

## Statement of Work

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

**52<sup>st</sup> Stock Assessment Workshop/Stock Assessment Review Committee (SAW/SARC):  
Winter flounder (Southern New England Stock), Winter flounder (Georges Bank Stock),  
Winter flounder (Gulf of Maine Stock).**

#### *Statement of Work (SOW) for CIE Panelists (including a description of SARC Chairman's duties)*

**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](http://www.ciereviews.org).

**Project Description:** The purpose of this meeting will be to provide an external peer review of stock assessments for three stocks of winter flounder (*Pseudopleuronectes americanus*): Southern New England, Georges Bank, and Gulf of Maine. Winter flounder, also known as blackback or lemon sole, is a demersal flatfish distributed in the Northwest Atlantic from Labrador to Georgia. U.S. commercial and recreational fisheries exist from the Gulf of Maine to the Mid-Atlantic Bight. Winter flounder stocks are managed in federal waters under the New England Fishery Management Council's Northeast Multispecies Fishery Management Plan (FMP), and in state waters under Atlantic States Marine Fisheries Commission's Fishery Management Plan for Inshore Stocks of Winter Flounder. The last assessment of these three winter flounder stocks was carried out at the Groundfish Assessment Review Meeting (GARM-III) in 2008. Results of the 2011 review will form the scientific basis for fishery management in the northeast region. Duties of reviewers are explained below in the "**Requirements for CIE Reviewers**", in the "**Charge to the SARC Panel**" and in the "**Statement of Tasks**". The Terms of Reference (ToRs) for the assessment scientists are attached in **Annex 2**. The tentative agenda of the panel review meeting is attached in **Annex 3**. The SARC Summary Report format is attached as **Annex 4**.

The SARC 52 review panel will be composed of three appointed reviewers from the Center of Independent Experts (CIE), and an independent chair from the SSC of the New England or Mid-

Atlantic Fishery Management Council. The SARC panel will write the SARC Summary Report and each CIE reviewer will write an individual independent review report.

**Requirements for CIE Reviewers:** Three CIE reviewers shall conduct an impartial and independent peer review in accordance with the SoW and ToRs herein. CIE reviewers shall have working knowledge and recent experience in fish stock assessments. Reviewers should be familiar with winter flounder (or comparable species) life history and population dynamics.

In general, CIE reviewers for SARCs shall have working knowledge and recent experience in the application of modern fishery stock assessment models. Expertise should include statistical catch-at-age, state-space and index methods. Reviewers should also have experience in evaluating measures of model fit, identification, uncertainty, and forecasting. Reviewers should have experience in development of biological reference points that includes an appreciation for the varying quality and quantity of data available to support estimation of biological reference points.

Each CIE reviewer's duties shall not exceed a maximum of 16 days to complete all work tasks of the peer review described herein.

Not covered by the CIE, the SARC chair's duties should not exceed a maximum of 16 days (i.e., several days prior to the meeting for document review; the SARC meeting in Woods Hole; several days following the open meeting for SARC Summary Report preparation).

**Location of Peer Review:** Each CIE reviewer shall conduct an independent peer review during the panel review meeting scheduled in Woods Hole, Massachusetts during 6-10 June, 2011.

**Charge to SARC panel:** The panel is to determine and write down whether each Term of Reference of the SAW (see **Annex 2**) was or was not completed successfully during the SARC meeting. To make this determination, panelists should consider whether the work provides a scientifically credible basis for developing fishery management advice. Criteria to consider include: whether the data were adequate and used properly, the analyses and models were carried out correctly, and the conclusions are correct/reasonable. Where possible, the chair shall identify or facilitate agreement among the reviewers for each Term of Reference of the SAW.

If the panel rejects any of the current Biological Reference Point (BRP) proxies for  $B_{MSY}$  and  $F_{MSY}$ , the panel should explain why those particular proxies are not suitable and the panel should recommend suitable alternatives. If such alternatives cannot be identified, then the panel should indicate that the existing BRPs are the best available at this time.

