forms submission is June 28 for the previous calendar year.

Significant data quality limitations, associated principally with questionnaire design, were apparent with the first EDR submissions in 2005. To date, extensive efforts have been taken to investigate and validate the quality of the information reported in the EDR forms. Several informal focus groups have been held with EDR submitters and more formal review has been conducted as follows:

- the contractor collecting the data in conjunction with the AFSC has prepared annual reports documenting questions raised by submitters and known or potential flaws in questionnaire design;
- a certified public accountant has been contracted to conduct annual records-check validation by means of mandatory audits of operational and financial records for a random sample of the submitted EDRs as well as selected for-cause and outlier audits;

- a formal industry committee established by the Council has conducted two reviews of the EDR forms and audit findings and provided data quality and reporting burden assessments;
- statistical and qualitative results of audit findings and industry assessments have been incorporated into a detailed metadata document and distributed for public review;
- the Council's Scientific and Statistical Committee has reviewed the metadata;
- and the Council has received a staff discussion paper on EDR data quality limitations and endorsed constraints on use of a substantial subset of EDR data.

The EDR is a census of all active crab fishery participants in the harvest and processing sectors and compliance is a mandatory condition of annual permit renewal. As such, data quality limitations do not arise from sampling design or unit nonresponse error. Rather, data quality limitations arise principally from error sources associated with availability and accuracy of records maintained by submitters, flaws in questionnaire design (including specification errors, excessive computations required of the submitter, and incompatibility with standard industry recordkeeping conventions), and coverage and measurement error due to frame design and changes in industry structure. Revisions to EDR forms were incorporated in 2006 and 2007 to address some identified data quality concerns; however, more significant revisions are subject to review by the Council. Further measures to improve data quality and utility, and reduce submitter burden, will require substantial redesign of the EDR program and associated regulatory specifications. The Council has initiated a process to review the analytical objectives of the EDR program and develop revised regulations and reporting requirements. This process is currently ongoing, with decisions regarding objectives and data reporting requirements expected in December of 2011.

The objective of the CIE review is to identify appropriate methodological best practices and standards for survey design, evaluation, and testing, and to define quality assurance and quality control (QA/QC) procedures to be employed in the EDR program redesign and subsequent administration. The program falls within the class of statistical data collection referred to in the scientific literature as an establishment survey, for which the existing methodological literature is limited and exists largely in government statistical agency documents, conference proceedings, and institutional knowledge. As an agency, NOAA Fisheries is relatively inexperienced with regard to conducting establishment surveys, particularly with respect to industry financial information, although it does conduct a number of administrative record reporting systems that include financial information. NOAA largely lacks specialized staff expertise and institutional knowledge of relevant methodologies and scientific standards for establishment survey methods for financial information and data QA/QC methods, and lacks specific standards appropriate for different data uses (e.g., administrative, research, or policy/management program evaluation). As such, a broader objective of the CIE review is to identify institutional gaps in appropriate managerial and scientific expertise to carry out statistical social and economic data collection as mandated by the Magnuson-Stevens Act in the context of regulated fishing business establishments.

CIE Review Process and Panel Selection:

NOAA Fisheries (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) for the review of the BSAI Crab EDR Program was established by AFSC staff and the NMFS 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.

The panel meeting Chair is chosen by AFSC and serves principally to facilitate the panel meeting to ensure the discussion remains focused on the Terms of Reference, and coordinate the production of the summary report of the panel meeting proceedings and any conclusions or findings reached by the panel during the meeting.

Panel Meeting Chairman
Dr. Christopher Anderson
Associate Professor, Department of Environmental and Natural Resource Economics
University of Rhode Island, Kingston, RI

Panelists selected by CIE for this review are the following:

Dr. Susan Hanna
Professor Emeritus of Marine Economics
Oregon State University Corvallis, OR

Dr. Danna L. Moore
Associate Director
Social & Economic Sciences Research Center
Washington State University, Pullman, WA

Dr. Richard Wang
Director, MIT Information Quality Program
Massachusetts Institute of Technology, Cambridge, MA

Panel members were identified and selected by the CIE Steering Committee and Coordination Team on the basis of their expertise in applied economic analysis in commercial fisheries and fishery management, business and economic survey design methodology and implementation in regulated industries, and survey data QA/QC, respectively. Consultation with AFSC and other NOAA staff regarding panel selection was limited to identifying general qualifications and areas of expertise, and to ensure that agency staff and panelists are mutually free of any conflict of interest.

Further information on the CIE process can be obtained from www.ciereviews.org.

Scope of Work and Terms of Reference

Each CIE reviewer will conduct the independent peer review in accordance with the Scope of Work (SoW) and Terms of Reference (ToRs). The ToRs are limited to evaluation and recommendations regarding scientific, methodological, and administrative standards and practices.

