

# Best Scientific Information Available Framework for Atlantic Highly Migratory Species

## Introduction

### National and Regional BSIA Frameworks

This best scientific information available (BSIA)<sup>1</sup> framework is being undertaken by the National Marine Fisheries Service (NOAA Fisheries)<sup>2</sup> Atlantic Highly Migratory Species (HMS) Management Division to clarify and increase transparency regarding how BSIA determinations are made and documented in the context of stock status determinations and catch specifications. For Atlantic HMS management, which is not conducted through a regional fishery management council and Scientific and Statistical Committee (SSC) process, “catch specifications”<sup>3</sup> may include rules that establish quotas, implement annual quota adjustments for overharvest or underharvest, and implement annual catch limits (ACLs) and accountability measures (AMs).

National Standard (NS) 2 of the Magnuson-Stevens Fishery Conservation and Management Act (MSA) mandates that fishery “conservation and management measures shall be based upon the [BSIA].” 16 U.S.C. § 1851(a)(2). The NS2 guidelines, 50 C.F.R. § 600.315, provide criteria for and other guidance on BSIA. Fisheries conservation and management requires high-quality and timely biological, ecological, environmental, economic, and sociological scientific information. Scientific information includes, but is not limited to, factual input, data, models, analyses, technical information, or scientific assessments. It may also include data compiled directly from surveys or sampling programs, and models that are mathematical representations of reality constructed with primary data. Science is a dynamic process, and new scientific findings constantly advance the state of

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<sup>1</sup>Abbreviations are listed in an appendix at the end of this document. Text that is hyperlinked to websites or documents posted on the web are underlined.

<sup>2</sup> Known informally as NOAA Fisheries, the official name of the agency in legislation and regulations is the National Marine Fisheries Service (NMFS).

<sup>3</sup> NOAA Fisheries does not, for all Atlantic HMS fisheries, use the phrase “catch specifications” to refer to management actions related to implementation of the quota. Actions that might constitute “catch specifications” for Atlantic HMS BSIA purposes are described above.

knowledge. BSIA is therefore also dynamic, and ideally entails developing and following a research plan based on the scientific process.

The requirement to use BSIA applies to all fishery conservation and management measures. The NS2 guidelines also describe criteria for evaluating BSIA for the effective conservation and management of fisheries managed under federal fishery management plans. In evaluating BSIA, NOAA Fisheries considers relevance, objectivity, inclusiveness, transparency, timeliness, verification and validation, and peer review of fishery management information as appropriate.

Peer review is an important process used to ensure that the quality and credibility of scientific information and scientific methods meet the standards of the scientific and technical community. Peer review ensures objectivity, reliability, and integrity of scientific information. The scientific information that supports conservation and management measures considered by the Secretary of Commerce or a council should be peer-reviewed, as appropriate. The NS2 guidelines provide guidance and standards to establish a peer-review process. If such a process is established, it will be deemed to satisfy the requirements of the Information Quality Act, including Final Information Quality Bulletin for Peer Review issued by the Office of Management and Budget. *See* MSA § 302(g)(1)(E). Several regional peer-review processes developed by NOAA Fisheries and the councils are described in the 2016 Federal Register Notice entitled “Regional Peer Review Processes.”<sup>4</sup>

The MSA and NS2 guidelines provide legislative and policy context for the scientific basis of fish stock status determinations, catch recommendations, and specifications, but do not describe the specific steps involved. On May 7, 2019, NOAA Fisheries finalized NMFS Procedure 01-101-10, the “NOAA Fisheries Framework for Determining that Stock Status Determinations and Catch Specifications are Based on the Best Scientific Information Available (NOAA Fisheries BSIA Framework).”<sup>5</sup> This procedural directive provides a framework for following the steps in the BSIA process for stock status determinations and catch specifications, and complements NS2, NS2 guidelines, and MSA § 302(g)(1)(B), (E).<sup>6</sup> The procedural directive requires each region to develop a regional BSIA framework that describes how the NOAA Fisheries BSIA Framework is applied. Regional BSIA frameworks should provide sufficient detail to clarify roles and responsibilities of the agency and collaborative bodies (e.g., the International Commission for the Conservation of Atlantic Tunas’ Standing Committee on Research and Statistics, or ICCAT SCRS), and ensure that management decisions are based on BSIA. The regional frameworks should also document how the

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<sup>4</sup> [Notice of regional peer-review processes](#) (81 FR 54561; August 16, 2016)

<sup>5</sup> <https://media.fisheries.noaa.gov/dam-migration/01-101-10.pdf>

<sup>6</sup> “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.” 16 U.S.C. § 1852(g)(1)(B). Peer review is addressed in § 1852(g)(1)(E).

major steps within their assessment and management processes align with NOAA Fisheries BSIA Framework Items, including stock assessments, peer review, assessment revisions, SSC and NOAA Fisheries steps, catch specifications, and NOAA Fisheries approval.

This document provides the BSIA framework for Atlantic HMS stock assessments and stock status determinations.<sup>7</sup> It includes a description of Atlantic HMS management and introduces three different types of stock assessment processes that are used to inform management decisions. The Atlantic HMS BSIA framework describes, for each stock assessment process and resulting stock status determination, the major steps identified in the NOAA Fisheries BSIA Framework policy. In accordance with NMFS Procedure 01-101-10, this Atlantic HMS BSIA framework is intended to document the processes as they exist, not to create new processes.<sup>8</sup>

NOAA Fisheries (i.e., the Atlantic HMS Management Division) will periodically review this Atlantic HMS BSIA Framework, at least bi-annually, and notify the public if updates are warranted. We will notify the public if updates are not warranted as a result of the bi-annual review through the HMS SAFE report.

## Atlantic HMS Management

Atlantic HMS fisheries regulations for tunas, sharks, swordfish, and billfish are implemented under the authority of the MSA, 16 U.S.C. §§ 1801 *et seq.*, and/or the Atlantic Tunas Convention Act (ATCA), 16 U.S.C. § 971 *et seq.* Under the MSA, NOAA Fisheries must manage fisheries to achieve optimum yield on a continuing basis while preventing overfishing (NS1) and comply with nine other National Standards, *id.* § 1851(a). ATCA authorizes the Secretary to promulgate regulations, as may be necessary and appropriate to carry out recommendations of ICCAT. Atlantic HMS are managed under the 2006 Consolidated Atlantic HMS Fishery Management Plan (2006 Consolidated HMS FMP) and its amendments. The authority to issue regulations under the MSA and ATCA has been delegated from the Secretary to the Assistant Administrator for Fisheries.   
information to determine changes in the abundance of fishery stocks in response to Stock assessments are the process of collecting, analyzing, and reporting demographic

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<sup>7</sup> Given the highly migratory nature of these species, they are not managed by a fishery management council but directly by NOAA Fisheries. See 16 U.S.C. § 1852(a)(3) (The Secretary shall have authority over any highly migratory species fishery that is within the geographical area of authority of more than one of the following Councils: New England Council, Mid-Atlantic Council, South Atlantic Council, Gulf Council, and Caribbean Council.) Thus, the framework is not a “regional” framework but the equivalent for Atlantic HMS.

<sup>8</sup> Some stocks may require altered or abbreviated BSIA procedures because of short timelines, changes to SEDAR or ICCAT stock assessment procedures, or other circumstances. In these cases, NOAA Fisheries will take action consistent with NS2 and its guidelines; follow, to the extent practicable, the six-step process outlined in this framework and in NMFS Procedure 01-101-10 for determining BSIA; and may later update the BSIA procedures (if necessary).

fishing and, to the extent possible, predict future trends of stock abundance. Stock assessments for Atlantic HMS are completed through one of three processes. Most Atlantic HMS stocks that are managed internationally and domestically under the authority of the MSA and ATCA (tunas, billfish, and swordfish) are assessed by the SCRS. Given their migratory nature and the substantial overlap with ICCAT fisheries, some pelagic sharks that are caught in association with ICCAT fisheries are also assessed by the SCRS. Most shark stocks, particularly those that are found in more coastal waters, are assessed via the SouthEast Data Assessment and Review (SEDAR) process. Atlantic HMS may also be assessed through an independent stock assessment completed by a third party and approved for use in management by NOAA Fisheries (“external assessments”). All Atlantic HMS stock assessments used for management go through a process that includes a rigorous scientific review. Domestically, it is ultimately the responsibility of NOAA Fisheries to make stock status determinations for Atlantic HMS, implement quotas adopted by ICCAT, approve annual catch limits and accountability measures, and ensure that these decisions are based on the BSIA. NOAA Fisheries relies on input and advice from stock assessment scientists or workgroups tasked with conducting an assessment, and from the peer-review processes.