## **Statement of Tasks:**

### **1. Prior to the meeting**

(SARC chair and CIE reviewers)

Review the reports produced by the Working Groups and read background reports.

Each CIE reviewer shall complete the following tasks in accordance with the SoW and Schedule of Milestones and Deliverables herein:

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, and FAX number) to the COTR, who forwards this information to the NMFS Project Contact no later than 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 by FAX the 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/sponsor.html>).

Pre-review Background Documents: Approximately 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.

## **2. During the Open meeting**

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 shall 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.

(SARC chair)

Act as chairperson, where duties include control of the meeting, coordination of presentations and discussion, making sure all Terms of Reference of the SAW are reviewed, control of document flow, and facilitation of discussion. For the assessment, review both the Assessment Report and the draft Assessment Summary Report.

During the question and answer periods, provide appropriate feedback to the assessment scientists on the sufficiency of their analyses. It is permissible to discuss the stock assessment and to request additional information if it is needed to clarify or correct an existing analysis and if the information can be produced rather quickly.

(SARC CIE reviewers)

For each stock assessment, participate as a peer reviewer in panel discussions on assessment validity, results, recommendations, and conclusions. From a reviewer's point of view, determine whether each Term of Reference of the SAW was completed successfully. Terms of Reference that are completed successfully are likely to serve as a basis for providing scientific advice to management. If a reviewer considers any existing Biological Reference Point proxy to be inappropriate, the reviewer should try to recommend an alternative, should one exist.

During the question and answer periods, provide appropriate feedback to the assessment scientists on the sufficiency of their analyses. It is permissible to request additional information if it is needed to clarify or correct an existing analysis and if the information can be produced rather quickly.

### **3. After the Open meeting**

(SARC CIE reviewers)

Each CIE reviewer shall prepare an Independent CIE Report (see **Annex 1**). This report should explain whether each Term of Reference of the SAW was or was not completed successfully during the SARC meeting, using the criteria specified above in the "Charge to SARC panel" statement.

If any existing Biological Reference Points (BRP) or their proxies are considered inappropriate, the Independent CIE Report should include recommendations and justification for suitable alternatives. If such alternatives cannot be identified, then the report should indicate that the existing BRPs are the best available at this time.

During the meeting, additional questions that were not in the Terms of Reference but that are directly related to the assessments may be raised. Comments on these questions should be included in a separate section at the end of the Independent CIE Report produced by each reviewer.

The Independent CIE Report can also be used to provide greater detail than the SARC Summary Report on specific Terms of Reference or on additional questions raised during the meeting.

(SARC chair)

The SARC chair shall prepare a document summarizing the background of the work to be conducted as part of the SARC process and summarizing whether the process was adequate to complete the Terms of Reference of the SAW. If appropriate, the chair will include suggestions on how to improve the process. This document will constitute the introduction to the SARC Summary Report (see **Annex 4**).

(SARC chair and CIE reviewers)

The SARC Chair and CIE reviewers will prepare the SARC Summary Report. Each CIE reviewer and the chair will discuss whether they hold similar views on each Term of Reference and whether their opinions can be summarized into a single conclusion for all or only for some of the Terms of Reference of the SAW. For terms where a similar view can be reached, the SARC Summary Report will contain a summary of such opinions. In cases where multiple and/or differing views exist on a given Term of Reference, the SARC Summary Report will note that there is no agreement and will specify - in a summary manner – what the different opinions are and the reason(s) for the difference in opinions.

The chair's objective during this SARC Summary Report development process will be to identify or facilitate the finding of an agreement rather than forcing the panel to reach an agreement. The chair will take the lead in editing and completing this report. The chair may express the chair's opinion on each Term of Reference of the SAW, either as part of the group opinion, or as a separate minority opinion.

