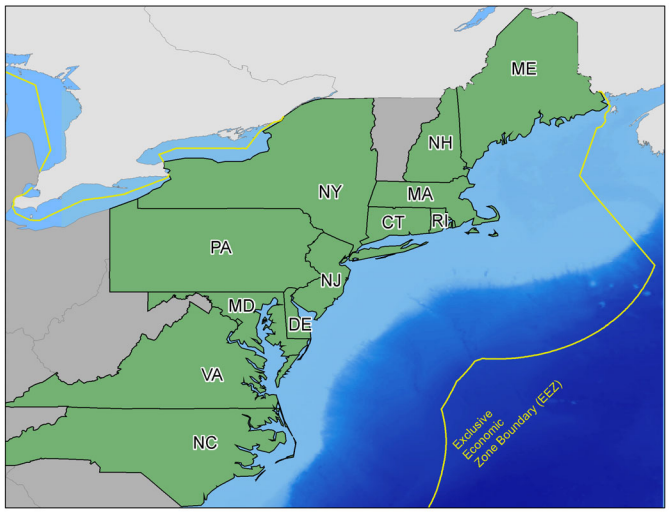
NORTHEAST REGION COORDINATING COUNCIL

Spring 2021 MEETING

May 25-26, 2021

Webinar



Meeting Briefing Book Table of Contents

(*hyperlinked*)

2021 SPRING NRCC MEETING AGENDA

via Google Meet

All times are approximate

Tuesday, May 25

9:00 a.m. – 9:15 a.m.

1. Welcome, Introductions, Announcements
   (Simpkins, Sullivan)

9:15 a.m. – 3:00 p.m. (Break as needed, lunch at noon)

2. Stock Assessments
   Discussion leader: Simpkins
   - Schedule revisions, to account for 2020 postponements and other issues
   - 2026 research track assessment proposals and recommendations
   - Research track steering committees – proposed approach
   - Assessment process improvements – progress updates
   - Future of winter flounder science and management

3:00 p.m. Adjourn Day 1

Wednesday, May 26

9:00 a.m. – 9:30 a.m.

3. FDDI and CAMS Update
   Discussion leader: Gouveia

9:30 a.m. – 10:00 a.m.

4. Offshore Wind Update
   Discussion leader: Pentony/Lipsky

10:00 a.m. – 10:15 a.m. Break

10:15 a.m. – 10:30 a.m.

5. NOAA Climate and Fisheries Initiative
   Discussion leader: Simpkins
   - Potential formation of regional teams

10:30 a.m. – 11:30 a.m.

6. Scenario Planning
   Discussion leader: Scenario Planning Core Team (Dancy)
   - Core Team will present and have NRCC review the draft proposed process and timeline

11:30 a.m. – 12:00 p.m.

7. Meeting wrap-up and Other Business
    - Complete any unfinished discussions or unresolved new business
    - Review action items and assignments
    - Identify Fall 2021 meeting date (NEFSC chair)
    - Adjourn meeting

12:00 p.m. Meeting adjourns

Color code key:
ASMFC MAFMC
NEFMC NEFSC
GARFO NRCC

NRCC Fall 2020 Meeting Action Items

November 9-10, 2020 Webinar

1. SAFE Reports
   Lead: **GARFO**
   Appointees needed: Representatives from Councils and Center to be points of contact.
   Next step(s): GARFO Sustainable Fisheries Division will reach out to points of contact at the Councils and Center to start discussions and troubleshoot specific issues.
   Due date(s): Provide update at Spring 2021 meeting

2. Scenario Planning
   a. TNC Funding
      Lead: **MAFMC**
      Appointees needed: N/A
      Next step(s): MAFMC will check with NOAA GC about Commission getting funding from TNC.
      Due date(s): ASAP

   b. Sole Source funding
      Lead: **ASMFC**
      Appointees needed: N/A
      Next step(s): ASMFC will check on going to sole source and not needing RFP for private money.
      Due date(s): ASAP

   c. Scenario Planning – Core Team
      Lead: **NRCC**
      Appointees needed: Representatives from Councils, Commission, SSC, GARFO and NEFSC
      Next step(s): NRCC will identify members of core team and send to Chris Moore and Kiley Dancy.
      Due date(s): Within next month

3. Stock Assessments
   a. Chair for Index Based Methods Research Track
      Lead: **NEFMC** and/or **MAFMC**
      Appointees needed: N/A
      Next step(s): One Council will identify SSC member to serve as chair at index based methods research track meeting
      Due date(s): Meeting is December 7-11
      Update: Paul Rago (MAFMC SSC) will serve as chair for the meeting

b. Postponed stock assessments
   Lead: **NEFSC**
   Appointees needed: N/A
   Next step(s): Mike Simpkins will work with the Councils about postponed stock assessments.
   Due date(s): Provide update at Spring 2021 meeting

c. Assessment Process Technical Team Working Group
   Lead: **NRCC**
   Appointees needed: Representatives from Councils, Commission, SSC, GARFO, and NEFSC
   Next step(s): NRCC will identify members for an Assessment Process Technical Team Working Group. Mike Simpkins will provide a collation of needs, which should inform membership.
   Due date(s): January 31, 2021

Spring 2021 NRCC Meeting (NEFSC Chair) – May 25-27, 2021 (2-day meeting)
Location –Webinar

Description of New England and Mid-Atlantic Region Stock Assessment Process

Overview

The Northeast Region Coordinating Council (NRCC) developed the enhanced stock assessment process described here with the goals of (a) improving the quality of assessments, (b) allowing more improvement to occur within the routine assessment process, and (c) providing more strategic and longer-term planning for research and workload management. The process lays out two tracks of assessment work: a management track that includes the more routine assessments but with more flexibility to make improvements than in the past, and a research track that allows comprehensive research and development of improved assessments on a stock-by-stock or topical basis. The process provides clear opportunities for input and engagement from stakeholders and research partners, and the process also provides a longer-term planning horizon to carry out research to improve assessments on both tracks, but particularly the research track. A key aspect of this process is the NRCC's development and negotiation of long-term management track cycles for each stock (i.e., how often each stock is assessed and in what years) as well as a five-year research track schedule, which will be updated through time by the NRCC.

Roles and Responsibilities

Northeast Region Coordinating Council

The Northeast Region Coordinating Council (NRCC) consists of members from the Atlantic States Marine Fisheries Commission (ASMFC), Greater Atlantic Regional Fisheries Office (GARFO), Mid-Atlantic Fishery Management Council (MAFMC), New England Fishery Management Council (NEFMC), and Northeast Fisheries Science Center (NEFSC). The NRCC fulfills several functions, and, in the context of stock assessments, the NRCC's primary roles and responsibilities focus on setting priorities and scheduling of assessments. With respect to assessment priorities, the NRCC (a) sets long-term (five-plus year) schedules for both the management and research track, (b) reviews and adjusts those schedules as needed, and (c) recommends priorities among complex management track assessments (i.e., assessments requiring expedited or enhanced peer reviews) in situations where more complex assessments are proposed than can be accommodated. Designated staff from each NRCC member organization form the "NRCC Deputies" panel, which reviews and approves research track stock assessment working groups as well as external experts nominated to serve on management track or research track peer review panels.

Assessment Oversight Panel

The Assessment Oversight Panel (AOP) consists of four members (a) the Chief of the Populations Dynamics Branch, NEFSC, or his/her designee, who serves as Chair of the AOP, (b) the Chair of the NEFMC SSC, or his/her designee, (c) the Chair of the MAFMC SSC, or his/her designee, and (d) the Chair of the ASMFC Assessment Science Committee, or his/her designee.

The primary responsibilities of the AOP are to (a) review and approve management track assessment plans in the context of guidelines for permissible changes under each level of management track peer review, (b) in the near term, if they have not yet been developed and reviewed in a prior assessment peer review, review and approve plans for any alternative backup approach to be used if the peer review finds primary management track assessment is not suitable for providing management advice, (c) review and approve revisions to management track assessment plans developed in response to new data or based on advice from the AOP generated from review of the original plan, noting that any changes that would require upgrading or downgrading the assessment tier would require NRCC consultation; and (d) provide a summary report to the NRCC on an annual basis of AOP actions taken.