NOAA Fisheries is also required under the NS2 guidelines to summarize, on a periodic basis, the BSIA concerning the condition of the stocks, catch data, essential fish habitat (EFH), marine ecosystems, and fisheries being managed under federal regulation. These summaries are published in the Atlantic HMS Stock Assessment and Fisheries Evaluation (SAFE) reports. SAFE reports are issued for each calendar year, generally in the late fall or winter months, and include information updated for the previous year, to inform management decisions.<sup>9</sup>

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<sup>9</sup> The timing of the release of the SAFE Report has been modified as a result of Amendment 12 to the 2006 Consolidated HMS FMP (86 FR 46836; August 20, 2021). See <https://www.fisheries.noaa.gov/action/amendment-12-2006-consolidated-hms-fishery-management-plan-msa-guidelines-and-national>

# HMS BSIA Framework for Tunas, Swordfish, Billfish, and Sharks Assessed by ICCAT

## Background – ICCAT Stock Assessments

ICCAT is responsible for the conservation of tunas and tuna-like species in the Atlantic Ocean and adjacent seas through the cooperation of contracting parties, cooperating non-contracting parties, entities, and fishing entities (collectively referred to as CPCs). ICCAT recognizes the importance of best available science as the foundation for carrying out the objectives of the ICCAT Convention.<sup>10,11,12,13</sup>

The SCRS is charged with providing scientific advice to the Commission (i.e., ICCAT), and carries out stock assessments for ICCAT-managed species (Atlantic bluefin, albacore, bigeye, yellowfin, and skipjack tunas, swordfish, and billfish) and for some pelagic sharks.<sup>14</sup> The SCRS also “develops all policy and procedures for the collection, compilation, analysis and dissemination of fishery statistics of tuna and tuna-like species in the Atlantic Ocean and adjacent seas; ensuring that the Commission has the most complete and current statistics available concerning fishing activities in the Convention area as well as biological information on the stocks that are fished.”<sup>15</sup> The SCRS is responsible for other activities that contribute toward the compilation of scientific information, such as coordinating national and cooperative research, capacity building, and advising the Commission on scientific issues and conservation and management measures as needed.<sup>16</sup>

NOAA Fisheries participates and plays a substantive role in ICCAT stock assessments and implements conservation and management measures adopted by ICCAT, relying on ICCAT stock assessments. Staff from the Southeast Fisheries Science Center (SEFSC), the Office of International Affairs and Seafood Inspection, and the Atlantic HMS Management Division are primarily responsible for NOAA Fisheries’

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<sup>10</sup> ICCAT Res. 11-17, [Resolution by ICCAT on Best Available Science](#)

<sup>11</sup> ICCAT Rec. 13-12, [Recommendation by ICCAT on the Rules and Procedure for the SCRS, SCRS Strategic Plan for 2015-2020](#)

<sup>12</sup> ICCAT Rec. 14-13, [Recommendation by ICCAT Amending the Recommendation by ICCAT for Enhancing the Dialogue between Fisheries Scientists and Managers](#)

<sup>13</sup> ICCAT Res. 15-12, [Resolution by ICCAT Concerning the Use of a Precautionary Approach in Implementing ICCAT Conservation and Management Measures](#)

<sup>14</sup> [ICCAT Stock Assessment Website](#)

<sup>15</sup> 2015-2020 [SCRS Science Strategic Plan](#)

<sup>16</sup> [Report of the SCRS Meeting on Process and Protocol](#)

participation in these processes, with participation from other divisions of NOAA (i.e., NEFSC, Office of Law Enforcement, NOAA General Counsel) and other agencies (i.e., United States Coast Guard, Department of State). The SEFSC Sustainable Fisheries Division (SFD)/HMS Branch has primary responsibility for the efforts of the U.S. Scientific Delegation to the SCRS. The SEFSC SFD/HMS Branch Chief serves as the head of the U.S. Scientific Delegation and is responsible also for providing scientific advice as part of the U.S. delegation at ICCAT Commission meetings. NOAA Fisheries SEFSC staff participate in, and frequently lead, ICCAT stock assessments as working group chairs and/or assessment model leads. SEFSC staff also help to ensure that the SCRS process follows the guidance in ICCAT Resolution 11-17 (“Resolution by ICCAT on Best Available Science”),<sup>8</sup> as well as best practices for using BSIA. U.S. Commissioners to ICCAT, who have knowledge and expertise in commercial and recreational fishing, and the U.S. ICCAT Advisory Committee, which includes representatives of commercial, recreational, environmental, and academic interests and a Council representative, are closely involved in the ICCAT process. *See* 16 U.S.C. §§ 971a-971b. Members of the U.S. ICCAT Advisory Committee provide advice and input to Commissioners and government staff on ICCAT-proposed management recommendations resulting from stock assessments, and other topics.

ICCAT stock assessments are a collaborative process involving national scientists from multiple countries participating in the SCRS. The assessment process typically includes the following types of meetings:

- Data preparatory meetings are held to review all relevant available data (e.g., catch, effort, catch per unit effort (CPUE), size, tagging) and life history information. Based on this review, participants develop the inputs and sets of assumptions for the assessment models. Once participating countries finalize their data submissions, a cooperative team of analysts may complete some preliminary work for the upcoming stock assessments.
- Stock assessment meetings are held to summarize scientific information and data that inform the assessment, review preliminary results from stock assessments, and generate stock assessment products (e.g., current stock status, projections under different scenarios, products displaying projection results). Attendees at the stock assessment meeting may make additional recommendations or adjustments to the stock assessment.
- Species group meetings are held to review stock assessments in development, approve and finalize stock assessments, develop management advice from the results of stock assessments, respond to specific questions or requests for analyses made by the Commission, review progress on research reports, create work plans for the following year(s), and address any other requests from the Commission.
- SCRS adopts stock assessment results and finalizes its management advice/recommendations for the Commission at an SCRS Plenary meeting, which is held before the ICCAT Annual Meeting. Content for the annual SCRS Plenary meeting report is generally finished or agreed upon at this meeting. The annual SCRS Plenary Report is finalized afterwards.

- Taking into account scientific advice, the Commission makes management decisions at the ICCAT Annual Meeting through binding measures (referred to as “recommendations”) and non-binding resolutions.

Peer review plays a role in the ICCAT stock assessment process.<sup>17</sup> Final assessment model inputs, configurations, and results are internally peer-reviewed by the stock assessment working group and the appropriate species working group. The entire SCRS completes a peer review as part of the Plenary Meeting and annual SCRS Report development process. In addition, external peer reviewers are often invited to observe the data and assessment meetings, and provide a written review of the process and final assessment results. Reports of the data workshops (if held in advance of the assessments), assessment meetings, and any external peer reviews are published in ICCAT’s Collective Volume of Scientific Papers.<sup>18</sup>

The United States, which is one of 52 Contracting Parties to ICCAT, actively promotes use of the best scientific information available and adoption of measures comparable to those required pursuant to MSA provisions, including requirements related to rebuilding and ending overfishing.<sup>19</sup> While the NS2 guidelines are not applicable to international bodies, the Commission affirms that “management decisions should be based on the best available science independently developed by the SCRS.”<sup>20</sup> To that end, Contracting Parties have resolved to “[e]nsur[e] that independent and objective scientific input, based on the best available and peer-reviewed scientific deliverables, is presented by the SCRS to the Commission.”<sup>21</sup> Given the rigorous nature of the ICCAT stock assessment process, which reflects principles in the NS2 guidelines, NOAA Fisheries generally will consider ICCAT stock assessment results to be the BSIA regarding stock status. The Atlantic HMS Management Division works with the Office of Sustainable Fisheries to finalize stock status determinations and publishes both international stock status and domestic stock status for ICCAT-assessed stocks in the annual HMS SAFE Report, based on the different international versus domestic stock status determination criteria (SDC).<sup>22</sup>

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<sup>17</sup> Southeast Fisheries Science Center, 2021: [Stock assessment model outputs for ICCAT \(International\) managed species](#)

<sup>18</sup> ICCAT [Collective Volume of Scientific Papers](#)

<sup>19</sup> See 16 U.S.C. §§ 1812 (providing for cooperation through international organizations in the conservation of HMS and communication and promotion of MSA provisions in international fora), and 1854(g)(1)(F) (requiring the Secretary to diligently pursue, through ICCAT and other international entities, comparable international fishery management measures with respect to fishing for Atlantic HMS).

<sup>20</sup> ICCAT Rec. 14-13, [Recommendation by ICCAT Amending the Recommendation by ICCAT for Enhancing the Dialogue between Fisheries Scientists and Managers at 9<sup>th</sup> introductory paragraph.](#)

<sup>21</sup> ICCAT Res. 11-17, [Resolution by ICCAT on Best Available Science at 2\(iii\).](#)

<sup>22</sup> The National Standard 1 guidelines allow the use of SDC defined by the relevant international body (50 C.F.R. § 600.310(e)(2)(ii)). Under Amendment 12 to the 2006 Consolidated HMS FMP (“[Amendment 12](#)”), NOAA Fisheries uses the ICCAT SDC for all

The Atlantic HMS Management Division promulgates regulations domestically to implement ICCAT recommendations as necessary and appropriate (mainly in 50 CFR part 635, some in part 300), under authority of ATCA and/or the MSA and consistent with the 2006 Consolidated HMS FMP and its amendments. If necessary, the Atlantic HMS Management Division will amend the 2006 Consolidated HMS FMP and its implementing regulations accordingly to address ICCAT recommendations.

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ICCAT-managed Atlantic HMS (including certain pelagic shark species caught in association with ICCAT fisheries) rather than using the domestic SDC.



## Atlantic HMS BSIA Framework – ICCAT Assessments

Table 1. HMS BSIA Framework for ICCAT stock assessments.

HMS BSIA Framework Policy Components	HMS BSIA Framework Description	Documentation and Recent Examples
Framework Step 1: Stock Assessment		
A. Prioritization process and scheduling	Prioritization and scheduling of stock assessments is done by the SCRS, the Commission, and the ICCAT Secretariat, with the participation of SEFSC scientists and Atlantic HMS Management Division staff.	<ul style="list-style-type: none"> <li>● ICCAT Stock Assessment <a href="#">Schedules</a></li> <li>● ICCAT Stock Assessment <a href="#">meeting dates and information</a></li> <li>● <a href="#">SCRS Processes and Protocols</a>, Appx 6 - Five year plan for the scheduled stock assessment/evaluation</li> </ul>
B. Terms of reference (TOR)	Objectives and agendas are drafted by the SCRS and ICCAT Secretariat for stock assessment-related meetings and made available in meeting announcements (Note: these are not specifically referred to as “TORs” but are comparable in function)	<ul style="list-style-type: none"> <li>● <a href="#">SCRS Science Strategic Plan</a></li> <li>● Stock assessment reports can be found on the <a href="#">ICCAT stock assessment page</a> and <a href="#">ICCAT meeting page</a></li> </ul>