The SARC Summary Report (please see **Annex 4** for information on contents) should address whether each Term of Reference of the SAW was completed successfully. For each Term of Reference, this report should state why that Term of Reference was or was not completed successfully. The Report should also include recommendations that might improve future assessments.

If any existing Biological Reference Point (BRP) proxies are considered inappropriate, the SARC Summary Report should include recommendations and justification for suitable alternatives. If such alternatives cannot be identified, then the report should indicate that the existing BRP proxies are the best available at this time.

The contents of the draft SARC Summary Report will be approved by the CIE reviewers by the end of the SARC Summary Report development process. The SARC chair will complete all final editorial and formatting changes prior to approval of the contents of the draft SARC Summary Report by the CIE reviewers. The SARC chair will then submit the approved SARC Summary Report to the NEFSC contact (i.e., SAW Chairman).

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**.

**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 Woods Hole, Massachusetts during June 6-10, 2011.
- 3) Conduct an independent peer review in accordance with the ToRs (**Annex 2**).
- 4) No later than June 24, 2011, 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](mailto:shivlanim@bellsouth.net), and to David Sampson, CIE Regional Coordinator, via email to [david.sampson@oregonstate.edu](mailto:david.sampson@oregonstate.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.

25 April 2011	CIE sends reviewer contact information to the COTR, who then sends this to the NMFS Project Contact
23 May 2011	NMFS Project Contact will attempt to provide CIE Reviewers the pre-review documents by this date
6-10 June 2011	Each reviewer participates and conducts an independent peer review during the panel review meeting in Woods Hole, MA
9-10 June 2011	SARC Chair and CIE reviewers work at drafting reports during meeting at Woods Hole, MA, USA
24 June 2011	CIE reviewers submit draft CIE independent peer review reports to the CIE Lead Coordinator and CIE Regional Coordinator
27 June 2011	Draft of SARC Summary Report, reviewed by all CIE reviewers, due to the SARC Chair *
1 July 2011	SARC Chair sends Final SARC Summary Report, approved by CIE reviewers, to NEFSC contact (i.e., SAW Chairman)
8 July 2011	CIE submits CIE independent peer review reports to the COTR
15 July 2011	The COTR distributes the final CIE reports to the NMFS Project Contact and regional Center Director

\* The SARC Summary Report will not be submitted, reviewed, or approved by the CIE.

The SAW Chairman will assist the SARC chair prior to, during, and after the meeting in ensuring that documents are distributed in a timely fashion.

NEFSC staff and the SAW Chairman will make the final SARC Summary Report available to the public. Staff and the SAW Chairman will also be responsible for production and publication of the collective Working Group papers, which will serve as a SAW Assessment Report.

**Modifications to the Statement of Work:** Requests to modify this SoW must be approved by the Contracting Officer at least 15 working days prior to making any permanent substitutions. The Contracting Officer will notify the COTR within 10 working days after receipt of all required information of the decision on substitutions. 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](mailto: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) each CIE report shall be completed with the format and content in accordance with **Annex 1**,
- (2) each 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:**

NMFS Project Contact:

Dr. James Weinberg, NEFSC SAW Chairman  
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Mr. Frank Almeida, Acting NEFSC Science Director  
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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 whether they accept or reject the work that they reviewed, with an explanation of their decision (strengths, weaknesses of the analyses, etc.).
2. The main body of the reviewer report shall consist of a Background, Description of the Individual Reviewer's Role in the Review Activities, Findings of whether they accept or reject the work that they reviewed, and an explanation of their decisions (strengths, weaknesses of the analyses, etc.) for each ToR, and Conclusions and Recommendations in accordance with the ToRs. For each assessment reviewed, the report should address whether each Term of Reference of the SAW was completed successfully. For each Term of Reference, the Independent Review Report should state why that Term of Reference was or was not completed successfully. To make this determination, the SARC chair and CIE reviewers should consider whether the work provides a scientifically credible basis for developing fishery management advice.
  - a. Reviewers should describe in their own words the review activities completed during the panel review meeting, including a concise summary of whether they accept or reject the work that they reviewed, and explain their decisions (strengths, weaknesses of the analyses, etc.), 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 SARC 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 proceedings and findings of the meeting, regardless of whether or not others read the SARC 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: Assessment Terms of Reference for SAW/SARC52