Assessment Oversight Panel meetings are open to the public. Council, Commission, and GARFO staff are welcome to participate, and those staff with lead responsibilities for stocks under consideration will be requested to serve as invited participants. At least one staff representative should participate from GARFO and each Council and Commission with stocks under consideration.

Northeast Fisheries Science Center

Fish stock assessment scientists from the NEFSC support both management and research track assessments. NEFSC assessment scientists have primary responsibility for planning and carrying out management track assessments for all federally managed stocks, as those assessments are conducted on a routine basis and require consistent capacity and expertise. As part of the management track process for stocks with NEFSC lead responsibility, NEFSC assessment scientists develop initial plans for assessments and alternative backups in advance of upcoming assessments and revise those plans if necessary in response to new data; where possible, alternative approaches should be developed in advance in prior research track assessments. NEFSC assessment scientists provide initial management track assessment plans for review by the AOP, which in turn reviews and provides recommendations to the NRCC. In unusual situations where more assessments are proposed for expedited and enhanced peer review than can fit in the time available for peer review, then the NEFSC consults with the NRCC to determine which assessments to “downgrade” to a lower assessment level and peer review. NEFSC assessment scientists, as well as other NEFSC scientists and other federal, state, academic and other non-governmental scientists participate in research track assessments.

Atlantic States Marine Fisheries Commission

ASMFC Technical Committee and Assessment Science Committee members may support both management and research track assessments. The ASMFC has primary responsibility for planning and carrying out management track assessments for several state-managed stocks, some of which require substantial NEFSC staff engagement and are managed according to the assessment process described here. As part of the management track process for jointly managed stocks with ASMFC lead

responsibility, the relevant ASMFC Technical Committee develops initial plans for assessments and alternative backups in advance of upcoming assessments and revises those plans if necessary in response to new data. The Technical Committees' initial management track assessment plans are reviewed and approved by the Assessment Science Committee, which then provides those assessment plans to the AOP for its review and subsequent recommendations to the NRCC. In unusual situations where more management track assessments are proposed for expedited and enhanced peer review than can be accomplished in the time available for peer review, then the ASMFC consults with the NRCC to determine which assessments to "downgrade" to a lower assessment level and peer review. For ASMFC managed stocks that are scheduled following the process described here, ASMFC may opt to follow the AOP and management track peer review process, or use traditional ASMFC planning and review processes, though care must be taken to coordinate with the management track process to avoid any work or review conflicts. ASMFC Technical Committee members, as well as NEFSC scientists and other federal, state, and academic scientists participate in research track assessments.

Peer Review Panels

Peer review panels are convened to review expedited (level 2) and enhanced (level 3) management track assessments and research track assessments. Peer review panels review the assessment(s) for technical merit and provide recommendations to the relevant Agency, Council(s), and or Commission on whether the assessment should or should not be used for management. For management track assessments, the peer reviews will be conducted by a small panel of relevant SSC members with additional external experts if/as needed; reviewers will be nominated by the relevant Council(s) and/or Commission and confirmed by the NRCC Deputies. When nominating and confirming membership for management track peer reviews, consideration should be given to providing some continuity from one peer review to the next, to promote consistency in decisions across peer review panels. For research track assessments, peer reviews will likely, but not exclusively, be provided by the Center for Independent Experts (CIE). In some cases, it may be preferable to convene a research track peer review panel outside of the CIE process; in those cases, the relevant Council(s) and/or Commission will nominate panelists, who will be confirmed by the NRCC Deputies. Consideration will be given to including SSC members in the peer review, including the possibility of having an SSC member chair the peer review; this approach has been helpful in the past to provide some continuity across the peer review and subsequent SSC review.

Scheduling Process

During 2016-2017, the NRCC developed a process for scoring and prioritizing stocks for both management and research track assessments, and the results were used to inform the development of the initial management and research track schedules. The scoring and prioritization process built off of the process described in the National Marine Fisheries Service's "Prioritizing fish stock assessments". An NRCC working group evaluated the scoring process and factors recommended by the NMFS report, selected the factors that were most relevant to NRCC stock assessment scheduling, modified the factor descriptions and scoring rubrics, and added new factors as needed. The working group then organized these factors into six categories: management needs, fishery importance, stock status and trend,

ecosystem importance, assessment information, and stock biology. Briefly, and generally speaking, NRCC working group members scored each stock within their jurisdiction for each factor[1], and then those scores were averaged across all members for each factor, averaged across all factors for each category, and then averaged across categories for each stock, resulting in one overall score for each stock. A different suite of factors was used to calculate the final score for management track vs research track assessment priorities, and a few factor or category scores were provided independent of the overall score because they were deemed particularly important for developing assessment schedules.

With the resulting scores as information, the NRCC working group developed initial strawman schedules for both management and research tracks. Those strawman schedules, prioritization scores, and other information were used by the NRCC to develop an initial five-year schedule of research track assessments and an initial schedule of management track assessments, with each management track assessment assigned a starting year and a certain cycle or periodicity ranging from annual management track assessments to 6-year intervals between management track assessments. The resulting schedules were informed, but not driven, by the prioritization scores; final decisions regarding the schedules were made through NRCC negotiation.

In order to maintain a five-year research track schedule each year, as what had been the fifth year becomes the fourth year, the NRCC will consider the existing research track schedule, research track scores, and other information and identify which stocks or topics should be addressed in the new fifth year of the schedule. The NRCC will also consider any changes to the existing research or management track schedules as needed. In the absence of changes, the management track schedule will continue with the same periodicity for each stock.

The prioritization scores developed for both research and management tracks in 2016-2017 may degrade in terms of relevance over time. When the NRCC feels those scores are no longer relevant for informing scheduling discussions, the scoring process will be conducted again to provide fresh scores to inform the scheduling process. Because the scoring process is laborious, the NRCC anticipates refreshing the scores on an infrequent basis, perhaps once every 5-7 years.

Management Track Process

Management track assessments are designed to provide routine, scheduled, updated advice to directly inform management actions. Management track assessments are designed to be simpler, quicker, and more efficient than research track assessments. However, the management track provides some flexibility to allow assessments to improve over time by building off the previously accepted assessment, without requiring a research track assessment for every step along the way. The modifications allowed within the management track are intended to provide analysts with the flexibility needed to improve the science and update a previously accepted assessment when issues arise or new data become available.

[1] NMFS working group members scored all stocks; GARFO scored factors related to management and regulations, and NEFSC scored factors related to science. The Councils and Commission scored their respective stocks.

Management Track and Peer Review Levels

The flexibility in management track assessments allows for different levels of complexity and extent of changes to be applied. These different levels of complexity and extent of changes, in turn, call for different levels of peer review and public engagement. For consistency, the levels of peer review, extent of public engagement and changes allowed under each management track level are described below. Generic terms of reference for management track assessments are also provided below.

When developing the list of permissible changes, it was recognized that all possible changes that would warrant consideration could not be anticipated given the evolving nature of science and assessment methods. Consequently, the following lists represent specific changes that are permitted under each level but should not be considered exhaustive. If a change proposed by an analyst is not detailed below, the AOP will determine whether the modification is permissible and which level of peer review would be required.

During and prior to the assessment planning stage, stakeholders will be able to provide input on all assessments. During the "input" phase of management track assessments (described below), NEFSC, ASMFC and NRCC partners will work together to engage with stakeholders, academic and state partners to solicit new data and ideas for any and all levels of upcoming management track and research track assessments. Additional stakeholder engagement would occur during the public comment periods of the AOP meeting (described below) where the assessment plans presented by NEFSC and ASMFC analysts will be reviewed. Opportunities for public engagement during assessment reviews are specific to the assessment level and are described below.

