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Department of Commerce · National Oceanic & Atmospheric Administration · National Marine Fisheries Service

<i>NATIONAL MARINE FISHERIES SERVICE PROCEDURE 01-101-10</i> Effective on: May 7, 2019	
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Fisheries Management Fishery Management Actions 01-101	
NOAA Fisheries Framework for Determining that Stock Status Determinations and Catch Specifications are Based on the Best Scientific Information Available	
NOTICE: This publication is available at: https://www.fisheries.noaa.gov/national/laws-and-policies/policy-directive-system	
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I. Introduction

The [Magnuson-Stevens Fishery Conservation and Management Act](#) (MSA) mandates that fishery management decisions in the U.S. be based on the best scientific information available (BSIA). The purpose of this document is to provide clarity and increase transparency in how BSIA determinations are made and documented in the context of stock status determinations and catch specifications. The document generally represents status quo working arrangements and should not require significant changes to current regional processes.

The MSA and National Standard 2 (NS2) guidelines provide legislative and policy context for the scientific basis of fish stock status determinations and catch recommendations and specifications, but do not describe the specific steps involved. Relevant excerpts are provided in Appendix A. Per MSA 302(g)(1)(E), peer review processes established by the Secretary of Commerce and a Regional Fishery Management Council are deemed to satisfy the requirements of the Office of Management and Budget Final Information Quality Bulletin for Peer Review. The regional peer review processes developed by NMFS and the Councils are described in the 2016 Federal Register Notice entitled Regional Peer Review Processes (81 FR 54561; August 16, 2016). This procedural directive provides a framework for following the steps in the BSIA process, and complements NS2, NS2 guidelines, and

MSA 302(g)(1)(B) and (E).

II. Objective

Stock status determinations made by NOAA Fisheries and catch specifications (e.g., annual catch limits; ACLs) must be consistent with the BSIA¹ (MSA 301(a)(2)). In general, catch recommendations made by the Fishery Management Councils' Scientific and Statistical Committees (SSCs) lead to a Council's catch specifications, which are reviewed by NOAA Fisheries for approval. Although it is ultimately the responsibility of NOAA Fisheries to make stock status determinations, approve catch specifications, and certify that these decisions are consistent with BSIA, the agency relies on input and advice from the SSCs and peer review processes. In fact, the 2007 reauthorization of the MSA established a more prominent role for the SSCs in providing management advice to the Councils. The [National Standard 2 \(NS2\) Guidelines](#) explain that the "SSC scientific advice and recommendations to its Council are based on scientific information that the SSC determines to meet the guidelines for [BSIA] as described in [50 CFR 600.315(a)]."² So, the SSC asserts that it is using BSIA when they make recommendations to their Council, and NOAA Fisheries considers the entire process when it certifies that the management action is consistent with BSIA.

A concisely stated BSIA determination process will clarify the roles and responsibilities of the agency and SSCs in the fishery management process. This is challenging because of differences in how each Regional Office–Science Center–Council group (hereinafter Region³) works together, time lags between the science and management processes, and the inherent uncertainty of assessments. NOAA Fisheries' guidance for how to achieve well-organized, well-documented, peer-reviewed stock assessments is also critical to improving the BSIA process ([Implementing a Next Generation Stock Assessment Enterprise](#)).⁴ The intent of this NOAA Fisheries BSIA Framework is to improve communication, coordination, and transparency and establish a mutual understanding of stock assessment results so they

¹ This procedure applies to stock status determinations made by NOAA Fisheries and catch specifications made by Fishery Management Councils with the necessary input from their SSCs. The same general considerations and principles also apply to stocks that are under direct Secretarial management and to stocks for which there are international measures adopted by Regional Fishery Management Organizations to which the United States is a party. Within FMPs there are some stocks that will require altered or abbreviated BSIA procedures because of extremely short timelines or a preponderance of involvement by State or Tribal entities, such as for Pacific salmon with the Pacific Fishery Management Council and crab with the North Pacific Fishery Management Council. In these cases, NOAA Fisheries will follow, to the extent practicable, the process outlined below for determining the BSIA.

² See 50 CFR 600.315(c)(1).