### A. Winter flounder (Southern New England Stock)

1. Estimate catch from all sources including landings and discards. Characterize the uncertainty in these sources of data.
2. Present survey data being considered and/or used in the assessment (e.g., regional indices of abundance, recruitment, state and other surveys, age-length data, etc.). Characterize uncertainty in these sources of data.
3. Estimate annual fishing mortality, recruitment and stock biomass (both total and spawning stock) for the time series (integrating results from TOR-5), and estimate their uncertainty. Include area-swept biomass estimates. Investigate if implied survey gear or catchability estimates are reasonable. Include a historical retrospective analysis to allow a comparison with previous assessment results.
4. Perform a sensitivity analysis which examines the impact of allocation of catch to stock areas on model performance (in TOR-3).
5. Examine the effects of incorporating environmental factors in models of population dynamics (e.g., spring water temperatures in an environmentally-explicit stock recruitment function).
6. State the existing stock status definitions for “overfished” and “overfishing”. Then update or redefine biological reference points (BRPs; point estimates or proxies for  $B_{MSY}$ ,  $B_{THRESHOLD}$ , and  $F_{MSY}$ ) and provide estimates of their uncertainty. If analytic model-based estimates are unavailable, consider recommending alternative measurable proxies for BRPs. Comment on the scientific adequacy of existing BRPs and the “new” (i.e., updated, redefined, or alternative) BRPs.
7. Evaluate stock status (overfished and overfishing) with respect to the “new” BRPs (from TOR 6), and with respect to the existing BRPs (from a previous accepted peer review) whose values have been updated.
8. Develop and apply analytical approaches and data that can be used for conducting single and multi-year stock projections and for computing candidate ABCs (Acceptable Biological Catch; see Appendix to the TORs) under a set of alternative harvest scenarios. If the stock needs to be rebuilt, take that into account in these projections.
  - a. Provide numerical short-term projections (3-5 yrs, or through the end of the rebuilding period, as appropriate). Each projection should estimate and report annual probabilities of exceeding threshold BRPs for F, and probabilities of falling below threshold BRPs for biomass. In carrying out projections, consider a range of assumptions about the most important uncertainties in the assessment (e.g., terminal year abundance, variability in recruitment).
  - b. Take into consideration uncertainties in the assessment and the species biology to describe this stock’s vulnerability (see “Appendix to the SAW TORs”) to becoming or remaining overfished, and how this could affect the choice of ABC.
  - c. Develop plausible hypotheses (e.g., mixing among the three stocks) which might explain any conflicting trends in the data and undertake scenario analyses to evaluate the consequences of these alternate hypotheses on ABC determination.
9. Review, evaluate and report on the status of the SARC and Working Group research recommendations listed in recent SARC reviewed assessments and review panel reports. Identify new research recommendations.