Data Updates

In some cases, data updates may be requested by a Council or the Commission between scheduled Management Track assessments. Data updates are just that, summaries of new data that have become available since the last Management Track assessment. Data updates do not involve rerunning any assessment model and in most cases do not provide a formal update of stock status. The NEFSC is actively working to automate much of the assessment data processing, with the goal of being able to provide standardized data updates through an automatic reporting system. Previously, some requested data updates were quite extensive and required data processing and manipulation that would be challenging to automate, and in some cases those requested data updates required as much work as what would be considered a Level 1 assessment in the current process. In addition to cases needing additional work beyond updating available data, cases where data must be acquired from sources outside of the NEFSC (e.g. state index datasets) may take additional efforts and may not be possible in a data update framework. If such extensive data examinations are requested in the future, they would need to be added to the Management Track schedule to account for the workload requirements. However, requests for standardized, automated data updates would not need to be added to the Management Track schedule because they could be provided at very low cost in terms of staff time. During the, hopefully short, timeframe while NEFSC develops the automated data update system, any data update requests will need to be negotiated through the NRCC.

Standardized, automated data updates are not formally considered as Management Track assessments and do not undergo any peer review, just normal quality assurance and control procedures. The intent of data updates is to provide reassurance that multi-year specifications set based on the most recent Management Track assessment are still appropriate, without requiring a new assessment. Such updates are most useful when they are formally accounted for within a fishery management plan with clear decision rules on what action should be taken if a data update implies a strong change in stock status. Without such decision rules, data updates may just highlight a concern that cannot be addressed without a formal management track assessment, which would require adding an assessment to the schedule on short notice, or waiting for the next scheduled assessment.

Level 1: Direct delivery

A level 1 management track assessment is essentially a simple update of the previously approved assessment with new data. This level of assessment update will be delivered directly from the NEFSC to the appropriate Council or Commission technical body (e.g., SSC) and will not undergo peer review beyond that conducted by those technical bodies. Furthermore, although there will be opportunities for public input on assessments in advance during the input phase described below, there will be limited opportunity for public engagement during the assessment review, which will occur during the public comment period of the technical body's meeting. Given the limited peer review and public engagement, only minor changes, such as those detailed below, are permissible.

- Model that has been updated with revised data, with minor changes (such as small adjustments to data weights, fixing parameters estimated at bounds, correcting minor errors in previous model)
- Incorporation of updated data from recent years in the estimation of biological information (growth, maturity, length-weight relationship)
- Calculate updated values for the existing BRPs using same methods
- Evaluating effects of delayed seasonal surveys or missing strata on fishery-independent measures of abundance
- If adding or revising data reveals problems in model performance, analyst should identify concerns that may need further analyses and/or review
- If adding or revising data and implementing a Level 1 assessment after the AOP meeting results in a proposed change in stock status, the assessment warrants additional peer review and therefore qualifies for a Level 2, expedited peer review. This upgrade from Level 1 to Level 2 does not require additional AOP review, though the AOP should be informed.
- Standard QA/QC procedures employed by the NEFSC

Level 2: Expedited review

A level 2 management track assessment can involve a little more flexibility for deviations from the previously accepted assessment, but that flexibility is limited to allow for efficient peer review of multiple assessments in one peer review meeting, similar to what previously had been carried out for groundfish operational assessments for the NEFMC. Level 2 assessments will undergo a formal, but expedited (1-2 hour maximum), peer review by a panel of SSC members from the relevant Council(s), along with additional external experts if desired, before submission to the appropriate Council or

Commission technical body. In addition to opportunities for public input on assessments in advance, opportunities for public engagement may occur during the public comment periods of the public review meeting and the subsequent meeting of the Council or Commission technical body. Given the moderate level of peer review and engagement, level 2 assessments will generally use the same assessment structure and data as the previously accepted assessment, but some changes are permitted (detailed below) that warrant review by an external body. In this level, the cumulative impacts of the number of changes should also be considered; any individual change may be minor, but if there are several changes, the overall impact could be substantial and may warrant shifting an assessment to level 3 and providing enhanced peer review. Changes permitted in level 2 assessments include those noted in level 1, and:

- Updated discard mortality estimates, when based on peer-reviewed experimental evidence
- Evaluating effects of delayed seasonal surveys or missing strata on fishery independent measures of abundance if significant analysis is required to characterize the effects
- Recalibrated catch estimates (e.g., transition to Marine Recreational Information Program, area allocation tables, conversion factors (whole to gutted weight))
- Simple changes, corrections, or updates to selectivity, including but not limited to:
    - Changes to most recent selectivity stanza
    - Changes to historical selectivity stanza if they are corrections or reinterpretations of previously used block timeframes
- Retrospective adjustment to management metrics following established retrospective adjustment protocols

  Technically, when either the rho-adjusted SSB or F (point estimate / (1 + Mohn's rho)) falls outside the 90% confidence interval of the terminal year estimate, the retrospective adjustment is applied for both status determination and to the starting population for projections.
- Adjustment of method for estimating biological information (growth, maturation, sex ratio, changes to length-weight relationships, etc.), when based on methods developed with sufficient peer review or justification for its use
- Calculate new values for the existing BRPs using new or modified approach (e.g., new methods, different assumptions, etc.)
- Changes in stock status, even if the underlying assessment structure and data are largely unchanged from prior assessments

Level 3: Enhanced review

A level 3 management track assessment will permit more extensive changes than a level 2 assessment and therefore requires a more extensive peer review (one-half to a one full day). The flexibility in level 3 provides an opportunity to make progress within the management track toward the Next Generation Assessments envisioned in the Stock Assessment Improvement Plan, by including more detailed spatial, temporal, environmental and species interactions within existing model frameworks. It is important to note, however, that full achievement of Next Generation Assessments will likely require research track efforts as well. As in level 2 assessments, public engagement opportunities will occur during the public

comment periods of both the public review and the subsequent meeting of the Council or Commission technical body, as well as during the input phase of the assessment process as described below.

Level 3 assessments will be reviewed by a panel of SSC members from the relevant Council(s) as well as additional external experts as needed; any external reviewers outside of the SSCs will be nominated by the Council or Commission and confirmed by the NRCC Deputies. Given the enhanced peer review, changes to most assessment elements, with the exception of stock structure, would be permitted in level 3 assessments; however, cumulative impacts should be considered when making a determination between the changes permissible within the "enhanced review" level and changes that would require switching to the research track process. Changes permitted in level 3 assessments include those noted in levels 1 and 2, and:

- Inclusion of new or alternate interpretations of existing indices
- Changes to estimation method of catchability, including but not limited to:
    - Empirical estimations
    - Changes in habitat/availability/distribution on catchability
    - Use of informed priors on catchability in a model
- Updating of priors based on new research if done on a previously approved model
- Recommend significant changes to biological reference points, including but not limited to:
    - Change in the recruitment stanza
    - Number of years to include for recent means in biological parameters
    - Suggestions of alternate reference points if based off a similar modeling approach (e.g. age-based, length-based, etc.)
- Updating of historical selectivity stanzas
- Changing recruitment option used, meaning using a stock-recruitment relationship, or cumulative distribution function, etc.
- Changes to selectivity functional form (i.e. such as a new selectivity model) if supported by substantial empirical evidence.
- Changes to fleet configuration
- Changes to natural mortality (M)
- New modeling framework, if the new framework was evaluated during a previous research track topic investigation, and the species in question was one of the examples evaluated. Through research track topics focused on methods, new models could be implemented in parallel with an accepted model and provide a basis for eventual shift to a new model through a level 3 management track assessment. This would allow model evolution, technical innovations, and testing without the penalty of forgoing research on stock dynamics until a new Research Track process is scheduled.