<b>HMS BSIA Framework Policy Components</b>	<b>HMS BSIA Framework Description</b>	<b>Documentation and Recent Examples</b>
C. Data Preparatory meetings	<p>Meetings include a review of historical and new data that will be used in stock assessments, stock assessment inputs, methods and model frameworks, fishery statistics and indicators, selection of indices used for base-case and sensitivity runs. New recommendations on SCRS activities may be generated. Participants in Data Preparatory meetings (which include SEFSC and NEFSC staff) may also generate a work plan, which itemizes tasks and deadlines for completion of the stock assessment. Proceedings and all scientific information are documented in a final report.</p>	<ul style="list-style-type: none"> <li>● <a href="#">Report</a> for the 2017 bluefin tuna stock assessment data preparatory meeting</li> <li>● <a href="#">Report</a> for the 2019 yellowfin tuna data preparatory meeting</li> <li>● <a href="#">Report</a> for the 2019 white marlin data preparatory meeting</li> </ul>

<b>HMS BSIA Framework Policy Components</b>	<b>HMS BSIA Framework Description</b>	<b>Documentation and Recent Examples</b>
<p>D. Conduct and complete assessment</p>	<p>The SCRS conducts and completes the assessment in accordance with the published agenda and objectives, ICCAT Strategic Plan, ICCAT Management Strategy Evaluation (MSE) procedures (as applicable), and the schedule established at the Data Preparatory meeting. All stock assessment documentation is published in the ICCAT Collective Volume of Scientific Papers. SEFSC staff scientists participate in the assessment meetings, and attend the data preparatory, assessment, and other SCRS meetings as observers. Species group meetings are held as needed to review progress on the assessment.</p>	<p><u>Stock Assessment Documentation can be found in the ICCAT Collective Volume of Scientific Papers</u></p> <ul style="list-style-type: none"> <li>• For example, <u>SCRS/2020/072</u> - Western Atlantic bluefin tuna stock assessment 1950-2018 using Stock Synthesis: Part I. Model Specification and data. See also: <u>SCRS/2020/121</u> and <u>SCRS/2020/122</u></li> </ul> <p>Stock assessment reports can be found on the <u>ICCAT stock assessment page</u> and <u>ICCAT meeting page</u>.</p>
<p>Framework Step 2: Peer Review of Draft Assessment According to an NS2-Compliant Process</p>		

<b>HMS BSIA Framework Policy Components</b>	<b>HMS BSIA Framework Description</b>	<b>Documentation and Recent Examples</b>
<p>E. Peer-review process</p>	<p>The SCRS reviews scientific papers, scientific information, and data informing the stock assessment, methods selected for stock assessments, and preliminary assessment results from different methods and model runs. Final assessment model inputs, configurations, and results are internally peer-reviewed, first by the stock assessment working group, and then by the appropriate species working group, and ultimately by the entire SCRS as part of the Plenary Meeting and annual SCRS Report (<i>see</i> section I below) development process.</p> <p>ICCAT publishes papers that are relevant for stock assessments. All papers are internally peer-reviewed during the meetings in which they are presented, and authors may make changes to address any issues prior to publication in the Collective Volume of Scientific Papers, although this is not always done. Authors may also choose to withdraw papers prior to publication. Publications may also include peer reviews of analyses or management programs.</p>	<p>Examples of stock assessments available in the <u>ICCAT Collective Volume of Scientific Papers</u>:</p> <ul style="list-style-type: none"> <li>● <u>Report</u> of the 2020 bluefin tuna stock assessment meeting</li> <li>● <u>Report</u> of the 2020 porbeagle shark stock assessment meeting</li> <li>● <u>Report</u> of the 2020 albacore stock assessment meeting</li> </ul> <p>Examples of external peer reviews of stock assessments, available in the <u>ICCAT Collective Volume of Scientific Papers</u>:</p> <ul style="list-style-type: none"> <li>● <u>SCRS/2017/221</u> - External Review of ICCAT Atlantic Swordfish Stock Assessment</li> <li>● <u>SCRS/2019/202</u> - (Draft) External review of the Atlantic yellowfin tuna assessment in 2019</li> <li>● <u>SCRS/2018/142</u> - Peer review of the code and algorithms used within the management strategy evaluation framework for the north Atlantic albacore stock.</li> </ul>

<b>HMS BSIA Framework Policy Components</b>	<b>HMS BSIA Framework Description</b>	<b>Documentation and Recent Examples</b>
Framework Step 3: Assessment Revision		
F. General assessment revision procedures - <i>Adjustment of stock assessment</i>	If necessary, the stock assessment models and results may be adjusted per recommendations documented at the stock assessment meetings. In addition, the Commission may request that the SCRS provide additional information based on the stock assessment models.	<p>Examples:</p> <ul style="list-style-type: none"> <li>● <a href="#"><u>Update to Bluefin Tuna Stock Assessment Models Adopted during the 2017 Bluefin Species Group Meeting</u></a></li> <li>● <a href="#"><u>Expanded projections based on the 2017 shortfin mako shark stock assessment</u></a></li> </ul>

<b>HMS BSIA Framework Policy Components</b>	<b>HMS BSIA Framework Description</b>	<b>Documentation and Recent Examples</b>
G. General assessment revision procedures - <i>Final review and adoption of stock assessment</i>	Adjustments made to stock assessments are reviewed and approved during Species Group meetings. These meetings may also finalize management recommendations for the Commission's consideration at the annual meeting. SCRS adopts stock assessment results and finalizes its management advice/recommendations for the Commission at the Plenary meeting of the SCRS, which is held before the Commission's annual meeting.	<p>Proceedings from Species Group meetings are published as part of the <u>ICCAT Collective Volume of Scientific Papers</u>. Examples:</p> <ul style="list-style-type: none"> <li>● <u>SCRS/2020/001, SCRS/2020/011</u> - Reports of 2020 intersessional meetings of the ICCAT bluefin tuna MSE Technical Group</li> <li>● <u>SCRS/2020/002, SCRS/2020/004</u> - Reports of the 2020 ICCAT intersessional meetings of the Bluefin Tuna Species Group</li> </ul> <p>Annual SCRS reports are published following the Plenary meeting. Examples:</p> <ul style="list-style-type: none"> <li>● <u>2020 SCRS Report</u></li> <li>● <u>2019 SCRS Report</u></li> </ul>
H. ICCAT Annual Meeting	Stock assessment results and the relevant SCRS scientific advice are reviewed by the Commission at the ICCAT Annual Meeting. Management recommendations based on the results of the assessments are negotiated and adopted.	<ul style="list-style-type: none"> <li>● <u>Active ICCAT recommendations</u></li> <li>● <u>ICCAT Annual Meeting reports</u></li> </ul>

HMS BSIA Framework Policy Components	HMS BSIA Framework Description	Documentation and Recent Examples
<p>NOAA Fisheries BSIA Framework Step 4: SSC and NOAA Fisheries Steps – there is no SSC for Atlantic HMS Management, therefore, this section describes procedural steps for NOAA Fisheries only.</p>		
<p>I. Receipt of final assessment</p>	<p>Stock assessment results are finalized at the SCRS Plenary meeting. NOAA Fisheries communicates those results at the Fall ICCAT Advisory Committee meeting, which occurs between the SCRS Plenary Meeting and the ICCAT annual meeting. NOAA Fisheries formally receives the final results of a stock assessment when the SCRS Plenary Report is accepted by ICCAT during the ICCAT Annual Meeting Plenary session.</p>	<p>Finalized stock assessments are posted on the ICCAT “<a href="#">Stock Assessments and Executive Summaries</a>” page or the <a href="#">ICCAT meeting page</a> as soon as they are publicly available.</p>
<p>J. NOAA Fisheries review and acceptance for management</p>	<p>Because the assessment has already been reviewed and accepted as part of the process by the SCRS under Framework Steps 1-3 for ICCAT assessments, in the vast majority of cases, there is no separate process for review and acceptance of stock assessments prior to the initiation of NOAA Fisheries’ stock status determination process (<i>Step L in this table</i>).</p>	<ul style="list-style-type: none"> <li>● <a href="#">Active ICCAT recommendations</a></li> </ul>

<b>HMS BSIA Framework Policy Components</b>	<b>HMS BSIA Framework Description</b>	<b>Documentation and Recent Examples</b>
K. Input of stock assessment results into Species Information System (SIS)	NOAA Fisheries staff from the SEFSC input the final results of the assessment into SIS. The SIS collects and manages regional and national data, including the most up-to-date information on the status of managed stocks and stock assessment results.	<ul style="list-style-type: none"> <li>● <a href="#">Species Information System (SIS)</a></li> </ul>
L. Stock status determination	Stock Status Determinations - The Atlantic HMS Management Division documents its rationale for stock status determinations through decision memos, following processes in NMFS Procedure 01-101-09 and 01-101-11 (if appropriate). The Director, Office of Sustainable Fisheries, signs the memos, and the Assistant Administrator for Fisheries makes the stock status determinations based on the recommendations therein. Once the stock status determination for the stock is finalized, Atlantic HMS Management Division staff then enter the official Stock Status Determination in SIS.	<ul style="list-style-type: none"> <li>● NMFS 01-101-09 <a href="#">Procedures to Determine Stock Status and Rebuilding Progress</a></li> <li>● NMFS 01-101-11 <a href="#">Procedural Guidance for Changing Assessed Stock Status from Known to Unknown</a></li> <li>● <a href="#">Species Information System (SIS)</a></li> </ul>



<b>HMS BSIA Framework Policy Components</b>	<b>HMS BSIA Framework Description</b>	<b>Documentation and Recent Examples</b>
<p>M. Notice to the public concerning stock status determinations</p>	<p>The Office of Sustainable Fisheries publishes a quarterly notice of stock status determination changes in the Federal Register. If more immediate action is necessary, the Atlantic HMS Management Division will publish a separate notice of the stock status determination in the Federal Register. Stock status and the thresholds used by NOAA Fisheries to determine stock status of Atlantic HMS are summarized annually in the Atlantic HMS SAFE Report.</p>	<ul style="list-style-type: none"> <li>● <a href="#"><u>Quarterly stock status updates</u></a></li> <li>● Shortfin mako emergency interim rule (<a href="#"><u>83 FR 8946; March 2, 2018</u></a>) and stock status determination (<a href="#"><u>83 FR 9298; March 5, 2018</u></a>)</li> <li>● <a href="#"><u>Atlantic HMS SAFE Report</u></a></li> </ul>
<p>NOAA Fisheries BSIA Framework Step 5: Catch Specifications (see footnote 3)</p>		