## **B. Winter flounder (Georges Bank Stock)**

1. Estimate catch from all sources including landings and discards. Characterize the uncertainty in these sources of data.
2. Present survey data being considered and/or used in the assessment (e.g., regional indices of abundance, recruitment, state and other surveys, age-length data, etc.). Characterize uncertainty in these sources of data.
3. Estimate annual fishing mortality, recruitment and stock biomass (both total and spawning stock) for the time series (integrating results from TOR-5), and estimate their uncertainty. Include area-swept biomass estimates. Investigate if implied survey gear or catchability estimates are reasonable. Include a historical retrospective analysis to allow a comparison with previous assessment results.
4. Perform a sensitivity analysis which examines the impact of allocation of catch to stock areas on model performance (in TOR-3).
5. Examine the effects of incorporating environmental factors in models of population dynamics (e.g., spring water temperatures in an environmentally-explicit stock recruitment function).
6. State the existing stock status definitions for “overfished” and “overfishing”. Then update or redefine biological reference points (BRPs; point estimates or proxies for  $B_{MSY}$ ,  $B_{THRESHOLD}$ , and  $F_{MSY}$ ) and provide estimates of their uncertainty. If analytic model-based estimates are unavailable, consider recommending alternative measurable proxies for BRPs. Comment on the scientific adequacy of existing BRPs and the “new” (i.e., updated, redefined, or alternative) BRPs.
7. Evaluate stock status (overfished and overfishing) with respect to the “new” BRPs (from TOR 6), and with respect to the existing BRPs (from a previous accepted peer review) whose values have been updated.
8. Develop and apply analytical approaches and data that can be used for conducting single and multi-year stock projections and for computing candidate ABCs (Acceptable Biological Catch; see Appendix to the TORs) under a set of alternative harvest scenarios. If the stock needs to be rebuilt, take that into account in these projections.
  - a. Provide numerical short-term projections (3-5 yrs, or through the end of the rebuilding period, as appropriate). Each projection should estimate and report annual probabilities of exceeding threshold BRPs for F, and probabilities of falling below threshold BRPs for biomass. In carrying out projections, consider a range of assumptions about the most important uncertainties in the assessment (e.g., terminal year abundance, variability in recruitment).
  - b. Take into consideration uncertainties in the assessment and the species biology to describe this stock’s vulnerability (see “Appendix to the SAW TORs”) to becoming or remaining overfished, and how this could affect the choice of ABC.
  - c. Develop plausible hypotheses (e.g., mixing among the three stocks) which might explain any conflicting trends in the data and undertake scenario analyses to evaluate the consequences of these alternate hypotheses on ABC determination.
9. Review, evaluate and report on the status of the SARC and Working Group research recommendations listed in recent SARC reviewed assessments and review panel reports. Identify new research recommendations.

### C. Winter flounder (Gulf of Maine Stock)

1. Estimate catch from all sources including landings and discards. Characterize the uncertainty in these sources of data.
2. Present survey data being considered and/or used in the assessment (e.g., regional indices of abundance, recruitment, state and other surveys, age-length data, etc.). Characterize uncertainty in these sources of data.
3. Estimate annual fishing mortality, recruitment and stock biomass (both total and spawning stock) for the time series (integrating results from TOR-5), and estimate their uncertainty. Include area-swept biomass estimates. Investigate if implied survey gear or catchability estimates are reasonable. Include a historical retrospective analysis to allow a comparison with previous assessment results.
4. Perform a sensitivity analysis which examines the impact of allocation of catch to stock areas on model performance (in TOR-3).
5. Examine the effects of incorporating environmental factors in models of population dynamics (e.g., spring water temperatures in an environmentally-explicit stock recruitment function).
6. State the existing stock status definitions for “overfished” and “overfishing”. Then update or redefine biological reference points (BRPs; point estimates or proxies for  $B_{MSY}$ ,  $B_{THRESHOLD}$ , and  $F_{MSY}$ ) and provide estimates of their uncertainty. If analytic model-based estimates are unavailable, consider recommending alternative measurable proxies for BRPs. Comment on the scientific adequacy of existing BRPs and the “new” (i.e., updated, redefined, or alternative) BRPs.
7. Evaluate stock status (overfished and overfishing) with respect to the “new” BRPs (from TOR 6), and with respect to the existing BRPs (from a previous accepted peer review) whose values have been updated.
8. Develop and apply analytical approaches and data that can be used for conducting single and multi-year stock projections and for computing candidate ABCs (Acceptable Biological Catch; see Appendix to the TORs) under a set of alternative harvest scenarios. If the stock needs to be rebuilt, take that into account in these projections.
  - a. Provide numerical short-term projections (3-5 yrs, or through the end of the rebuilding period, as appropriate). Each projection should estimate and report annual probabilities of exceeding threshold BRPs for  $F$ , and probabilities of falling below threshold BRPs for biomass. In carrying out projections, consider a range of assumptions about the most important uncertainties in the assessment (e.g., terminal year abundance, variability in recruitment).
  - b. Take into consideration uncertainties in the assessment and the species biology to describe this stock’s vulnerability (see “Appendix to the SAW TORs”) to becoming or remaining overfished, and how this could affect the choice of ABC.
  - c. Develop plausible hypotheses (e.g., mixing among the three stocks) which might explain any conflicting trends in the data and undertake scenario analyses to evaluate the consequences of these alternate hypotheses on ABC determination.
9. Review, evaluate and report on the status of the SARC and Working Group research recommendations listed in recent SARC reviewed assessments and review panel reports. Identify new research recommendations.