³ Use of the term "Region" in this document also captures the Atlantic Highly Migratory Division within the Office of Sustainable Fisheries.

⁴ Lynch, P.D., R.D. Methot, and J.S. Link (eds.). 2018. *Implementing a Next Generation Stock Assessment Enterprise. An Update to the NOAA Fisheries Stock Assessment Improvement Plan*. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-F/ SPO-183, 127 p. doi: 10.7755/TMSPO.183

can be used to make stock status determinations and set catch specifications that will ultimately be approved by the agency as consistent with NS2 guidelines, IQA, and all applicable law.

III. Guidance

Regional BSIA Framework Recommendation: Within three years of finalizing this procedural directive, each Region should develop a regional BSIA framework that describes how it applies the general NOAA Fisheries BSIA Framework below to ensure that management decisions are based on BSIA. The regional frameworks should include a general timeline, identify roles for each partner (e.g., SSC, Council, Science Center, Regional Office, Plan Development Team), and be publicly available. As appropriate, Regions can describe necessary modifications from the general NOAA Fisheries BSIA Framework to address special circumstances in their fisheries. The regional framework could be an appendix to a Regional Operating Agreement or made publicly available through some other mechanism. It will complement the description of the peer review process used by the Regions as documented in the 2016 *Federal Register* Notice entitled Regional Peer Review Processes ([81 FR 54561; August 16, 2016](#)).

NOAA Fisheries BSIA Framework: While there are differences in how each Region operates, the framework outlined below generally reflects the existing process by which BSIA is considered in relevant fishery management actions.

- 1) **Stock assessment.** Based on each Region's [prioritization process and schedule](#)⁵, draft stock assessments are prepared to provide technical information to inform status determinations and catch specifications. For the purpose of this document, the term 'stock assessment' is used to represent a range of analyses, from data-limited to comprehensive approaches. Stock assessments should be guided by terms of reference that clarify what approaches and potential changes to previous methods are within scope, and what management objectives will be addressed (e.g., stock status determinations, catch recommendations, and/or evaluations of control rules and reference points).
- 2) **Peer review.** The draft stock assessment is peer-reviewed according to a NS2 compliant process.⁶ The review is of the scientific product, not of the subsequent determination (e.g., not formal catch recommendations, which are the purview of the SSC).
 - a) The review may be conducted by the SSC or by a specific process (e.g., NPSAR⁷, SAW/SARC, SEDAR, STAR, WPSAR) and it may involve other Council entities such as Plan Teams. Equivalent international processes (e.g., Pacific Highly Migratory Species, TRAC) also are used. Different review processes may be used for different types of

⁵ Methot Jr., R. (editor). 2015. Prioritizing fish stock assessments. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-F/SPO152, 31 p.

⁶ Described in the *Federal Register* ([81 FR 54561; August 16, 2016](#)). Some features include: the scale of the review is tailored to the complexity and importance of the assessment; and at least one SSC member typically participates in a peer review to provide regional expertise, and in some cases, the SSC or other council committee constitutes the peer review body.

⁷ See Appendix B for list of acronyms.

assessments, per NS2 guidelines. Draft assessment documents are made publicly available during peer review; therefore, Council entities have access even if they are not conducting the review. Technical comments that may influence the final assessment product are expected to be made through the established review processes.