<b>HMS BSIA Framework Policy Components</b>	<b>HMS BSIA Framework Description</b>	<b>Documentation and Recent Examples</b>
N. FMP catch specifications	<p>The 2006 Consolidated HMS FMP and its amendments and implementing regulations have established annual commercial and recreational quotas for species and management groups, retention limits, fishing seasons, provisions for inseason adjustments, and accounting measures for underharvests and overharvests, among other measures, for Atlantic tunas, sharks, swordfish, and billfish.</p>	<p>The current frameworks for establishing quotas, ACLs, and accountability measures were implemented in:</p> <ul style="list-style-type: none"> <li>● Sharks - <u>Amendment 3 to the 2006 Consolidated HMS FMP</u></li> <li>● Tunas - <u>Amendment 7 to the 2006 Consolidated HMS FMP</u></li> <li>● Swordfish - <u>2006 Consolidated HMS FMP</u></li> <li>● Billfish - <u>2006 Consolidated HMS FMP</u>, interpretive rule and final action to add roundscale spearfish (<u>75 FR 183; January 4, 2010</u>)</li> </ul>

<p>O. Rulemaking to adjust FMP catch specifications, processes, and related management measures</p>	<p>When ICCAT recommendations require management measures that are different than those under the current FMP and regulations, an FMP amendment and rulemaking may be needed. The Atlantic HMS Management Division is responsible for drafting such documents and related analyses and works with the Operations and Regulatory Services Division of the Office of Sustainable Fisheries to coordinate internal review with NOAA leadership. The Division may also consult with SEFSC, NEFSC, or other offices as needed. When developing an FMP amendment, the Division consults with and considers comments and views of the HMS Advisory Panel, affected fishery management councils, and others as required under the MSA and solicits public comment.</p> <p>Where an FMP amendment is not needed, the Atlantic HMS Management Division may implement ICCAT recommendations through existing regulatory frameworks, e.g., rulemaking to implement annual fishery quotas and inseason actions, such as quota transfers, opening and closing dates, and adjustments to retention limits and minimum fish size.</p>	<p>Examples of FMP amendments to domestic management processes:</p> <ul style="list-style-type: none"> <li>● <u>Amendment 12</u>, among other things, revised objectives in the 2006 Consolidated HMS FMP and adopted ICCAT stock determination criteria for ICCAT-managed species.</li> <li>● Draft <u>Amendment 14</u> is addressing the framework acceptable biological catch and annual catch limits for Atlantic shark fisheries.</li> </ul> <p>Examples of rulemakings implementing ICCAT stock assessment results:</p> <ul style="list-style-type: none"> <li>● <u>Amendment 11 to the 2006 Consolidated HMS FMP</u> and its final rule established management measures for shortfin mako sharks following the <u>2017 stock assessment</u> and subsequent <u>recommendation</u> adopted by ICCAT.</li> <li>● The <u>2018 bluefin tuna and albacore quota rule</u> implemented new quotas for those species following the <u>2017 stock assessments</u> and subsequent recommendations adopted by ICCAT on</li> </ul>
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HMS BSIA Framework Policy Components	HMS BSIA Framework Description	Documentation and Recent Examples
		<p><u>bluefin tuna</u> and <u>albacore</u>.</p> <p>Annual Quota Rules and Adjustments:</p> <ul style="list-style-type: none"> <li>• <u>Adjustment of 2020 North Atlantic Albacore, North and South Atlantic swordfish, and Atlantic bluefin tuna Reserve category quotas</u></li> </ul> <p>NOAA Fisheries regularly adjusts bluefin tuna and swordfish retention limits on an inseason basis to maximize fishing opportunity and manage quotas. Examples can be found <u>here</u>.</p>
<p>NOAA Fisheries BSIA Framework Step 6: NOAA Fisheries Approval</p>		

<b>HMS BSIA Framework Policy Components</b>	<b>HMS BSIA Framework Description</b>	<b>Documentation and Recent Examples</b>
<p>P. NOAA Fisheries approval</p>	<p>Through approval of catch specifications, NOAA Fisheries (<i>see</i> fn. 2, 7) certifies that they are based on the BSIA and consistent with the national standards, other MSA provisions, and other applicable law. Stock assessment recommendations and resulting rulemakings are developed and/or reviewed by the Atlantic HMS Management Division (with input from Science Center staff as appropriate), NOAA General Counsel, the Office of Sustainable Fisheries, as well as other relevant staff such as National Environmental Policy Act (NEPA) coordinators. The Assistant Administrator for Fisheries has delegated authority to implement the MSA, including through rulemaking.</p>	<p><i>See Rulemaking examples in Framework Item 5.O in this table.</i></p>

# HMS BSIA Framework for Shark Stocks Assessed Domestically via SEDAR

## Background – SEDAR Stock Assessments

SEDAR is the cooperative process by which stock assessments are conducted in the NOAA Fisheries Southeast Region. The SEDAR approach is founded on science-based decision-making, in which SEDAR panels must consider biological and technical aspects of datasets and stock assessments and base recommendations upon the scientific merit of the alternatives proposed. SEDAR brings together scientists, researchers, data collectors, managers, fishermen, and constituent representatives to participate in the development and review of stock assessments. General processes are described through documentation on the [SEDAR website](#) or are available from SEDAR staff, including the development of the Terms of Reference, approaches for different types of assessments, and corresponding peer-review processes.<sup>23,24</sup>

Oversight of the SEDAR program is provided by the SEDAR Steering Committee, which includes NOAA Fisheries staff from headquarters (Atlantic HMS Management Division), the SEFSC, and the Southeast Regional Office (SERO). The SEFSC Science Director chairs the SEDAR Steering Committee. Assessment documentation is available [online](#) to ensure transparency.

The SEDAR standard operating procedures are undergoing revision and are subject to change; therefore, this section may be updated to reflect finalized procedural documentation in future versions. When completed, finalized documentation for SEDAR processes will be available on the SEDAR website. The [2016 Federal Register Notice on regional peer-review processes](#) includes a description of SEDAR and states that the SEDAR process for conducting peer review of scientific information for fishery management is fully compliant with the NS2 guidelines (81 FR 54561; August 16, 2016).

In 2014, the SEDAR Steering Committee proposed a new approach to stock assessments in order to increase throughput and thoroughness. Under the new classification scheme, future SEDAR assessments will be classified as either research track (previously benchmark-type) or operational (previously standard- or update-

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<sup>23</sup> SEDAR 2015. [SEDAR Operating Policies and Procedures](#)

<sup>24</sup> SEDAR 2015. [SEDAR FAQs](#)

type) assessments.<sup>25,26</sup> Older assessments will remain as previously classified. The major differences between research track and operational assessments are summarized in Table 2.

Most SEDAR activities are conducted by appointed panels and in-person or virtual workshops or webinars. SEDAR meetings are announced in advance in the Federal Register, are open to the public to ensure transparency, and provide opportunity for public comment. Depending on the timing of receipt, written and oral comments submitted by the public are provided to panel members and/or are included with the SEDAR Administrative Record. SEDAR also provides a venue for addressing data and procedural issues that are relevant to multiple assessments through its Procedure Workshops series. SEDAR panel decisions and recommendations are achieved through consensus of the entire panel. Recommendations are based on the scientific merit of the alternatives proposed.

SEDAR stock assessment procedures for Atlantic HMS sharks are different than for council-managed species, as SEDAR does not have an SSC to provide scientific advice and feedback. Instead, staff from the SEFSC and Atlantic HMS Management Division provide advice and feedback for consideration during the SEDAR stock assessment process. Additionally, NOAA Fisheries solicits nominations for the Atlantic HMS SEDAR Advisory Panel (also known as the SEDAR Pool), with member tenure lasting 5 years, through a public process initiated via publication of a Federal Register notice.<sup>27</sup> Individuals with definable interests in the recreational and commercial fishing and related industries, environmental community, academia, and non-governmental organizations are considered for membership on the SEDAR Pool. Individual members of the SEDAR Pool may be selected to participate in the Data and/or Assessment phases of an assessment based on data they can provide, analytical expertise, or other knowledge relevant to a particular assessment. If selected, members of the SEDAR Pool are full participants in the Data and/or Assessment phases of SEDAR stock assessment, and may be requested to assist with writing reports or summaries and analyzing data.

A number of entities, or “Cooperators,” are involved in the SEDAR process. These include the regional fishery management councils (e.g., South Atlantic, Caribbean, and Gulf of Mexico); entities within NOAA (e.g., SEFSC, SERO, NEFSC, and the Atlantic HMS Management Division); and the Atlantic and Gulf States Marine Fisheries Commissions (ASMFC and GSMFC). SEDAR also relies on state agencies and universities throughout the region for research, data collection, and stock assessment expertise. The Atlantic HMS Management Division, in consultation with the Science Centers as needed, reviews SEDAR products and processes and determines whether the assessment findings are adequate for informing management

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<sup>25</sup> SAFMC 2016. SEDAR stock assessment categories.

<sup>26</sup> SEFSC, 2018. Southeast Data Assessment and Review, (SEDAR), presentation to the Gulf of Mexico Fishery Management Council.

<sup>27</sup> SEDAR Pool Announcement, NOAA Fisheries Website (see also 85 FR 48226; August 10, 2020).

action. Atlantic HMS staff may request further evaluation of assessment uncertainties and alternative projection scenarios as needed.