Management Track Assessment Terms of Reference

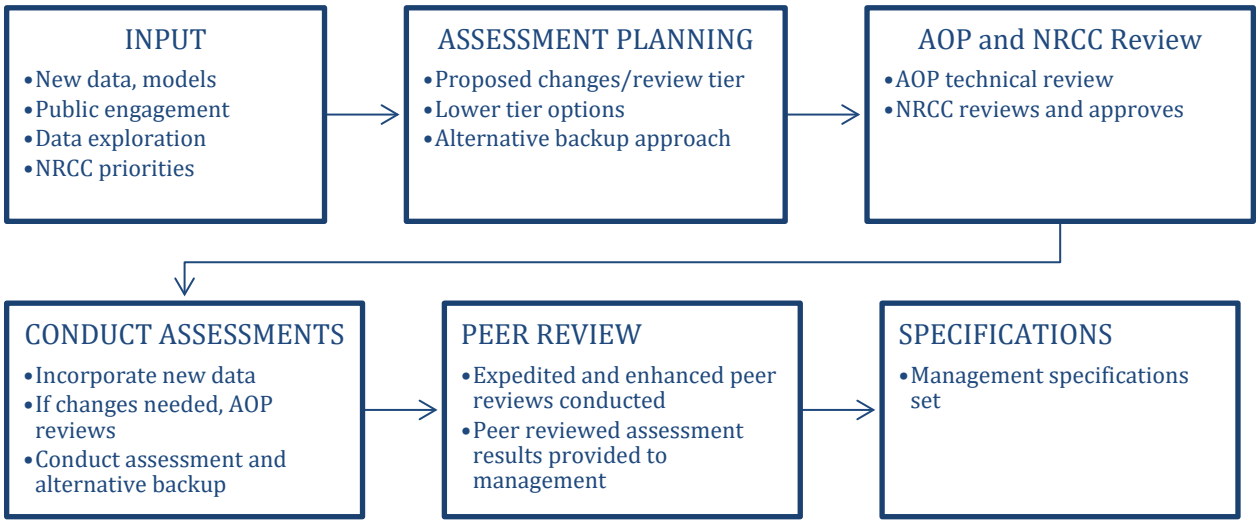
Generic Terms of Reference (TORs) for assessment updates that will be used directly for management (Management Track assessments) are provided below. They include the TORs necessary for updating the necessary input data (catch and survey), assessment model, biological reference points and short-

term projections but do not include the research-oriented TORs that are included in Research Track assessments.

1. Estimate catch from all sources including landings and discards.
2. Evaluate indices used in the assessment (e.g., indices of relative or absolute abundance, recruitment, state surveys, age-length data, etc.).
3. Estimate annual fishing mortality, recruitment and stock biomass (both total and spawning stock) as possible (depending on the assessment method) for the time series using the approved assessment method and estimate their uncertainty. Include retrospective analyses if possible (both historical and within-model) to allow a comparison with previous assessment results and projections, and to examine model fit.
    a. Include bridge runs to sequentially document each change from the previously accepted model to the updated model proposed for this peer review.
    b. Prepare a backup assessment approach that would serve as an alternative for providing scientific advice to management if the analytical assessment were to not pass review
4. Re-estimate or update the BRP's as defined by the management track level and recommend stock status.
5. Conduct short-term stock projections when appropriate.
6. Respond to any review panel comments or SSC concerns from the most recent prior research or management track assessment.

Management Track Process and Logistics

Management Track Process Flow Chart



Step 1: Input

Throughout the year data come in and new ideas are generated. As part of the new management track assessment process, the NEFSC and ASMFC will work with NRCC partners and others to engage with

stakeholders, academic and state partners to solicit new data and ideas. This engagement strategy will involve ongoing, regular two-way communications with stakeholders and partners using a variety of approaches, which could include, but not be limited to, social media and web interactions as well as face-to-face stakeholder engagement meetings convened by NRCC members or hosted by stakeholder groups. The engagement strategy will be adapted as needed to improve two-way communication, but at a minimum will involve biannual engagement efforts to provide updates on the most recent management and research track assessments and to seek input on upcoming assessments. This engagement will solicit input on all levels and types of assessments, but will particularly focus on research track assessments where there are not only more opportunities for change and improvement but also opportunities for joint research planning and direct collaborative research efforts with stakeholders and partners, which the NRCC is particularly interested in fostering. All input received will be provided to the assessment leads to support development of their assessment plan. Six months or more in advance of a scheduled management track assessment, the NEFSC or ASMFC assessment lead for the stock will compile available input and do initial exploratory work to determine how complex the next management track assessment should be in terms of new data streams or model changes incorporated.

Step 2: Assessment planning

Following data input and exploration, and based on the explicit management track guidelines, the assessment lead proposes to the AOP the extent of assessment changes to be explored and the associated level of peer review. The assessment lead also provides proposals for assessment complexity under lower levels of peer review, to provide options for consideration. In the case of ASMFC led stock assessments, this initial proposal is developed by the relevant Technical Committee and reviewed by the Assessment Science Committee before being proposed to the AOP. The resulting assessment plans should indicate what input was considered and how it will be addressed, included or excluded, in the assessment; this provides the explicit connection between public or other input and the assessment plan.

Step 3: AOP and NRCC review

After data have arrived and exploration has occurred, the AOP is convened to provide technical review of the proposed management track assessment plans for the upcoming year. For any assessment proposed for level 2 or 3 peer review, the AOP considers the changes suggested (and alternative backup approach if not previously vetted by a research track or prior management track assessment) and approves those changes (and backup) and applies the peer review level guidelines to confirm the level of peer review for the most complex proposed version of assessment (i.e., levels 2-3 above).

At the completion of the AOP review, the NEFSC, which manages the logistics of the peer review process, reviews the AOP approved suite of assessments to ensure that the peer review logistics are feasible. In unusual situations where more assessments are proposed for expedited and enhanced peer review than can be accomplished in the time available for peer review, the NEFSC consults with the NRCC to determine which assessments to “downgrade” to a lower assessment level and peer review. The resulting recommendations from the AOP, modified if needed and approved by the NRCC, are then implemented by the NEFSC and ASMFC assessment leads.

Step 4: Assessment conducted

This step may include several phases. First, each assessment lead evaluates any new data that have arrived since they developed the original proposal for assessment complexity and level (see step 2). If any changes to the approved assessment plan are needed in response to new data, the assessment lead proposes those revisions. If those proposed revisions could result in changes in the peer review level, then the AOP provides technical review and applies the management track peer review guidelines to determine the appropriate level of peer review, likely via conference call or virtual meeting. In unusual cases where such changes could result in substantive changes to the overall suite of planned peer reviews, the NRCC would be consulted with respect to priorities. The assessment leads then carry out the management track assessment within the scope of the approved assessment plan for each stock.

Step 5: Peer review

Expedited and enhanced (levels 2 and 3, see above peer review levels) management track peer reviews are scheduled and convened, as described below, seeking to combine peer reviews as appropriate for efficiency and to optimize the ability to provide timely peer reviewed results to as many fishery management action processes as feasible. Outputs of peer reviews are provided as expeditiously as possible to the appropriate Council or Commission technical bodies and then to the Councils and/or Commission to inform management action (Step 6 in the management track process flow chart). These outputs will be provided in the form of summary reports and will address the assessment terms of reference (see above). For the usual situation where multiple management track assessments are reviewed at one time, the summary reports would likely be compiled as chapters in one overall summary report, and the peer review comments and recommendations would likely be incorporated within each chapter. In all cases, associated data and analytical details will be accessible. Early in the implementation of this process, the NRCC will develop and approve standard report templates for each level of management track assessment (and data updates).

General Timing of Management Track Process

Two management track peer reviews for level 2 and 3 assessments will be conducted each year to accommodate the variation in fishing year among stocks and minimize the time lag between the final year of the assessment model and the subsequent implementation of new specifications. Each peer review could include both level 2 and level 3 assessments, and the peer review panel would be composed appropriately with SSC members from the relevant Council(s) and any additional experts as needed. For the majority of stocks, the fishing year starts at the beginning of January or May. Consequently, a peer review will be conducted during the beginning of September for those stocks with fishing years around May 1 and another peer review will be held at the end of June to accommodate stocks with fishing years beginning around January 1 (see table below). This timing is designed to ensure that products from the assessment review can be provided in time to meet the associated management timelines. Assessment models examined during the September peer review will incorporate data through the end of the previous year. For the suite of stocks that undergo peer review in June, it will be difficult to incorporate fishery catches through the end of the previous year due to timing constraints of data availability; it is likely that assumptions may need to be made for the terminal year catch.

Assessment reviews for transboundary stocks carried out under the auspices of the Transboundary Resources Assessment Committee will continue to be scheduled based on bilateral negotiation.