- b) Per the terms of reference of the peer review, the peer review panel evaluates the draft assessment and explicitly and separately considers whether the assessment provides the scientific basis for the following topics (note: not all assessments address all four of these topics):
 - i) Stock status relative to the overfishing status determination criteria (SDC) specified in the fishery management plan (FMP);
 - ii) Stock status relative to the overfished SDC specified in the FMP, including whether the stock is approaching an overfished condition;⁸
 - iii) Projections that can be used in implementation of established overfishing limit (OFL) and council-adopted acceptable biological catch (ABC) control rules;
 - iv) Technical merits of potential revisions to SDCs, harvest control rules, or other management actions that are analyzed within the stock assessment, per the terms of reference.
 - c) The regional terms of reference for the assessment and its review should identify the scope of scientific analysis being considered and which of the four topics will be addressed. Timelines for all data and documents being considered, as well as protocols for addressing late information should be clearly described. NOAA Fisheries' strategic guidance for stock assessments ([*Implementing a Next Generation Stock Assessment Enterprise*](#)) offers general statements to guide the peer review terms of reference for stock assessments that complement this recommendation (see Appendix C).⁹
 - d) It is possible that the peer review may conclude that an assessment supports some, but not all, of the topics above. If an alternative method is being considered to address this situation, that method should also receive an appropriate level of peer-review, according to the assessment and peer review terms of reference.
 - e) In the case of stock assessment products that have not been developed by NOAA Fisheries, it is expected that these products adhere to the regional stock assessment and peer review terms of reference in order to be considered consistent with BSIA.
- 3) **Assessment revision.** As appropriate, assessment authors revise the assessment based on peer review findings and recommendations, and in accordance with the regional assessment review process. In some cases, revisions can be addressed during a peer review workshop, whereas in others, additional work will be done and documented after the review workshop. The peer review panel does not necessarily need to review responses and revisions made after a peer review workshop, but the responses and revisions made as a result of the peer review should be well-documented. NOAA Fisheries and the appropriate SSC should coordinate to determine if the review panel recommendations were appropriately addressed. The degree of follow up work is constrained by the peer review terms of reference (i.e., research recommendations and anything outside the scope of the terms of reference should

⁸ A stock is considered to be approaching an overfished condition when it has more than a 50 percent chance of being considered overfished within two years. 50 CFR 600.310 (e)(2)(i)(G)

⁹ Lynch, P.D., R.D. Methot, and J.S. Link (eds.). 2018. *Implementing a Next Generation Stock Assessment Enterprise*. An Update to the NOAA Fisheries Stock Assessment Improvement Plan. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-F/ SPO-183, 127 p. doi: 10.7755/TMSPO.183

not be addressed in the current stock assessment, particularly if doing so will substantially delay the delivery of results). Thus, clear and focused terms of reference are key to efficient stock assessments.

4) SSC and NOAA Fisheries steps:

- a) The revised, peer-reviewed assessment and peer-review findings are delivered to the SSC.
- b) The SSC considers the peer reviewed assessment, seeks clarifications where necessary, and makes catch recommendations (OFL and ABC)¹⁰ to its Council after determining the information in the assessment meets the NS2 Guidelines for BSIA.¹¹ The process used by an SSC to determine whether the NS2 Guidelines are met should be described within the regional BSIA framework. The NS2 Guidelines describe that the criteria to consider when evaluating BSIA are: relevance, inclusiveness, objectivity, transparency and openness, timeliness, verification and validation, and peer review, as appropriate.¹² Deliberations by the SSC regarding BSIA, SDC and other aspects of stock status will be considered by the agency when making stock status determinations.
 - i) When the SSC is the body that conducts the peer review of an assessment or other sources of information (e.g., see paragraph (4)(b)(iv)), the peer review process should, to the extent feasible, clearly conclude before the catch recommendation process begins. This is supported by NS2 Guidelines¹³ and will ensure transparency and delineations between the multiple roles of an SSC.
 - ii) Per the NS2 Guidelines, when the SSC is evaluating an assessment that has been peer-reviewed by a body other than the SSC, the SSC “should not repeat the previously conducted and detailed technical peer review”¹⁴; rather, it should sufficiently understand the assessment and its uncertainties before making recommendations.
 - iii) NOAA Fisheries should establish a point of contact for each SSC to address potential science and management concerns. This NOAA Fisheries staff person should be available (i.e., reachable but not necessarily present physically) in an advisory capacity to provide feedback on potential SSC decisions and recommendations that may be uncertain in regard to compliance with policies. NOAA representatives on SSCs will not fulfill this role. Within their regional BSIA framework, each Region should document their plan for establishing this point of contact.
 - iv) If the peer review finds that the assessment does not provide sufficient basis for one or more of the topics described in step (2)(b)(i)-(iv), the SSC, in consultation with NOAA Fisheries, should consider other sources of information to support those actions, and provide sufficient justification for its recommendations. Alternative approaches considered by the SSC should, to the extent feasible, be based on peer-reviewed information.
 - v) Per the NS2 Guidelines, “if an SSC disagrees with the findings or conclusions of a

¹⁰ The exact SSC recommendation varies slightly by Council. For example, the Pacific Fishery Management Council’s SSC only specifies ABCs for salmon, while they provide OFLs and other numerical recommendations for other stocks enabling the Council to formulaically calculate the ABC.