## *Appendix to the SAW TORs:*

### **Clarification of Terms used in the SAW/SARC Terms of Reference**

(The text below is from DOC National Standard Guidelines, Federal Register, vol. 74, no. 11, January 16, 2009)

#### **On “Acceptable Biological Catch”:**

*Acceptable biological catch (ABC)* is a level of a stock or stock complex’s annual catch that accounts for the scientific uncertainty in the estimate of [overfishing limit] OFL and any other scientific uncertainty...” (p. 3208) [In other words,  $OFL \geq ABC$ .]

*ABC for overfished stocks.* For overfished stocks and stock complexes, a rebuilding ABC must be set to reflect the annual catch that is consistent with the schedule of fishing mortality rates in the rebuilding plan. (p. 3209)

NMFS expects that in most cases ABC will be reduced from OFL to reduce the probability that overfishing might occur in a year. (p. 3180)

ABC refers to a level of “catch” that is “acceptable” given the “biological” characteristics of the stock or stock complex. As such, [optimal yield] OY does not equate with ABC. The specification of OY is required to consider a variety of factors, including social and economic factors, and the protection of marine ecosystems, which are not part of the ABC concept. (p. 3189)

#### **On “Vulnerability”:**

*“Vulnerability.* A stock’s vulnerability is a combination of its productivity, which depends upon its life history characteristics, and its susceptibility to the fishery. Productivity refers to the capacity of the stock to produce MSY and to recover if the population is depleted, and susceptibility is the potential for the stock to be impacted by the fishery, which includes direct captures, as well as indirect impacts to the fishery (e.g., loss of habitat quality).” (p. 3205)

## Annex 3: Draft Agenda

### 52nd Northeast Regional Stock Assessment Workshop (SAW 52) Stock Assessment Review Committee (SARC) Meeting

**June 6-10, 2011**

Stephen H. Clark Conference Room – Northeast Fisheries Science Center  
Woods Hole, Massachusetts

#### DRAFT AGENDA (version: 20 April 2011)

TOPIC	PRESENTER(S)	SARC LEADER	RAPPORTEUR
<b><u>Monday, June 6</u></b>			
<b>1 – 1:15 PM</b>			
Welcome	<b>James Weinberg</b> , SAW Chair		
Introduction	<b>Patrick Sullivan</b> , SARC Chair		
Agenda			
Conduct of Meeting			
<b>1:15 – 3:15</b>	Assessment Presentation (A. SNE Winter flounder) <b>Mark Terceiro</b>	<b>TBD</b>	<b>TBD</b>
<b>3:15 – 3:30</b>	Break		
<b>3:30 – 5:30</b>	SARC Discussion w/ presenters (A. SNE Winter flounder) <b>Pat Sullivan</b> , SARC Chair		<b>TBD</b>
<b><u>Tuesday, June 7</u></b>			
<b>8:30-10:30 AM</b>	Assessment Presentation (B. GBK Winter flounder) <b>Lisa Hendrikson</b>	<b>TBD</b>	<b>TBD</b>
<b>10:30-10-45</b>	Break		
<b>10:45 – 12:30</b>	SARC Discussion w/ presenters (B. GBK Winter flounder) <b>Pat Sullivan</b> , SARC Chair		<b>TBD</b>
<b>12:30 - 1:45</b>	Lunch		
<b>1:45 – 3:45</b>	Assessment Presentation (C. GOM Winter flounder) <b>Paul Nitschke</b>	<b>TBD</b>	<b>TBD</b>
<b>3:45 – 4:00</b>	Break		
<b>4:00 – 5:45</b>	SARC Discussion w/ presenters (C. GOM Winter flounder) <b>Pat Sullivan</b> , SARC Chair		<b>TBD</b>