All domestic shark assessments conducted under SEDAR are peer-reviewed. Peer-review processes for different types of assessments, and the desk-review process, are described in SEDAR website documentation. Research track assessments include a thorough peer review via a Review Workshop held by the Center for Independent Experts (CIE). CIE reviewers determine if the data and methods used, and the assessment and projection findings, are scientifically valid and constitute BSIA as described in the review process Terms of Reference. They also provide input on uncertainties in data and methods that may be used for different decisions or actions (e.g., stock status relative to overfished/overfishing criteria, projections that can be used to identify OFL and ABC control rules, technical merit of revision of management measures). The peer review includes an in-person or virtual workshop where the lead stock assessment scientists present the stock assessment and then rerun analyses or conduct additional sensitivity analyses to answer questions by the peer reviewers. At the end of the process, the peer reviewers provide a detailed report with their conclusions and determinations. The peer-review process for operational assessments varies, but may encompass a CIE desk review (where the peer reviewers review the assessment on their own and provide comments) or an independent peer review by NOAA scientists who were not involved in the operational assessment. In all cases, for the peer-review process of an operational stock assessment, there is no interaction between reviewers and those who prepared the material under review.

Taking into account the above peer-reviewed reports, recommendations, etc., the Atlantic HMS Management Division develops conservation and management measures, as needed in light of the BSIA, through amendments to the 2006 Consolidated HMS FMP and/or regulations.<sup>28</sup> Ultimately, it is NOAA Fisheries' responsibility to ensure that fishery measures comply with the BSIA mandate of NS2, 16 U.S.C. § 1851(a)(2). The Atlantic HMS Management Division also works with the Office of Sustainable Fisheries Domestic Fisheries Division on making or updating stock status determinations based on the BSIA.

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<sup>28</sup> For example, Draft Amendment 14 proposes to revise the shark management framework (originally established in Amendment 3 to the 2006 Consolidated HMS FMP) to include modifying the ABC control rule, revising processes for the implementation of an ABC, and modifying the management options for carry-over, phase-in, and multi-year overfishing provisions. See [85 FR 60132](#) (September 24, 2020) (notice of availability). In 2021, the Atlantic HMS Management Division finalized Amendment 12. This amendment clarified and streamlined the 2006 Consolidated HMS FMP objectives, adopted ICCAT stock status determination criteria for ICCAT-managed Atlantic HMS, established triggers for review of allocations of quota managed Atlantic HMS, addressed certain standardized bycatch reporting methodology requirements, and modified the timing for release of the Atlantic HMS SAFE Report. See [86 FR 46836](#) (August 20, 2021) (notice of availability).



*Table 2. Summary of SEDAR Research Track and Operational Assessments.*

<b>Metric</b>	<b>Research Track Assessment</b>	<b>Operational Assessment</b>
<b>Analogous to / inclusive of these types of SEDAR Assessments</b>	Benchmark	Standard, Update
<b>Purpose</b>	Build a robust assessment tool (not used to provide management advice).	Provide analyses to support management advice with up-to-date data.
<b>Product</b>	A thoroughly documented, independently peer-reviewed assessment and report.	A brief report similar to previous update and standard assessment reports that provides management quantities and addresses the TORs.
<b>When</b>	First-time assessments, major changes, based on need.	Ideally in a 2- to 5-year cycle (may be longer).
<b>Timeframe (not including data preparation)</b>	12 to 18 months to complete.* <sup>+</sup>	Within 6 months (longer for first-time assessments).
<b>Process</b>	Varies, but may include a stock identification process, and 2-3 workshops (Data, Assessment, and Review) to compile data, assemble model framework, and identify population parameters into a report.	The previously peer-reviewed assessment model is applied to the most recent data. Requests to incorporate compelling new information must be included in specific TORs.
<b>Peer Review</b>	Independent panel utilizing CIE reviewers; usually an in-person workshop. Will advise whether the assessment can be used in management (depending on type of assessment <sup>+</sup> ).	Varies, but peer review of assessment results may include a CIE desk review or independent third-party review by NOAA scientists located in other regions.

*\*Only includes the time needed to conduct the assessment itself. This does not include the preparatory time required, which may span 8 months or more for a research track assessment. This timeline could be longer if the issues being considered are particularly complex, or if a stock ID process (additional 3-5 months) is needed.*

*+Once a research track assessment is completed, an operational assessment is needed to develop management advice.*

## Atlantic HMS BSIA Framework – SEDAR Stock Assessments

Table 3. HMS BSIA Framework for SEDAR stock assessments.

HMS BSIA Framework Policy Components	HMS BSIA Framework Description	Documentation and Recent Examples
NOAA Fisheries BSIA Framework Step 1: Stock Assessment		
A. Prioritization process and scheduling	The Atlantic HMS Management Division, in coordination with SEDAR and the SEFSC, prioritizes and schedules stock assessments in accordance with guidance on <u>Prioritizing Fish Stock Assessments</u> and other considerations. Detailed schedules are created and published online for each workshop.	<ul style="list-style-type: none"> <li>● Once finalized, assessment schedules are posted online by SEDAR staff at <a href="http://sedarweb.org/">http://sedarweb.org/</a></li> <li>● Notice of all SEDAR meetings are published in the Federal Register</li> <li>● Benchmark - SEDAR 65 Blacktip Shark Assessment <u>schedule</u></li> </ul>
B. Supporting panel appointment	NOAA Fisheries periodically solicits nominations to participate in the SEDAR Pool. Members of the SEDAR Pool selected for a particular assessment consider the scientific information, including data and models, used in stock assessments and advise NOAA Fisheries about the conservation and management of Atlantic sharks.	<u>Terms of Reference for the HMS SEDAR AP.</u> Recent nomination process completed for <u>2021-2022 SEDAR Pool</u> : <ul style="list-style-type: none"> <li>● <u>Announcement</u> by NOAA Fisheries</li> <li>● <u>Federal Register notice</u> (86 FR 61163; November 5, 2021)</li> </ul>

<b>HMS BSIA Framework Policy Components</b>	<b>HMS BSIA Framework Description</b>	<b>Documentation and Recent Examples</b>
C. Terms of reference (TOR)	The SEFSC works with Cooperators to develop TORs specifying the tasks and objectives for an assessment according to the SEDAR Operating Policies and Procedures. Following approval by a Steering Committee and appropriate Cooperators, SEDAR staff post TOR on project-specific webpages.	<ul style="list-style-type: none"> <li>● Benchmark - SEDAR 65 <u>Atlantic Blacktip Shark TOR</u> (2019-2020)</li> <li>● Standard - SEDAR 54 <u>Sandbar Shark TOR</u> (2016-2017)</li> </ul> <p>TORs for other ongoing and previous assessments can be found under the respective project page at <a href="http://sedarweb.org/sedar-projects">http://sedarweb.org/sedar-projects</a></p>
D. Stock Identification workshops	Assessments classified as research track may include a separate Stock Identification Workshop process, where the assessment unit stock is defined after consideration of life history, relative abundance, fishery data, tagging data, genetics, and other relevant information. Depending on the TORs, the Stock Identification workshop may be part of the Data Workshop process (see item E).	<ul style="list-style-type: none"> <li>● Research track - SEDAR 77 <u>Hammerheads</u> (2021-2023)</li> </ul>
E. SEDAR Data workshop	Numerous public webinars and, if possible, an in-person Data Workshop are held to document, analyze, and review datasets. Data for conducting assessment analyses are compiled into a data workshop report.	<p>Documented on <u>SEDAR project</u> websites:</p> <ul style="list-style-type: none"> <li>● <u>SEDAR 65 Blacktip Shark Data Workshop Report</u></li> </ul>

<b>HMS BSIA Framework Policy Components</b>	<b>HMS BSIA Framework Description</b>	<b>Documentation and Recent Examples</b>
F. Conduct and complete assessment - <i>SEDAR assessment workshop</i>	SEDAR stock assessments are carried out via public webinar in accordance with the general procedures for research track and operational stock assessments and specific stock assessment TORs identified on the SEDAR website. These documents also clearly describe roles and responsibilities for Cooperators, committees, and staff in completion of the stock assessment. Assessment documentation is available on project-specific websites.	<u>SEDAR Processes</u> Recent HMS assessments (project specific websites with final stock assessment reports): <ul style="list-style-type: none"> <li>● Benchmark - <u>SEDAR 65 Atlantic blacktip shark</u> (2019-2020)</li> <li>● Standard - <u>SEDAR 54 Sandbar Shark</u> (2016-2017)</li> <li>● Update - <u>Gulf of Mexico Blacktip Shark</u> (2018)</li> </ul>
NOAA Fisheries BSIA Framework Step 2: Peer Review of Draft Assessment According to an NS2-Compliant Process		
G. Peer-review processes – <i>Research track / Benchmark assessments</i>	Peer review is formally conducted through a Review Workshop for benchmark and research track assessments. Workshop panels consist of participants from the CIE, Cooperators, and other Cooperator appointees. Following the Review Workshop, a Review Panel report is compiled, reviewed, and approved by the Review Workshop participants ( <i>see Framework Item 3.1 in this table</i> ).	<u>Notice of Regional Peer-Review Processes</u> (81 FR 54561; August 16, 2016)  Specific peer-review procedures for benchmark, standard, and update assessments are thoroughly described in the <u>SEDAR Policies and Procedures</u> document. Review Workshop Documentation and Reports <ul style="list-style-type: none"> <li>● Benchmark - <u>SEDAR 65 Blacktip Shark Review Workshop Documentation</u></li> </ul>

<b>HMS BSIA Framework Policy Components</b>	<b>HMS BSIA Framework Description</b>	<b>Documentation and Recent Examples</b>
<p>H. Peer-review processes – <i>Operational / Standard / Update assessments</i></p>	<p>Operational assessment peer-review processes are similar to those previously established for standard and update assessments. Peer reviews of SEDAR standard assessments for Atlantic sharks are completed through desk reviews by the CIE. Peer review of SEDAR “update” assessments are completed through independent third-party review by NOAA scientists located in a different region.</p>	<p><u>Notice of Regional Peer-Review Processes</u> (81 FR 54561; August 16, 2016)</p> <p><u>Description of the CIE Peer-Review Process</u>, NOAA Fisheries Office of Science and Technology</p> <p><u>Center for Independent Experts Website</u> containing all CIE Reviews</p>
<p>NOAA Fisheries BSIA Framework Step 3: Assessment Revision</p>		
<p>I. General assessment revision procedures</p>	<p>Revisions are summarized in a post-review workshop addendum report, which is part of the final SEDAR stock assessment report.</p>	<ul style="list-style-type: none"> <li>● <u>SEDAR Policies and Procedures</u></li> </ul>
<p>NOAA Fisheries BSIA Framework Step 4: SSC and NOAA Fisheries Steps – there is no SSC for Atlantic HMS Management, therefore this section describes procedural steps for NOAA Fisheries only.</p>		