¹¹ See 50 CFR 600.315(a) and (c)(1).

¹² See 50 CFR 600.315(a)(6)(i)-(vii).

¹³ See 50 CFR 600.315(c)(4).

¹⁴ See 50 CFR 600.315(c)(4).

- peer review, in whole or in part, the SSC must prepare a report outlining the areas of disagreement, and the rationale and information used by the SSC for making its determination. This report must be made publicly available”¹⁵ and could be included within the SSC meeting summary.
- vi) In the unusual case of significant ambiguity in peer reviewed assessment findings or disagreement by the SSC with the findings, NOAA Fisheries will consult with and consider any additional input provided by the SSC prior to finalizing the assessment results. The NOAA Fisheries point of contact to the SSC will play an important role here in communication and determining whether additional work is needed to address any disagreement between the SSC and the peer review findings and in communicating final decisions regarding stock status and BSIA determinations.
 - c) After the assessment review and any necessary subsequent revisions, NOAA Fisheries records the assessment results into a centralized repository (currently the NOAA Fisheries Species Information System; SIS). By locking the record in SIS, NOAA Fisheries indicates the assessment provides information that is consistent with the BSIA process. A BSIA determination memo from the Science Center may be provided at this point and shared with the Council and SSC.
 - d) NOAA Fisheries makes a stock status determination based on the final assessment results.¹⁶
 - i) NOAA Fisheries will follow the guidance in [Procedural Directive 01-101-09](#)¹⁷ (Procedures to Determine Stock Status and Adequate Progress) to make stock status determinations.
 - ii) NOAA Fisheries strives to make stock status determinations as soon as possible after SSC deliberation on the assessment. Only in rare cases¹⁸ will NOAA Fisheries make a stock status determination before the SSC has deliberated on the assessment.
 - iii) NOAA Fisheries documents a rationale for stock status determinations in a decision memo¹⁹ signed by the agency’s Assistant Administrator.
 - iv) Per MSA 304(e) requirements and NS1 guidelines,²⁰ NOAA Fisheries notifies the Council in writing when a stock is: subject to overfishing, overfished, or approaching an overfished condition. The correspondence will include a rationale for the decision, particularly in cases where there is significant ambiguity in the assessment results, or when there is disagreement between the SSC and NOAA Fisheries on the status of a stock. A copy of the decision memo used to make the determination can be provided

¹⁵ See 50 CFR 600.315(c)(5).

¹⁶ Overfishing status determinations for some stocks are based on a comparison of catch to the OFL, and therefore are not directly based on the results of a stock assessment, although the OFL is typically based on a previous stock assessment, which was found to provide information consistent with the BSIA process. Such stock status determinations would only need additional documentation regarding the BSIA process if clarity on BSIA is needed for a particular catch or OFL estimate.

¹⁷ NOAA Fisheries Procedures to Determine Stock Status and Rebuilding Progress. Available at: <https://www.fisheries.noaa.gov/national/laws-and-policies/fisheries-management-policy-directives>

¹⁸ This could occur for example if there is a fishery emergency or if there is going to be a significant time lag between the assessment peer review and SSC review.

¹⁹ Stock status decision memos are completed when there is a change in stock status and when an overfished, overfishing, or approaching an overfished condition is maintained. Stock status decision memos are not prepared when a “not subject to overfishing” or “not overfished” status is maintained.

²⁰ 50 CFR 600.310(j)(1).