Level 1 management track assessments will be delivered directly to the appropriate Council or Commission technical body and are not evaluated as part of the two peer reviews. If desirable, some level 1 assessments can be prepared and delivered throughout the year according to the Councils' and Commission's current delivery schedules. If, upon incorporating the most recent year of data, a level 1 assessment needs to be upgraded to a higher level that requires peer review, delivery of the assessment will be delayed until the next peer review, typically resulting in a delay of weeks to a few months. In such situations, the relevant Council or Commission would be consulted to discuss the needed changes and the resulting delay. In some situations, changes may be required to provide valid scientific advice to management. In others, the changes may be needed to provide improvements to the quality of the advice, in which cases the relevant Council or Commission may prefer to maintain the original delivery timeline while sacrificing the improvement. Furthermore, as the management track schedule comes into effect and workloads, timing, and demands shift, one way to enhance the efficiency of the process may be to simplify the delivery system to have most or all level 1 assessments coincide with the timing of the peer reviews, eliminating the need for some additional consultation and sacrifices.

Fishing year and peer review dates for each species or fishery management plan (FMP)

Species or FMP	*Beginning of Fishing*	*Management track peer review*
Golden Tilefish	November 1	End of June
Northern Shrimp	December 1	End of June
Bluefish	January 1	End of June
Mackerel/Squid/Butterfish	January 1	End of June
Fluke/Scup/Black sea bass	January 1	End of June
Surf clam / Ocean quahog	January 1	End of June
Atlantic herring	January 1	End of June
Striped bass	January 1	End of June
River herring / Shad	January 1	End of June
Red crab	March 1	End of June
Jonah crab	Undefined	End of June
Sturgeon	None	End of June
Scallop	April 1	Beginning of September
Spiny dogfish	May 1	Beginning of September
Monkfish	May 1	Beginning of September
Groundfish (NE multispecies)	May 1	Beginning of September
Hakes (Small mesh multispecies)	May 1	Beginning of September
Skates	May 1	Beginning of September
American Lobster	July 1	Beginning of September

Research Track Process

Research Track Assessments

Research track assessments are complex scientific efforts focused either on (a) assessments of individual stocks with comprehensive evaluation of new data streams and model changes (research track stock assessments) or (b) research topics that apply to assessments of several stocks (research track topic assessments). Generally speaking, applied scientific efforts in the fish stock assessment arena lie along a continuum from "general research" to "research track" to "management track," with each step informing the next and getting closer to directly informing management decisions. "General research" may be designed to inform the research track, but typically is not designed to directly inform the management track. Research track assessments, on the other hand, are designed to directly inform future management track assessments, but may not immediately inform management decisions. Research track assessments can inform management track assessments by, among other things, (a) direct examination and development of an assessment or (b) tackling analytical, data, or other issues facing multiple assessments.

Research Track Assessment Terms of Reference

Terms of Reference (TORs) for research track topic assessments will be developed individually for each topic and reviewed and approved by NRCC Deputies. Generic TORs for Research Track stock assessments are provided below. The final TOR (#9) provides flexibility for Research Track Working Groups to identify any additional stock-specific TORs to augment the generic TORs. Any such additions will be reviewed and approved by NRCC Deputies.

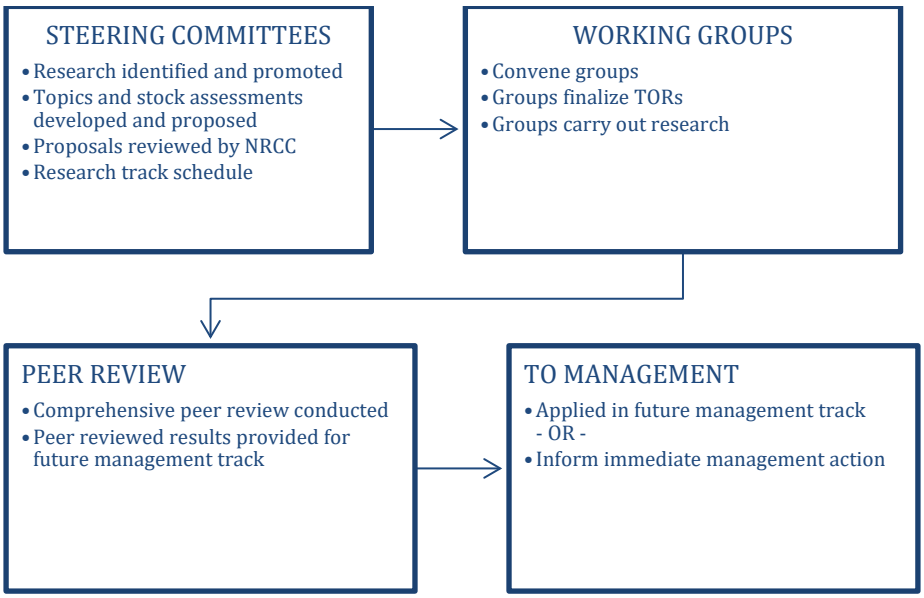
1. Identify relevant ecosystem and climate influences on the stock. Characterize the uncertainty in the relevant sources of data and their link to stock dynamics. Consider findings, as appropriate, in addressing other TORs. Report how the findings were considered under impacted TORs.
2. Estimate catch from all sources including landings and discards. Describe the spatial and temporal distribution of landings, discards, and fishing effort. Characterize the uncertainty in these sources of data.
3. Present the survey data used in the assessment (e.g., indices of relative or absolute abundance, recruitment, state surveys, age-length data, application of catchability and calibration studies, etc.) and provide a rationale for which data are used. Describe the spatial and temporal distribution of the data. Characterize the uncertainty in these sources of data.
4. Use appropriate assessment approach to estimate annual fishing mortality, recruitment and stock biomass (both total and spawning stock) for the time series, and estimate their uncertainty. Compare the time series of these estimates with those from the previously accepted assessment(s). Evaluate a suite of model fit diagnostics (e.g., residual patterns, sensitivity analyses, retrospective patterns), and (a) comment on likely causes of problematic issues, and (b), if possible and appropriate, account for those issues when providing scientific advice and evaluate the consequences of any correction(s) applied.
5. Update or redefine status determination criteria (SDC; point estimates or proxies for B_{MSY}, $B_{THRESHOLD}$, F_{MSY} and MSY reference points) and provide estimates of those criteria and their

uncertainty, along with a description of the sources of uncertainty. If analytic model-based estimates are unavailable, consider recommending alternative measurable proxies for reference points. Compare estimates of current stock size and fishing mortality to existing, and any redefined, SDCs.

6. Define appropriate methods for producing projections; provide justification for assumptions of fishery selectivity, weights at age, maturity, and recruitment; and comment on the reliability of resulting projections considering the effects of uncertainty and sensitivity to projection assumptions.
7. Review, evaluate, and report on the status of research recommendations from the last assessment peer review, including recommendations provided by the prior assessment working group, peer review panel, and SSC. Identify new recommendations for future research, data collection, and assessment methodology. If any ecosystem influences from TOR 1 could not be considered quantitatively under that or other TORs, describe next steps for development, testing, and review of quantitative relationships and how they could best inform assessments. Prioritize research recommendations.
8. Develop a backup assessment approach to providing scientific advice to managers if the proposed assessment approach does not pass peer review or the approved approach is rejected in a future management track assessment.
9. Identify and consider any additional stock specific analyses or investigations that are critical for this assessment and warrant peer review, and develop additional TOR(s) to address as needed.

Research Track Process and Logistics

Research Track Process Flow Chart



Step 1: Steering committees

Standing Research Track Steering Committees are convened that each focus on a suite of Fishery Management Plans or related stocks. These steering committees conduct a continuing review of the

status of stocks in their purview, scientific questions and concerns related to those stocks, and existing or desired research to inform and improve assessments of those stocks. Research Track Steering Committees report to the NRCC and are tasked with (a) identifying research track stock assessments or topics for NRCC consideration, (b) identifying and promoting the execution of critical research to inform future research track assessments or topics, and (c) facilitating the incorporation of new research into research track assessments or topics.