<b>HMS BSIA Framework Policy Components</b>	<b>HMS BSIA Framework Description</b>	<b>Documentation and Recent Examples</b>
J. Receipt of final assessment documentation	Following completion of the review panel report and compilation of the final SEDAR Stock Assessment Report, which includes reports of all SEDAR processes and necessary addenda, the final assessment report is distributed via memorandum from the SEDAR Coordinator to the Cooperators involved in the project.	<ul style="list-style-type: none"> <li>● <a href="#"><u>SEDAR Policies and Procedures</u></a></li> </ul>
K. NOAA Fisheries review and acceptance for management	The Atlantic HMS Management Division, in consultation with Science Center staff as needed, reviews the assessment reports, process, and peer review to determine whether the assessment findings are adequate for management. Upon completion of its review, NOAA Fisheries considers the SEDAR assessment findings, and the results of any additional supplementary analyses requested, in developing specific management recommendations based on the BSIA. The Atlantic HMS Management Division staff may request BSIA concurrence from the Science Centers as part of the process to finalize a decision. <i>Note: Framework Item 4.L in this table (next row) may occur as part of these correspondences or after they are concluded.</i>	<ul style="list-style-type: none"> <li>● <a href="#"><u>2016 FRN Describing peer-review processes for SEDAR as consistent with NS2 guidelines</u></a></li> <li>● <a href="#"><u>SEDAR Policies and Procedure</u></a></li> </ul>

<b>HMS BSIA Framework Policy Components</b>	<b>HMS BSIA Framework Description</b>	<b>Documentation and Recent Examples</b>
L. Input of stock assessment results into the Species Information System (SIS)	NOAA Fisheries staff from the SEFSC inputs the final results of the assessment into SIS.	<ul style="list-style-type: none"> <li>● <a href="#"><u>Species Information System</u></a></li> </ul>
M. Stock status determination	<p>Stock Status Determinations - The Atlantic HMS Management Division documents its rationale for stock status determinations through decision memos, following processes in NMFS Procedure 01-101-09 and 01-101-11 (if appropriate). The Director, Office of Sustainable Fisheries, signs the memos, and the Assistant Administrator for Fisheries makes the stock status determinations based on the recommendations therein. Once the stock status determination for the stock is finalized, Atlantic HMS Management Division staff then enter the official Stock Status Determination in SIS.</p>	<ul style="list-style-type: none"> <li>● NMFS 01-101-09 <a href="#"><u>Procedures to Determine Stock Status and Rebuilding Progress</u></a></li> <li>● NMFS 01-101-11 <a href="#"><u>Procedural Guidance for Changing Assessed Stock Status from Known to Unknown</u></a></li> <li>● <a href="#"><u>Species Information System (SIS)</u></a></li> </ul>

HMS BSIA Framework Policy Components	HMS BSIA Framework Description	Documentation and Recent Examples
<p>N. Notice to the public concerning stock status determinations</p>	<p>The Office of Sustainable Fisheries Domestic Fisheries Division publishes a quarterly notice of stock status determination changes in the Federal Register. If more immediate action is necessary, NOAA Fisheries will publish a separate notice of the stock status determination in the Federal Register. Stock status and the thresholds used by NOAA Fisheries to determine stock status of Atlantic HMS are summarized annually in the Atlantic HMS SAFE Report.</p> <p>Representatives of the analytic team that participated in one or more workshops or the SEDAR staff will make a presentation of the assessment to the HMS Advisory Panel either during or after the NOAA Fisheries review and recommendations phase (<i>see Framework Item 5.P in this table</i>).</p>	<ul style="list-style-type: none"> <li>● <a href="#">Quarterly stock status updates</a></li> <li>● Example of stock status determination identified via a stock assessment: <ul style="list-style-type: none"> <li>○ <a href="#">Sandbar Stock Status Determination (83 FR 38292; August 6, 2018)</a></li> </ul> </li> <li>● <a href="#">Atlantic HMS SAFE Report</a></li> </ul>
<p>NOAA Fisheries BSIA Framework Step 5: Catch Specifications (see footnote #3)</p>		



HMS BSIA Framework Policy Components	HMS BSIA Framework Description	Documentation and Recent Examples
<p>O. FMP catch specifications</p>	<p>The 2006 Consolidated HMS FMP and its amendments and implementing regulations established default commercial shark retention limits, research set-aside, commercial quotas for species and management groups, and accounting measures for underharvests and overharvests.</p>	<p>The current shark framework for establishing annual catch limits (ACLs) was implemented in <u>Amendment 3 to the 2006 Consolidated HMS FMP</u>. However, NOAA Fisheries may update this framework through <u>Amendment 14 to the Atlantic HMS FMP</u>.</p> <p>Examples of rulemakings implementing SEDAR assessment results:</p> <ul style="list-style-type: none"> <li>● <u>Amendment 5a to the 2006 Consolidated HMS FMP</u> established a TAC, quotas, and other measures following the <u>2012 SEDAR stock assessment for Gulf of Mexico blacktip shark</u>.</li> <li>● <u>Amendment 6 to the Atlantic HMS FMP</u> adjusted the non-blacknose Small Coastal Shark TAC and quota following the 2013 SEDAR stock assessments for <u>Atlantic sharpnose and bonnethead sharks</u>.</li> </ul>

<p>P. Rulemaking to adjust FMP catch specification processes</p>	<p>Based on the BSIA from a stock assessment, the Atlantic HMS Management Division may initiate an FMP amendment and rulemaking, if needed, to adjust catch specifications. The Atlantic HMS Management Division is responsible for drafting such regulatory documents and related analyses and works with the Operations and Regulatory Services Division of the Office of Sustainable Fisheries to coordinate internal review with NOAA leadership. The Division may also consult with SEFSC, NEFSC, or other offices as needed. When developing an FMP amendment, the Division consults with and considers comments and views of the HMS Advisory Panel, affected fishery management councils and others as required under the MSA and solicits public comment.</p> <p>When an FMP amendment is not needed, the Atlantic HMS Management Division may implement measures or changes to measures, if needed due to the BSIA, through existing regulatory frameworks, e.g., rulemaking to implement annual shark commercial fishery quotas and inseason actions, such as opening and closing dates and adjustments to retention limits.</p>	<p>FMP Process Amendments:</p> <ul style="list-style-type: none"> <li>● Draft <u>Amendment 14</u> to the 2006 Consolidated HMS FMP is addressing the framework for acceptable biological catch and annual catch limits for Atlantic shark fisheries.</li> </ul> <p>Rulemaking to Implement Research Track Assessment Results:</p> <ul style="list-style-type: none"> <li>● <u>Amendment 5a to the Atlantic HMS FMP &amp; FR Notice</u> (78 FR 40317; July 3, 2013)</li> <li>● <u>Amendment 5b to the 2006 Consolidated HMS FMP</u> (82 FR 16478; April 4, 2017)</li> <li>● <u>Amendment 9 to the 2006 Consolidated HMS FMP and FR Notice</u> (80 FR 73128; November 24, 2018)</li> </ul> <p>Results of the 2012 SEDAR 29 Gulf of Mexico blacktip shark assessment were considered in a <u>final quota rule implemented under framework procedures for the 2019 shark fishery</u>. In this rule, NOAA Fisheries increased retention limits for the Gulf of Mexico large coastal shark fishery and adjusted quotas to account for underharvest of the Gulf of Mexico blacktip shark</p>
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HMS BSIA Framework Policy Components	HMS BSIA Framework Description	Documentation and Recent Examples
		<p>management group.</p> <p>Annual Quota Rule example:</p> <ul style="list-style-type: none"> <li>• <a href="#"><u>2021 Atlantic Shark Commercial Fishing Year Quotas, Opening Dates, and Retention Limits</u></a></li> </ul>
NOAA Fisheries BSIA Framework Step 6: NOAA Fisheries Approval		
Q. NOAA Fisheries approval	<i>Process identical across all three Atlantic HMS assessment processes. See Table 1, Item 6.P.</i>	See rule examples under <i>Framework Item 5 of this table.</i>

# HMS BSIA Framework for Atlantic HMS Stocks Assessed Domestically via External Assessment

## Background – External Stock Assessments

The Stock Assessment Improvement Plan<sup>29</sup> recognizes that entities other than NOAA Fisheries conduct assessments of federally managed stocks.<sup>30</sup> These assessments, recognized herein as “external” assessments, may be well integrated into the management process or may occur outside normal procedures. Such assessments may address a stated need or research recommendation in a management document or from a public meeting. External assessments can be helpful when they provide advice for stocks that cannot be assessed by NOAA Fisheries in a timely fashion, thereby assisting with the assessment workload, or when they contribute additional analyses for consideration in an ongoing assessment. External assessments do not necessarily follow a prescribed schedule. Instead they are often conducted based on third-party resources and availability, or may be commissioned by a stakeholder either to fill a data gap that is not being addressed or to provide an alternative perspective in an ongoing assessment. These assessments are often led by academic scientists or scientists located in other countries. To ensure the data used are appropriate, these scientists often have the support of NOAA Fisheries scientists or have requested NOAA Fisheries data. The Atlantic HMS BSIA Framework broadly describes the protocol for the review, acceptance, and integration of external assessments into Atlantic HMS Management.