Terms of Reference

1. Review and discussion of data collection and analytical objectives defined by the Council, and associated data quality objectives, as context for evaluation of methods under ToR's 2 through 10.
2. Evaluation and findings regarding establishment survey questionnaire design, evaluation, and testing methodology employed to date and recommendations for improvement
3. Evaluation and findings regarding data collection administration and data management to date and recommendations for improvement
4. Evaluation and findings regarding protocols and metrics for data quality assessment employed to date and recommendations for improvement
5. Evaluation and findings regarding data quality control standards employed to date and recommendations for improvement
6. Evaluation and findings regarding analytical methodologies and treatment of uncertainty employed to date and recommendations for improvement
7. Evaluation and findings regarding interpretation and conclusions of data analyses employed to date and recommendations for improvement
8. Explicit determination as to whether this NMFS project presented the best available science
9. Recommendations for further improvements, including all elements of the EDR program development and evaluation process and appropriate institutional and scientific capacity
10. Brief description on panel review proceedings highlighting pertinent discussions, issues, effectiveness, and recommendations

Scope of Work for CIE Reviewers:

1) Conduct necessary pre-review preparations, including the review of background material and reports provided by AFSC staff in advance of the peer review (See Appendix);
2) Participate during the panel review meeting and conduct an independent peer review in accordance with the ToRs;
3) Independently complete a written peer review report addressed to the "Center for Independent Experts." Each reviewer's report will include an Executive Summary

providing a concise summary of the findings and recommendations. The main body of each reviewer's peer report will 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. Reviewers should describe in their own words the review activities completed during the panel review meeting, including providing a detailed summary of findings, conclusions, and recommendations. 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. Reviewers should elaborate on any points raised in the Summary Report that they feel might require further clarification. Reviewers shall provide a critique of the NMFS review process, including suggestions for improvements of both process and products. Each panel member's independent 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. The CIE independent report shall be an independent peer review of each ToRs, and shall not simply repeat the contents of the summary report.

4) Contribution to Summary Report: Each CIE reviewer may assist the Chair of the panel review meeting with contributions to the Summary Report. Although the individual CIE peer reports shall be submitted directly to CIE for review and approval by the CIE Steering Committee, the Summary Report is not considered a CIE product because it does not undergo the CIE review process. Furthermore, CIE reviewers are not required to reach a consensus, and should provide a brief summary of their views on the summary of findings and conclusions reached by the review panel during the meeting in accordance with the ToRs.

Schedule of Milestones:

August 8, 2011	AFSC staff to provide CIE Reviewers all pre-review documents
August 23-25, 2011	Each reviewer participates and conducts an independent peer review during the panel review meeting.
September 9, 2011	CIE reviewers submit draft CIE independent peer review reports to the CIE Lead Coordinator and CIE Regional Coordinator
September 23, 2011	CIE submits CIE independent peer review reports to the COTR
September 30, 2011	The COTR distributes the final CIE reports to the NMFS Project Contact and regional Center Director

Key Personnel:

William Michaels, Contracting Officer's Technical Representative (COTR)

NMFS Office of Science and Technology
1315 East West Hwy, SSMC3, F/ST4, Silver Spring, MD 20910
William.Michaels@noaa.gov Phone: 301-427-8155

Manoj Shivlani, CIE Lead Coordinator
Northern Taiga Ventures, Inc.
10600 SW 131st Court, Miami, FL 33186
shivlanim@bellsouth.net Phone: 305-383-4229

NMFS Project Contacts:

Ron Felthoven
National Marine Fisheries Service
Alaska Fisheries Science Center – F/AKC2
7600 Sand Point Way NE, Seattle, WA 98115
Ron.Felthoven@noaa.gov Phone: 206-526-4114

Brian Garber-Yonts
National Marine Fisheries Service
Alaska Fisheries Science Center – F/AKC2
7600 Sand Point Way NE, Seattle, WA 98115
Brian.Garber-Yonts@noaa.gov Phone: 206-526-6301

Appendix: Pre-review documents

The following priority documents will be provided in preparation for the peer review.

BSAI Crab Economic Data Report Database: Metadata. 2011. NOAA Fisheries, Alaska Fisheries Science Center, Seattle, WA.

BSAI Crab EDR Database: Data Quality Summary. Updated January 30, 2011. NOAA Fisheries, Alaska Fisheries Science Center, Seattle, WA.

Garber-Yonts, B. and J. Lee. 2011. Stock Assessment and Fishery Evaluation Report for King and Tanner Crab Fisheries of the Bering Sea and Aleutian Islands Regions: 2010 Economic Status Report. NOAA Fisheries, Alaska Fisheries Science Center, Seattle, WA.

Discussion paper on crab economic data collection. 2010. North Pacific Fishery Management Council, Anchorage, AK. October 2010.

Discussion paper on economic data collection. 2010. North Pacific Fishery Management Council, Anchorage, AK. February 2010.

Alaska Crab Economic Data Report Data Validation: Report Prepared for Pacific States Marine Fisheries Commission, 2009 Calendar Year Data. 2010. AKT, LLP, Portland, OR. November 2010.

2006 Economic Data Report (EDR) Data Collection Difficulties. 2007. Pacific States Marine Fisheries Commission, 205 SE Spokane Street, Suite 100 Portland, OR. July 2007.

The following documents will also be provided as additional background for review panelists to reference as necessary and at their discretion, and are not expected to be read in detail

- Five-Year Review of the Crab Rationalization Management Program for Bering Sea and Aleutian Islands Crab Fisheries. 2010. North Pacific Fishery Management Council, Anchorage, AK. December 28, 2010.

- Final EIS for BSAI King and Tanner Crab Fisheries. NOAA Fisheries. August 2004.

- Abbott, Joshua K., Brian Garber-Yonts, and James E. Wilen. 2010. Employment and remuneration effects of IFQs in the Bering Sea/Aleutian Islands crab fisheries, *Marine Resource Economics* 25, 333-354.