(Evening Social/Dinner at **TBD**, 7pm)

**Wednesday, June 8**

<b>8:45 – 11</b>	Revisit w/ presenters (A.) <b>Pat Sullivan, SARC Chair</b>	<b>TBD</b>
<b>11 - 11:15</b>	Break	
<b>11:15 – 12:30</b>	Revisit w/ presenters (B.) <b>Pat Sullivan, SARC Chair</b>	<b>TBD</b>
<b>12:30 – 1:45</b>	Lunch	
<b>1:45 – 2:45</b>	cont. Revisit w/ presenters (B.) <b>Pat Sullivan, SARC Chair</b>	<b>TBD</b>
<b>2:45 - 3</b>	Break	
<b>3 – 5:15</b>	Revisit w/ presenters (C.) <b>Pat Sullivan, SARC Chair</b>	<b>TBD</b>

**Thursday, June 9**

<b>8:45 – 11</b>	Review/edit Assessment Summary Report (A.) <b>Pat Sullivan, SARC Chair</b>	<b>TBD</b>
<b>11 - 11:15</b>	Break	
<b>11:15 – 12:30</b>	Review/edit Assessment Summary Report (B.) <b>Pat Sullivan, SARC Chair</b>	<b>TBD</b>
<b>12:30 – 1:45</b>	Lunch	
<b>1:45 – 2:45</b>	cont. Review/edit Assessment Summary Report (B.) <b>Pat Sullivan, SARC Chair</b>	<b>TBD</b>
<b>2:45 - 3</b>	Break	
<b>3 – 5:15</b>	Review/edit Assessment Summary Report (C.) <b>Pat Sullivan, SARC Chair</b>	<b>TBD</b>

**Friday, June 10**

**9:00 - 5:30 PM** SARC Report writing. (closed meeting)

\*All times are approximate, and may be changed at the discretion of the SARC chair. The meeting is open to the public, except where noted.

#### **Annex 4: Contents of SARC Summary Report**

1. The main body of the report shall consist of an introduction prepared by the SARC chair that will include the background, a review of activities and comments on the appropriateness of the process in reaching the goals of the SARC. Following the introduction, for each assessment reviewed, the report should address whether each Term of Reference of the SAW was completed successfully. For each Term of Reference, the SARC Summary Report should state why that Term of Reference was or was not completed successfully.

To make this determination, the SARC chair and CIE reviewers should consider whether the work provides a scientifically credible basis for developing fishery management advice. Scientific criteria to consider include: whether the data were adequate and used properly, the analyses and models were carried out correctly, and the conclusions are correct/reasonable. If the CIE reviewers and SARC chair do not reach an agreement on a Term of Reference, the report should explain why. It is permissible to express majority as well as minority opinions.

The report may include recommendations on how to improve future assessments.

2. If any existing Biological Reference Point (BRP) proxies are considered inappropriate, include recommendations and justification for alternative proxies. If such alternatives cannot be identified, then indicate that the existing BRPs are the best available at this time.
3. The report shall also include the bibliography of all materials provided during the SAW, and any papers cited in the SARC Summary Report, along with a copy of the CIE Statement of Work.

The report shall also include as a separate appendix the Terms of Reference used for the SAW, including any changes to the Terms of Reference or specific topics/issues directly related to the assessments and requiring Panel advice.