When NOAA Fisheries is notified of an external assessment that could potentially be used for management, the assessment is reviewed by Atlantic HMS Management Division and appropriate Science Center staff. The assessment would only be used for management purposes if both entities agree that the assessment:

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<sup>29</sup> Lynch, P.D., R.D. Methot, J.S. Link. 2018. [Implementing a next generation stock assessment enterprise](#). NOAA Technical Memorandum NMFS-F/SPO-183.

<sup>30</sup> NOAA Fisheries does not intend for this Atlantic HMS BSIA Framework to narrowly define what does, and does not, constitute an “external assessment.” While recent examples are manuscripts published in the peer-reviewed literature, an external assessment may also take other forms of publication and are situation-specific (e.g., assessment completed by other countries, a tech memo, a white paper, or a thesis or dissertation).

- Has undergone an appropriate peer-review process, such as the peer review that occurs when a manuscript is submitted for publication in a professional journal;
- Uses the appropriate stock assessment modeling techniques; and
- The underlying data and assumptions can be confirmed.

Once the Atlantic HMS Management Division and the Science Center agree the assessment can be used for management purposes, then Science Center staff will assist with the identification of biological reference points and other metrics needed for management. A stock status determination is then made. The finalized stock status determinations include documentation of NOAA Fisheries leadership approval of the stock status determination. If needed based on that determination, the Atlantic HMS Management Division may initiate an FMP amendment and/or rulemaking to develop or adjust catch specifications (e.g., quotas or ACLs and AMs) and other management measures. Finalization of the stock status determination and of subsequent rulemaking where undertaken reflects NOAA Fisheries approval of these respective steps in the BSIA framework.

Using external stock assessments for Atlantic HMS management purposes has occurred several times. For example, NOAA Fisheries identified a 2005 porbeagle stock assessment that was released by the Canadian Science Advisory Secretariat. At the time the stock assessment was published, the United States had not conducted or fully participated in a porbeagle stock assessment. In 2001, ICCAT examined the need for research and stock assessments for porbeagle, shortfin mako, and blue sharks, and decided that the analyses and reports prepared by Canada were thorough enough that an additional assessment of porbeagle sharks was not required. In the absence of other stock assessments for this species, the Atlantic HMS Management Division reviewed the 2005 Canadian porbeagle assessment and requested concurrence from the SEFSC on whether it constituted best scientific information available. In 2006, the SEFSC affirmed (1) the assessment could be used for management purposes, (2) that it constituted BSIA, and (3) that the porbeagle stock was overfished but that overfishing was not occurring. NOAA Fisheries followed up by adjusting porbeagle management measures and establishing a rebuilding program as part of Amendment 2 to the 2006 Consolidated HMS FMP.<sup>31</sup>

An external assessment was also accepted for management of scalloped hammerhead sharks. In 2009, Jiao *et al.* published a methods paper to test a new assessment approach for the hammerhead shark complex (scalloped, great, and smooth hammerheads).<sup>32</sup> This assessment addressed a primary concern in a previous assessment of the large coastal shark complex (SEDAR 11).<sup>33</sup> However, SEFSC staff noted certain caveats suggesting that additional modifications, more comprehensive

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<sup>31</sup> See Amendment 2 to the 2006 Consolidated HMS FMP (73 FR 40657; July 24, 2008)

<sup>32</sup> Jiao, Y., C. Hayes, and E. Cortes. 2009. Hierarchical Bayesian approach for population dynamics modelling of fish complexes without species-specific data. *ICES Journal of Marine Sciences* 66(2):367-377

<sup>33</sup> SEDAR 11, Atlantic HMS Large Coastal Sharks.

sensitivity analyses, and additional work were needed to fully evaluate whether benchmarks could be provided to develop management measures. In 2009, Hayes *et al.* published a species-specific assessment of scalloped hammerhead sharks using surplus-production models, a more conventional technique.<sup>34</sup> The SEFSC determined that the stock assessment was appropriate to use for management purposes. NOAA Fisheries followed up by implementing measures to end overfishing and establishing a rebuilding program for scalloped hammerhead sharks as part of Amendment 5a to the 2006 Consolidated HMS FMP.

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<sup>34</sup>Hayes, C.G., Y. Jiao, E. Cortes. 2009. Stock assessment of scalloped hammerheads in the western North Atlantic Ocean and Gulf of Mexico. *North American Journal of Fisheries Management* 29:1406-1417

## Regional Atlantic HMS BSIA Framework – External Stock Assessments

Table 4. Atlantic HMS BSIA Framework for external stock assessments. N/A = not applicable or examples are unavailable.

HMS BSIA Framework Policy Components	HMS BSIA Framework Description	Documentation and Recent Examples
NOAA Fisheries BSIA Framework Step 1: Stock Assessment		
<p>A. Prioritization process and scheduling</p>	<p>These stock assessments are not specifically scheduled by management entities. However NOAA Fisheries encourages scientists conducting these assessments to consider the alignment of assessments with current research priorities and management needs, including those identified in current assessments. It is desired, but not mandatory, that these assessments be conducted with the endorsement or involvement of experts involved with assessments completed through SEDAR or ICCAT.</p>	<p>Recommendations for assessments may be found in management or strategic planning documents, or RFPs:</p> <ul style="list-style-type: none"> <li>● <u>Atlantic HMS Management Based Research Priorities</u></li> <li>● <u>Bluefin Tuna Research Program</u></li> <li>● SEDAR stock assessments and review workshops include research and data collection recommendations that might include evaluation of certain components of stock assessments (e.g., <u>blacktip shark assessment</u>, SAR Section III pg 91 or SAR Section IV pg 5).</li> <li>● ICCAT stock assessments include a section providing recommendations on research and statistics (e.g., <u>White Marlin 2019 assessment</u>, pg 9).</li> </ul>

<b>HMS BSIA Framework Policy Components</b>	<b>HMS BSIA Framework Description</b>	<b>Documentation and Recent Examples</b>
B. Terms of reference (TOR)	Circumstances vary. TORs might be established by the author of the assessment or, in cases where they are involved, in collaboration with NOAA staff.	See <i>Framework Item 1.B in Table 3 for examples of TORs used in the SEDAR process.</i>
C. Conduct and complete assessment	Assessment models, input parameters, data sources, and projections should be thoroughly documented.	<ul style="list-style-type: none"> <li>● <a href="#">2005 Canadian Stock Assessment for Porbeagle</a></li> <li>● <a href="#">Scalloped Hammerhead assessment (Hayes et al. 2009)</a></li> </ul>
NOAA Fisheries BSIA Framework Step 2: Peer Review of Draft Assessment According to an NS2-Compliant Process		
D. Peer-review process	Stock assessments completed by an external entity must go through a a rigorous scientific review (e.g., peer review for a professional journal) before NOAA Fisheries will consider using it for management purposes	<ul style="list-style-type: none"> <li>● <a href="#">Scalloped Hammerhead assessment (Hayes et al. 2009)</a></li> <li>● <a href="#">Lemon Shark stock assessment (Hansell et al. 2020)</a></li> </ul>
NOAA Fisheries BSIA Framework Step 3: Assessment Revision		



<b>HMS BSIA Framework Policy Components</b>	<b>HMS BSIA Framework Description</b>	<b>Documentation and Recent Examples</b>
E. General assessment revision procedures	Revision opportunities are situation-specific and may or may not be available for stock assessments after they are completed. If NOAA Fisheries cannot determine whether a stock assessment has undergone an appropriate peer review, uses appropriate modeling techniques, and has underlying data or assumptions that can be confirmed, then the assessment will not be used for management.	<ul style="list-style-type: none"> <li>NOAA Fisheries staff previously determined that the Hayes et al. (2009) scalloped hammerhead assessment met these specific criteria.</li> </ul>
NOAA Fisheries BSIA Framework Step 4: SSC and NOAA Fisheries Steps – there is no SSC for Atlantic HMS Management, therefore this section describes procedural steps for NOAA Fisheries only.		
F. NOAA Fisheries review and acceptance for management	The Atlantic HMS Management Division, in consultation with Science Center staff as needed, will review the assessment and any supplemental information to determine whether the assessment findings are adequate for management. This review is documented internally and should include a recommendation as to whether this could constitute BSIA. <i>Note: Framework Item 4.G in this table (next row) may occur as part of these correspondences or after they are concluded.</i>	N/A

<b>HMS BSIA Framework Policy Components</b>	<b>HMS BSIA Framework Description</b>	<b>Documentation and Recent Examples</b>
G. Input of stock assessment results into SIS	NOAA Fisheries staff from the Science Center input the final results of the assessment into SIS.	<ul style="list-style-type: none"> <li>● <a href="#">Species Information System</a></li> </ul>
H. Stock status determination	<i>Process is identical to what is described for SEDAR Assessments - See Framework Item 4.M in Table 3.</i>	<i>See examples under Framework Item 4.M in Table 3.</i>
I. Notice to the public concerning stock status determinations	<i>Process is identical to what is described for SEDAR Assessments – See Framework Item 4.N in Table 3.</i>	<ul style="list-style-type: none"> <li>● <a href="#">Quarterly stock status updates</a></li> <li>● <a href="#">Scalloped Hammerhead Stock Status Determination</a> (76 FR 23794; April 28, 2011)</li> <li>● <a href="#">Atlantic HMS SAFE Report</a></li> <li>● <a href="#">2005 porbeagle stock status determination and NOI to conduct rulemaking</a> (71 FR 65086; November 7, 2006)</li> </ul>
NOAA Fisheries BSIA Framework Step 5: Catch Specifications (see footnote 3)		
J. FMP catch specifications	<i>Process is identical to what is described for SEDAR Assessments – see Framework Item 5.O in Table 3.</i>	<i>See examples under Framework Item 5.O in Table 3.</i>
K. Rulemaking to adjust FMP catch specification processes	<i>Process is identical to what is described for SEDAR Assessments - see Framework Item 5.P in Table 3.</i>	<i>See examples under Framework Item 5.P in Table 3.</i>