With respect to annual development of research track assessments for NRCC consideration, Research Track Steering Committees will consider their own review of scientific information, as well as input from stakeholders, science and management partners, and NRCC members, to identify likely topics or stocks for consideration. Steering Committee member(s) will then develop a short proposal for each topic or stock, describing the topic or stock, the key science issues to be addressed, and the importance to the NRCC. Each Research Track Steering Committee will then compile and prioritize their suite of proposals and then submit those prioritized proposals to the NRCC Deputies for review. The NRCC Deputies will review and provide to the NRCC the proposals and their recommendations regarding which stocks or topics should be added to the research track assessment schedule.

With respect to identifying critical research, each Research Track Steering Committee will rely on the expertise of its members, as well as incorporating input and ideas from stakeholders and from outside experts. When it comes to promoting execution of research, and facilitating incorporation into research track stock assessments and topics, the Research Track Steering Committees will work with NRCC members to encourage funding of projects or allocation of staff resources to conduct research and consider prioritizing appropriate research on respective NRCC member research priority documents. NRCC members, in turn, may reach out to partners and other funding agencies to elicit support for research. Finally, to facilitate incorporation of research results into research track assessments, the Research Track Steering Committee will provide information and recommendations regarding new research findings directly to the relevant Research Track Working Groups.

An area of potential research that requires special attention is stock structure. For each stock on the research track schedule that falls within a Research Track Steering Committee's purview, the steering committee should review available research on stock structure. If substantial new stock structure information is available or it seems likely that stock structure will need to be considered and addressed in a future research track stock assessment, the steering committee will inform the NRCC as early as possible, so that stock structure can be investigated and addressed separately and prior to, or very early in, the stock assessment work itself.

Each Research Track Steering Committee will include members with expertise relevant to the suite of stocks in their purview. Members of steering committees will be identified through an open solicitation, with review and approval of candidates by NRCC Deputies. Steering Committee members can include federal, state, and academic scientists, as well as industry experts, with a principal focus on expertise that will inform research and research questions. Each steering committee will have a designated Chair who will be appointed by NRCC Deputies from the steering committee membership. The Chair will be

tasked with facilitating the work of the steering committee and ensuring proper focus on research and appropriate handling of any perceived or real conflicts of interest. Conflicts of interest to consider would include situations such as steering committee members advocating for research that could benefit them financially directly through research being conducted by their host institution or indirectly through impacts on future income for an industry member. Research Track Steering Committee members and Chair will serve three-year terms, and an open solicitation for new members for each steering committee will occur every three years. NRCC Deputies will review and approve new, or renewal of existing, members and Chair with each solicitation.

Research Track Steering Committees should be of practical size to balance incorporation of critical expertise with ensuring effective discussions and practical logistics (a typical range might be 6-10 members). Steering committees are standing committees, but membership is expected to be refreshed over time. Given the scope of some steering committees, it is not expected that all relevant expertise will be present on each steering committee, and steering committees are encouraged to invite additional experts to participate in meetings or provide input as needed. Steering committees are also expected to engage regularly with stakeholders to gather input and feedback, and all full steering committee meetings will be open to the public.

The species and stocks covered by each Research Track Steering Committee may change through time, but the initial steering committees will focus on their associated stocks listed in the table below:

Research Track Steering Committees and Focal Stocks

Steering Committee	*Stocks*
Groundfish	American plaice, cods, haddocks, halibut, ocean pout, pollock, redfish, white hake, windowpanes, winter flounders, wolffish, yellowtail flounders
Demersal Fish	Blueline and golden tilefish, goosefish, red hakes, silver hakes, skates, spiny dogfish, sturgeons
Pelagic Fish	Black sea bass, bluefish, scup, striped bass, summer flounder
Forage Species	American shad, Atlantic herring, butterfish, longfin squid, mackerels, river herring, shortfin squid
Crustaceans	Jonah crab, lobsters, red crab, shrimp
Bivalves	Scallop, surfclam, quahog

Step 2: Working group(s)

Research Track Working Groups will be convened following the process established for past Stock Assessment Workshop working group protocols. Research track working groups, both topic and stock-specific, will be tasked with implementing the relevant terms of reference (TORs). In the case of research track stock assessments, the working group starts its work by reviewing the generic TORs and identifying any additional stock-specific TORs to be added, as mentioned above. Once the additional terms of reference are finalized, the working group carries out the necessary research and compiles the

results to inform the research track effort, incorporating public planning, data, and analytical meetings as appropriate.

For both stock and topic working groups, the working group should indicate which outputs will be applied, and how, to future management track assessments and/or management actions. This is most critical for research topics, where the terms of reference should clearly indicate what outputs will inform future management track assessments, and how they would do so. For research track stock assessments, the working group should develop alternative backup approaches to providing management advice if a research track or future management track assessment should be deemed unsuitable for use in management. In most, if not all cases, such backup approaches would be evaluated by the peer review panel after the panel completed its review of the proposed research track assessment. These approaches should be considered as backup plans for any future problems with an assessment, not an alternative to the developed research track assessment, unless that research track assessment is rejected for use in management advice. In situations where a backup approach has been developed and approved through a research track peer review, the expectations are that approach would be applied in future management track assessments as a backup, and the AOP would not need to repeat the review and approval of that backup approach.

In order to promote an effective and innovative research track, topic and stock assessments in this track typically will be carried out over longer periods and with fewer requirements for using the most recent data, etc. In the two-track approach, the research track is intended to be the opportunity for extensive and comprehensive research and analysis, so it is helpful to remove timing constraints as much as possible. This is different from the management track, which is very much driven by the need to meet specific management timelines and apply the most recent data feasible. As appropriate and feasible, the research and management track schedules are designed to have management track assessments quickly follow research track assessments for those stocks. This allows the comprehensive and innovative research to occur with fewer limitations but ensures immediate application of the research results with the inclusion of the most recent data in a management track assessment.

Step 3: Comprehensive peer review

Research track peer reviews are considered "comprehensive" peer reviews, in contrast to the expedited and enhanced peer reviews carried out for management track assessments. These peer reviews meetings generally require 1.5-4 days. They are intended to consider all aspects of the research topic or stock assessment, provide advice on the validity of the research and analyses conducted, and provide recommendations as to whether the outputs are suitable for use in future management track assessments and/or to inform future management actions. Typically, but not exclusively, peer review panels would be provided through the Center for Independent Experts (CIE) and would include at least one relevant SSC member to provide continuity with later Council, Commission, and SSC reviews and actions. It is often helpful for an SSC member to serve as Chair of the peer review for similar continuity reasons. As mentioned previously, in some cases it may be preferable to convene a research track peer review panel outside of the CIE process; in those cases, the relevant SSCs, NEFSC, and/or ASMFC Assessment Science Committee will nominate panelists, which will be reviewed and confirmed by the NRCC Deputies.

Outputs of research track peer reviews are provided as expeditiously as possible to the NEFSC and/or ASMFC Assessment Science Committee for use in future management track assessments. These outputs will be provided in the form of an assessment summary report, a peer review report, and a comprehensive set of assessment documentation that covers the full suite of work carried out. The peer review report could either be a single report from the panel, or a compilation of individual peer review reports along with a summary panel report. Working group papers, associated data, and background materials will be accessible if needed.

Step 4: Translate to Management

In many cases, research track outputs will be incorporated into future management track assessments, as indicated in the relevant initial research plan. In some cases, research track outputs may also be used to directly inform immediate management actions. This would typically occur when research track outcomes indicate important or urgent changes in stock status that require immediate attention. Otherwise, the expectation is that it usually will be more appropriate to take the research track outcomes and apply those with updated data in the next scheduled management track assessment to inform future management action.

2026 Research Track Assessment Proposal - Winter Flounder

Background

The last benchmark assessment was completed at SARC 52 in 2011 for all three winter flounder stocks. An analytical model for Gulf of Maine (GOM) winter flounder was not accepted at SARC 52 due to severe retrospective error. The GOM winter flounder assessment is based on a simple 30+ cm area swept biomass estimate using non-overlapping strata from three different surveys (MDMF, MENH, NEFSC). The Georges Bank (GB) winter flounder assessment is based on a VPA model formulation while the Southern New England (SNE) winter flounder assessment uses an ASAP model. Both the GB and SNE stocks were determined to be overfished and are in rebuilding plans.