- upon request. NOAA Fisheries reports on the status of U.S. fisheries on an annual basis within a report to Congress, and on a quarterly basis on our [website](#).²¹
- 5) **Catch specifications.** The Council develops catch specifications, including ACLs that cannot exceed the ABC recommended by the SSC.²² In cases where there are BSIA concerns with the basis for catch specifications, NOAA Fisheries will strive to inform the Council in time for the Council to amend its recommendation.
 - 6) **NOAA Fisheries approval.** NOAA Fisheries reviews Council catch specifications and through approval, certifies that such specifications are consistent with national standards (including NS2's BSIA requirement), other provisions of the MSA, and other applicable laws. This final approval provides certification that the actions are based on the BSIA. If the regional BSIA framework is correctly followed, the expectation is that the output of this process will be determined to represent BSIA.

²¹ <https://www.fisheries.noaa.gov/national/population-assessments/fishery-stock-status-updates>

²² MSA 302(h)(6). 16 U.S.C. § 1852 (h)(6)

Appendix A. Key excerpts from the MSA and NS2 Guidelines

MSA

Secretary of Commerce Responsibilities

MSA section 302(g)(1)(E):

The Secretary and each Council may establish a peer review process for that Council for scientific information used to advise the Council about the conservation and management of the fishery. The review process, which may include existing committees or panels, is deemed to satisfy the requirements of the guidelines issued pursuant to section 515 of the Treasury and General Government Appropriations Act for Fiscal year 2001 (Public Law 106–554—Appendix C; 114 Stat. 2763A–153).

MSA section 304(a)(1)(A):

(a) REVIEW OF PLANS.—

(1) Upon transmittal by the Council to the Secretary of a fishery management plan or plan amendment, the Secretary shall—

(A) immediately commence a review of the plan or amendment to determine whether it is consistent with the national standards, the other provisions of this Act, and any other applicable law; and...

MSA section 304(e):

- (1) The Secretary shall report annually to the Congress and the Councils on the status of fisheries within each Council's geographical area of authority and identify those fisheries that are overfished or are approaching a condition of being overfished....
- (2) If the Secretary determines at any time that a fishery is overfished, the Secretary shall immediately notify the appropriate Council and request that action be taken...

FMP/regulatory requirements

MSA section 301(a) – Any fishery management plan prepared, and any regulation promulgated to implement any such plan...shall be consistent with the following national standards for fishery conservation and management:

- (1) Conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery for the United States fishing industry.
- (2) Conservation and management measures shall be based upon the best scientific information available.

MSA section 303(a) – Any fishery management plan which is prepared by any Council, or by the Secretary, with respect to any fishery, shall --

(10) Specify objective and measurable criteria for identifying when the fishery to which the plan applies is overfished (with an analysis of how the criteria were determined and the relationship of the criteria to the reproductive potential of stocks of fish in that fishery) and, in the case of a fishery which the Council or the Secretary has determined is approaching an overfished condition or is overfished, contain conservation and management measures to prevent overfishing or end overfishing and rebuild the fishery;...

Council Responsibilities

MSA section 302(h)(6):

[Each Council shall...] develop annual catch limits for each of its managed fisheries that may not exceed the fishing level recommendations of its scientific and statistical committee or the peer review established under [section 302(g)];

Scientific and Statistical Committee Responsibilities

MSA section 302(g)(1)(B):

Each scientific and statistical committee shall provide its Council ongoing scientific advice for fishery management decisions, including recommendations for acceptable biological catch, preventing overfishing, maximum sustainable yield, and achieving rebuilding targets, and reports on stock status and health, bycatch, habitat status, social and economic impacts of management measures, and sustainability of fishing practices.

NS2 Guidelines

50 CFR 600.315(a)(6): Criteria to consider when evaluating best scientific information are relevance, inclusiveness, objectivity, transparency and openness, timeliness, verification and validation, and peer review, as appropriate.

50 CFR 600.315(c)(1): SSC scientific advice and recommendations to its Council are based on scientific information that the SSC determines to meet the guidelines for best scientific information available as described in paragraph (a) of this section. SSCs may conduct peer reviews or evaluate peer reviews to provide clear scientific advice to the Council. Such scientific advice should attempt to resolve conflicting scientific information, so that the Council will not need to engage in debate on technical merits. Debate and evaluation of scientific information is the role of the SSC.