<b>HMS BSIA Framework Policy Components</b>	<b>HMS BSIA Framework Description</b>	<b>Documentation and Recent Examples</b>
NOAA Fisheries BSIA Framework Item 6: NOAA Fisheries Approval		
L. NOAA Fisheries approval	<i>Process identical across all three Atlantic HMS assessment processes – See Framework Item 6.P in Table 1.</i>	<i>See examples under Framework Item 5.P in Table 3.</i>


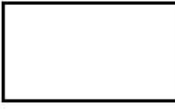
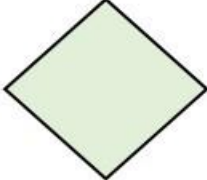
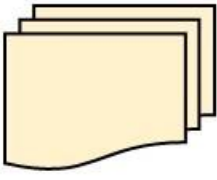

# Appendix

## List of Acronyms

<b>Acronym</b>	<b>Definition of Acronym</b>
ABC	Acceptable Biological Catch
ACL	Allowable Catch Limits
AM	Accountability Measures
ATCA	Atlantic Tunas Convention Act
BSIA	Best Scientific Information Available
CIE	Center for Independent Experts
CPC	ICCAT contracting parties, non-contracting parties, entities, or fishing entities
CPUE	Catch-per-unit-effort
EFH	Essential Fish Habitat
FMP	Fishery Management Plan
FRN	Federal Register Notice
HMS	Highly Migratory Species
IASI	Office of International Affairs and Seafood Inspection (NOAA Fisheries)
ICCAT	International Commission for the Conservation of Atlantic Tunas
ICCAT Res.	ICCAT Resolution
ICCAT Rec.	ICCAT Recommendation
MSA	Magnuson-Stevens Fishery Conservation and Management Act
MSE	Management Strategy Evaluation
NEFSC	Northeast Fisheries Science Center (NOAA Fisheries)
NS	National Standard
OFL	Overfishing Limit
SAFE	Stock Assessment and Fishery Evaluation report
SCRS	Standing Committee on Research and Statistics
SDC	Status Determination Criteria
SEDAR	SouthEast Data, Assessment and Review
SEFSC	Southeast Fisheries Science Center (NOAA Fisheries)
SFD	Sustainable Fisheries Division (unit within the SEFSC)
SIS	Species Information System
SSC	Scientific and Statistical Committee (fishery management councils)
TOR	Terms of Reference

## BSIA Process Flow Charts

The flowcharts in this appendix provide a high-level overview of BSIA processes as described in previous sections of this BSIA framework. Symbols used in the flowcharts are described in Figure 1. Flowcharts are organized with “swim lanes” that show the major players in each process (those occurring wholly within NOAA Fisheries are not shaded). These flowcharts are intended to describe generalized processes and will not reflect the nuances or all relationships associated with each step.

SYMBOL	FUNCTION
	Start / End
	Process
	Decision
	Set of Documents
	Connector; shows process progression

*Figure 1. Flowchart symbols used to describe BSIA processes.*

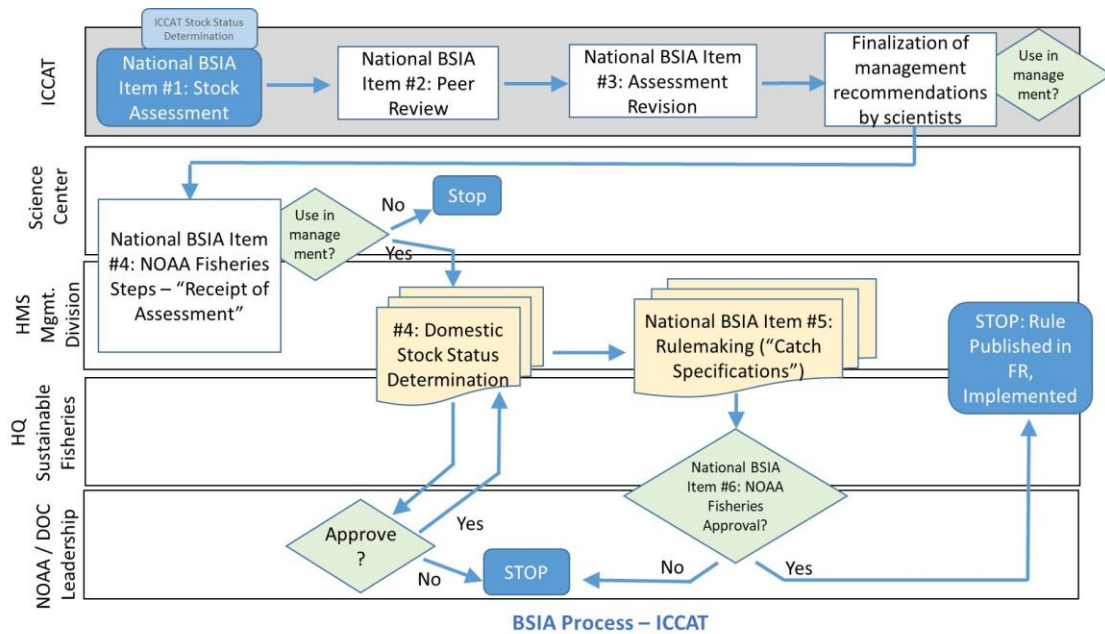


Figure 2. BSIA Processes for ICCAT stock assessments.

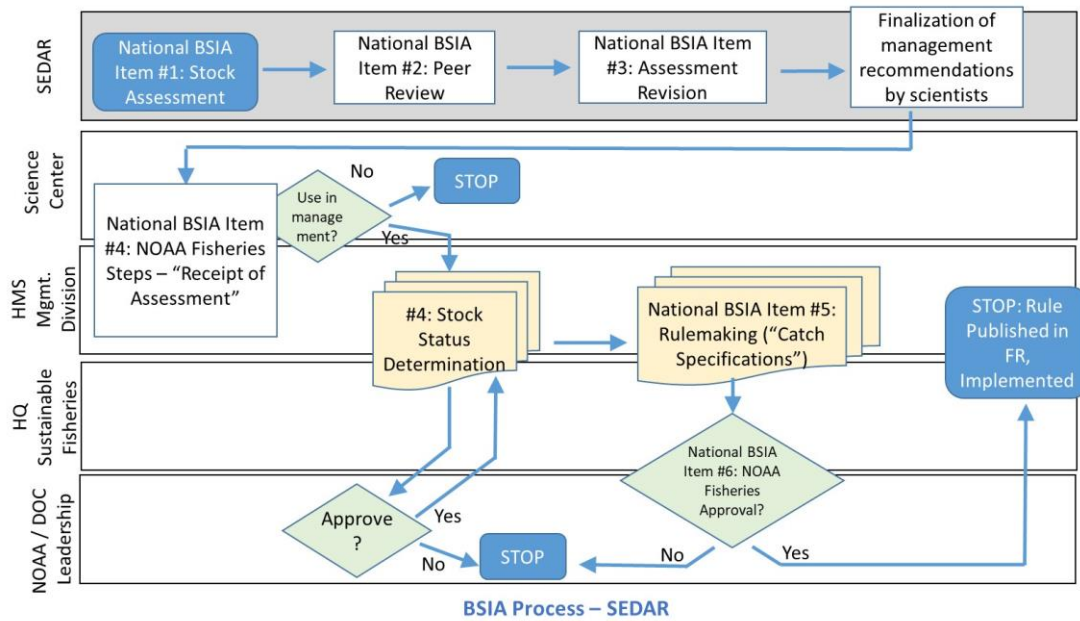


Figure 3. BSIA processes for SEDAR stock assessments.

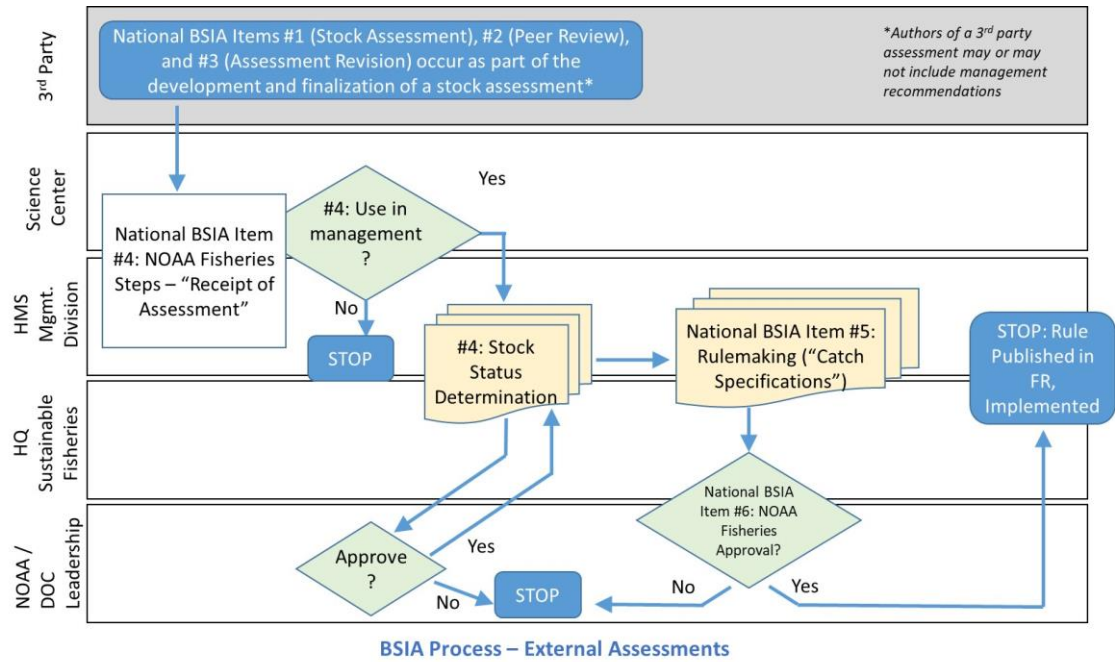


Figure 4. BSIA processes for external assessments.