Research Focus/Goals

Georges Bank winter flounder

The quality of data for the Georges Bank stock is not considered to be sufficient for supporting a VPA for the following reasons:

1. There are no Canadian length or age data for their GB sea scallop dredge fleet and there are no Canadian survey age-length keys (we have asked that age data be collected during their spring surveys, but to no avail)
2. NEFSC spring and fall BT survey age-length keys are used to estimate US discards-at-age for a large portion of the US bottom trawl and scallop dredge/trawl time-series because the NEFOP discard length-frequency data in recent years consists of very small sample sizes or are lacking.

The retrospective error associated with use of the VPA model is major for this stock.

The current VPA model cannot account for the measurement error and process error associated with use of the available assessment data. Consequently, the next assessment should be a Research Track assessment. Improvements to the type and quantity of Canadian data are unlikely to be implemented by the Canada Division of Fisheries and Oceans because winter flounder are not an important commercial species there. Rather than data improvements, a Research Track assessment for this stock should focus on investigating a new assessment model. An ASAP model is a more flexible model than the VPA model and should be investigated to determine its utility. However, a model other than ASAP may be required (e.g., state-space model) to solve some of the assessment problems associated with this stock.

Gulf of Maine winter Flounder

Evidence of the conflicting trends which led to the rejection of the GOM analytical model still appear to be present in the data inputs. There is a lack of a relationship between the large decrease in the catch with little change in the indices and and/or size structure over time. The indices have remained flat since SARC 52 with little change in the size structure while catches have remained near record lows. Questions remain as to why this stock does not appear to respond to recent low catches and exploitation rates.

Southern New England Mid-Atlantic winter flounder

The SNE stock has also been near record low catches and low fishing mortality rates over the last decade. Recruitment is also near record lows and the indices of abundance are not responding to low catches. Indices of abundance suggest the stock continues to decline. Questions remain as to the role of environmental factors for inhibiting the rebuilding of the SNE stock. This is a current major focus for SNEMA winter flounder and there is ongoing work to shift the model into WHAM and further explore environmental covariates.

Conclusion

A change from a VPA to another model framework for GB will require a new research track assessment. At this time, it is not clear what, if any, new information will be available to inform a GOM winter flounder benchmark assessment and in particular, the current disparate trends in the input data. These conflicting trends, which have resulted in a continued severe retrospective pattern, will continue to make modeling of the GOM stock difficult and the new MRIP time series may make this conflict worse with higher removals in the 1980s.

It is recommended that GOM and GB winter flounder are put on the research track for 2026, and SNEMA winter flounder is also put on the research track for 2026 if it is not moved to a state-space model during the 2023 state-space model research track.

2026 Research Track Proposal - Longfin inshore squid, *Doryteuthis (Amerigo) pealeii*

Doryteuthis pealeii is the target of a valuable fishery and the species is an important component of the Northeast U.S. ecosystem, as both predator and prey. Stock assessments must account for the species' complex life history; a lifespan of 6-8 months, semelparous reproduction and year-round spawning with two peaks that result in two dominant intra-annual cohorts (Brodziak and Macy, 1996; Macy and Brodziak, 2001). The two cohorts have different growth rates and median sizes at maturity, similar to many other loliginid squid species. Consequently, during most assessments since 1996, per-recruit models, biomass and exploitation rates were estimated separately for each cohort, but were generally not used for stock status determination. In order to reduce the potential for recruitment overfishing, most squid stocks have %MSP-based Biological Reference Points (BRPs) and each cohort is managed as a separate stock (Arkhipkin et al., 2015).

The 2017 and 2020 assessment updates required the continued use of the 2010 SAW method which has several shortcomings relative to the biology of the species and application of the assessment results to existing management measures. The method involves *q*-adjusted swept-area biomass estimates for each cohort caught in the spring versus fall surveys. The biomass of the cohort caught in the spring surveys is only 1/5th the size of the cohort caught in the fall surveys, yet relative exploitation rates on the spring survey cohort are higher than they are on the cohort caught in the fall survey. Fishing mortality BRPs do not exist. In addition, the existing stock status determination method is risky because it doesn't account for the apparent productivity differences between the two cohorts. Instead, an annualized stock size estimate (i.e., a two-year moving average of the mean of the NEFSC spring and fall survey biomass estimates) is used. It is unclear what the annualized biomass estimates represent and whether the existing BMSY proxy (from the 2010 assessment) is appropriate.

The 2010 assessment method assumes that the spring and fall survey biomass estimates represent the mean biomasses available to the Jan-June and July-Dec. fisheries, respectively. These two fishery periods as well as the existing trimester-based quota periods are misaligned with the time periods during which each cohort is fished (i.e., winter-hatched squid are caught in the summer fishery and vice versa). Thus, research pertaining to this topic is needed. In addition, research into the apparent lower productivity level of the spring survey cohort will require empirical data to estimate the catch efficiency of the survey trawl gear for *D. pealeii*. The estimation of F reference points is needed along with research into the potential for conducting in-season assessments for adaptive management. The latter is considered the ideal way to assess squid stocks.

The AOP allowed the assessment scientist to "explore" the use of cohort-specific BMSY proxies during the 2020 Level 3 Management Track assessment but decided that their application requires a Research Track Assessment. There is no Research Track Assessment planned for *D. pealeii* through 2025. As a result, the existing risky BMSY proxy will remain in effect for at least

another four years, equating to eight more generations of squid. Since the 2020 assessment, new seasonal age data have been collected for use in computing cohort-specific BRPs.

2026 Research Track Proposal - Monkfish

Background

Monkfish assessment results historically have been viewed with caution due to uncertainties in data inputs and underlying assumptions. These include likely catch underreporting in the early years of the fishery, low catchability of monkfish in fishery-independent surveys, lack of information on stock structure, and perhaps most importantly, our inability to age them (and therefore lack of information on growth). The first two problems are no longer as significant, as the early catch record may be less important with the passage of years and modernization of the NEFSC bottom trawl survey greatly increased the catchability of monkfish. However, stock structure is still not clearly understood and aging methods have recently been invalidated.

Monkfish are assessed as if they constitute two separate stocks (split roughly by Georges Bank), but aspects of their biology suggest a panmictic population. A genetic study currently underway (Monkfish RSA) may shed light on this topic before 2026, and long term tagging studies begun in 2007 could also help elucidate this question; however, results have been very slow to emerge from the tagging study.

A recent study found that the vertebral method for ageing monkfish is not valid and suggested that the illicium (the first dorsal fin ray) may be a feasible alternative age structure (Bank et al. 2020, Fish. Bull. 118:8-20). Subsequent work (S. Sutherland and A. Richards, in progress) has failed to validate ageing with illicia, but has shown that growth rates far exceed those estimated using vertebrae. A study in progress (Univ. MD) using hard part microchemical structure (vertebra, otolith, illicium) and known-age monkfish may allow interpretation of marks on hard parts that will allow age interpretation. A second study using histological methods for ageing (similar to shark vertebral ageing) is also underway (Monkfish RSA).

Research Focus/Goals

1) Review the relevant evidence for stock structure of monkfish to evaluate whether there is significant mixing between monkfish management areas and structure the assessment accordingly.

2) If an accurate and unbiased ageing method can be developed, an age-based assessment could be conducted. However, hard parts for monkfish have not been collected since 2007, so historical catch at age and population age structure would need to be estimated from an age-length key.

3) If ageing is not possible, explore alternatives to a fully age-structured assessment (e.g., delay-difference models, index-based methods, data-poor methods) for assessing monkfish and developing reference points.

2026 Research Track Proposal –
Consideration of ecosystem and climate information in the stock assessment process

Background

Single species stock assessments analyze a dynamic system in which fishing is assumed to be the primary driver and ecological forces are generally considered random variation. As marine environments have and will continue to change, the assumption of ecosystem stability, and therefore stability in that random variation, may prove inadequate. As a consequence, the precision and accuracy of assessment models, biological reference points, and harvest control rules may be adversely affected.