50 CFR 600.315(c)(4): The SSC's evaluation of a peer review conducted by a body other than the SSC should consider the extent and quality of peer review that has already taken place. For Councils with extensive and detailed peer review processes (e.g., a process established pursuant to Magnuson-Stevens Act section 302(g)(1)(E)), the evaluation by the SSC of the peer reviewed information should not repeat the previously conducted and detailed technical peer review. However, SSCs must maintain their role as advisors to the Council about scientific information that comes from a peer review process. Therefore, the peer review of scientific information used to advise the Council, including a peer review process established by the Secretary and the Council under Magnuson-Stevens Act section 302(g)(1)(E), should be conducted early in the scientific evaluation process in order to provide the SSC with reasonable opportunity to consider the peer review report and make recommendations to the Council as required under Magnuson-Stevens Act section 302(g)(1)(B).

50 CFR 600.315(c)(5): If an SSC disagrees with the findings or conclusions of a peer review, in whole or in part, the SSC must prepare a report outlining the areas of disagreement, and the rationale and information used by the SSC for making its determination. This report must be made publicly available.

Appendix B. List of Acronyms

ABC – Acceptable biological catch
ACL – Annual catch limit
BSIA – Best scientific information available
CFR – Code of Federal Regulations
FMP – Fishery management plan
MSA – Magnuson-Stevens Fishery Conservation and Management Act
NOAA – National Oceanic and Atmospheric Administration
NPSAR – North Pacific Stock Assessment Review
NS1 – National Standard 1
NS2 – National Standard 2
OFL – Overfishing limit
SAW/SARC – Stock Assessment Workshop/Stock Assessment Review Committee
SDC – Status determination criteria
SEDAR – SouthEast Data, Assessment, and Review
SSC – Scientific and Statistical Committee
STAR – Stock Assessment Review
TRAC – Transboundary Resource Assessment Committee
WPSAR – Western Pacific Stock Assessment Review

Appendix C. Recommended statements to include in operational stock assessment review terms of reference (ToR).²³

- Determine, according to the best of your knowledge, if all data considered for use in the stock assessment were made available with sufficient time to review and evaluate their utility to the assessment. If not, please explain.
- Of the data considered for inclusion in the assessment, determine if final decisions on inclusion/exclusion of particular data were appropriate and justified within the context of an operational stock assessment. If not, please explain.
- Determine whether the final data that were included in the stock assessment were prepared and processed appropriately, and potential sources of bias were addressed and/or documented appropriately. If not, please explain.
- Given the data selected for use in the assessment, determine if the methods used to analyze those data and characterize uncertainty were appropriate and sufficient for accomplishing the following (for each category, if you feel the methods were not appropriate or if previous analyses are more appropriate, please explain):
 - Estimating biological reference points related to stock size
 - Estimating biological reference points related to fishing intensity
 - Estimating stock size in the final assessment year
 - Estimating fishing intensity in the final assessment year
 - Estimating an historical time series of stock size
 - Estimating an historical time series of fishing intensity
- If applicable, please review the methods used for forecasting, including the characterization of uncertainty, to determine whether they were appropriate and sufficient for the following (for each category, if you feel the methods were not appropriate or if previous analyses are more appropriate, please explain):
 - Developing harvest recommendations for the next 1–4 years
 - Developing harvest recommendations beyond 4 years
 - Projecting biomass relative to corresponding biological reference point(s)
 - Projecting fishing intensity relative to corresponding biological reference point(s)
- Determine and prioritize research recommendations that may be important for addressing particular issues and improving the assessment (e.g., issues with data collection or processing, modelling approaches or configurations, additional factors or drivers—ecosystem/socioeconomic, forecasting methods, and the development and communication of results).

Note: the structure of ToR in review of research stock assessments should be less constrained than ToR for operational assessments, and should be designed to focus the review on any

²³ Box 10.5 from Lynch, P.D., R.D. Methot, and J.S. Link (eds.). 2018. Implementing a Next Generation Stock Assessment Enterprise. An Update to the NOAA Fisheries Stock Assessment Improvement Plan. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-F/ SPO-183, 127 p. doi: 10.7755/TMSPO.183

changes to the assessment that are being proposed and whether these changes would likely improve the next operational assessment.