There are multiple ways to incorporate ecosystem components into stock assessments and resulting management advice. Some methods include the:

- Use of estimated weight-at-age matrices in assessment models. Trends in weight-at-age reflect all aspects of the ecosystem, including fishing, changes in ecosystem productivity, and food availability.
- Incorporation of environmental covariates into stock-recruitment relationships to reflect the impact of the environment on stock productivity
- Incorporation of environmental covariates into estimates of availability to fishery-independent or dependent surveys to reflect seasonal movements or interannual changes in distribution
- Use of natural mortality estimates from multispecies models in the single species assessment model for primary prey species

However, mechanistic relationships to explain changes in ecosystem productivity have not been easy to find or, when proposed, have not held up over time. This is because the ecosystem, and its effect on exploited stocks, is too complex to explain with a single variable. The changes currently occurring, and expected to occur in the near future, due to climate change are expected to exacerbate the difficulty in making predictions. This is in part due to the lack of historical observations under similar conditions.

A more efficient and useful approach would be to design an ecosystem simulation (or operating model), with many of the properties of a "true" ecosystem, as a tool for exploring the single- and multi- species model sensitivity to changing environmental variables and evaluating trade-offs as a consequence of technical interactions and fleet dynamics. Built using already existing software such as ATLANTIS or Ecopath with Ecosim, this northeast US shelf (NEUS) model would serve as a benchmark/framework for further testing of important environmental variables, and their effects, on economically and recreational important single species, or multispecies, stock assessments. Additionally, a peer reviewed and accepted simulation model could be directly used by fishery managers and SSCs to help develop and inform qualitative decisions and examine potential tradeoffs in light of changing ecosystem drivers.

Ecosystem and climate information can be incorporated into assessments to address multiple ecological and environmental processes, however, the region does not currently have clear operational guidance for what type of information to consider in assessments for which stocks, when it might be important, and the types of decisions this information can affect (see Link et al. 2020). A peer reviewed and agreed upon framework will streamline the process, and will help focus analytical and observational resources. Furthermore, the simulation model could be used to evaluate the performance and utility of such a decision framework via application to some case studies.

Research Focus/Goals

The goal of this research track is to address the call for Ecosystem Based Fishery Management that acknowledges changing climate conditions when providing management recommendations.

Possible objectives:

1) Develop a peer-reviewed operating model/simulation framework for the NEUS shelf that can both evaluate a range of issues (environmental covariates, multispecies models, etc), and be used to explicitly examine trade-offs
2) Develop a decision framework for how and when ecosystem processes can be evaluated (given multiple councils, multiple ways that ecosystem considerations can be incorporated into assessments and management such as impacts on TAC, productivity indicators, or additional qualitative information to SSCs/Councils to shape decision making)
3) Evaluate ecosystem and climate components across several case study stocks (such as impact of environment on recruitment, survey availability, predation mortality, etc) to examine potential tradeoffs, evaluate risk when compared to management objectives, and highlight spatial and temporal resolution of data needs to inform future sampling strategies.

Proposed Framework for East Coast Climate Change Scenario Planning Initiative
DRAFT for NRCC Review

May 2021

Overview

In November 2020, the Northeast Region Coordinating Council (NRCC) agreed to move forward with an east coast scenario planning initiative as a way to explore jurisdictional and governance issues related to climate change and shifting fishery stocks. The NRCC consists of leadership from the Atlantic States Marine Fisheries Commission (ASMFC), Greater Atlantic Regional Fisheries Office (GARFO), Mid-Atlantic Fishery Management Council (MAFMC), New England Fishery Management Council (NEFMC), and Northeast Fisheries Science Center (NEFSC). In addition, the NRCC and the South Atlantic Fishery Management Council (SAFMC) agreed that the SAFMC should participate in the process as well given that governance issues related to climate change and shifting stocks will need to be addressed along the entire East Coast.

Scenario planning is a tool that managers can use to test decisions or develop strategy in a context of uncontrollable and uncertain environmental, social, political, economic, or technical factors.[1] It is a structured process for managers to explore and describe multiple plausible futures and to consider how to best adapt and respond to them. Scenario planning is not a tool for predicting future conditions; rather, scenarios are essentially stories about plausible combinations of future conditions that allow for explicit consideration of uncertainty in future conditions. Scenarios are created in response to a focal question developed based on a major strategic challenge faced by an organization.

This document describes a proposed plan for a coordinated East Coast Scenario Planning Initiative. Some of the content below is adapted from the July 2020 recommendations of an NRCC scenario planning working group,[2] which was formed in 2020 to explore this concept and provide recommendations to the NRCC. The working group included representatives from all NRCC partners as well as NMFS Headquarters and the SAFMC.

As this process develops, additional information and documents will be posted to a dedicated website: https://www.mafmc.org/actions/climate-change-scenario-planning.

Core Team

The core team for this project, listed below, will serve as the primary technical group working on this project in coordination with a contracted facilitator. Along with the facilitator, the core team will be responsible for much of the research, planning, coordination, and compiling of materials for this process. The core team is analogous to a Fishery Management Action Team (FMAT) or Plan Development Team (PDT) used in the development of Council management actions. The NRCC may determine that additional expertise is needed on this technical working group.

[1] National Park Service, 2013. Using Scenarios to Explore Climate Change: A Handbook for Practitioners. National Park Service Climate Change Response Program. Fort Collins, Colorado. Available at: https://www.nps.gov/parkhistory/online_books/climate/CCScenariosHandbookJuly2013.pdf.

[2] Available at: https://www.mafmc.org/s/Scenario-Planning-WG-Summary-Document-Final-Version.pdf

Organization	Representative
MAFMC	Kiley Dancy
ASMFC	Toni Kerns
NMFS GARFO	Moira Kelly
NEFMC	Deirdre Boelke
NMFS NEFSC	Sean Lucey
SAFMC	Roger Pugliese

Facilitation

The NRCC agreed that an experienced process facilitator should be contracted to support the scenario planning exercise through the majority of the process. Jonathan Star of Scenario Insight[3] has been selected as the facilitator for this process, and a contract is currently being finalized as of May 2021. The facilitator will be expected to work with the core team on major steps of this process including conducting a scoping process for gathering preliminary stakeholder input, developing materials and logistics for a scenario building workshop, facilitating and summarizing a scenario building workshop, and facilitating a follow up process to explore applications of the scenario building outcomes.

Funding for the facilitator will be provided by The Nature Conservancy (TNC), which was awarded a grant from the Gordon and Betty Moore Foundation to support East Coast scenario planning efforts in partnership with the NRCC. The Atlantic States Marine Fisheries Commission has agreed to administer these funds, which are expected to cover some costs of this initiative including process facilitation, meeting facilities and/or technology contracts for remote meeting platforms, potentially public invitational travel, and other miscellaneous expenditures such as printing, outreach, or scoping surveys.

In addition to the funding described above, NMFS has secured additional funds to support this initiative. The specific amount and how the funds will be used is still being finalized, but there will likely be additional funds available to support workshop logistics, facility rentals, and general support for the scenario planning workshops. Each of the participating organizations have also committed resources to support travel and participation of staff and members.

Benefits of Scenario Planning

As noted above, scenario planning is a tool that managers can use to test decisions or develop robust strategies in a context of uncontrollable and uncertain environmental, social, political, economic, or technical factors. In the case of the NRCC, conducting an east coast scenario planning exercise will be designed to evaluate challenging climate change related management and governance issues in a changing ocean environment across multiple jurisdictions. Scenario planning can be a useful tool in not only exploring and describing multiple plausible futures, but also to advance discussion of how an organization can plan for or adapt to different possible future scenarios.

Scenario planning can consider broader uncertain forces in the world such as societal change, climate and environmental change, as well as changes in the policy and legal environment, and consider how these drivers that are outside of the organization's control may affect organizational priorities and planning. Some benefits of scenario planning are that this process:

[3] http://scenarioinsight.com/about/

- Forces participants to explore their underlying assumptions and perceptions about the range of possible future conditions.
- Reduces the tendency for managers to become overconfident in their expectations of future conditions, too focused on a limited view of the future, or paralyzed by uncertainty.
- Provides a way to organize complex information about changing conditions and stimulates creative and innovative thinking about how to prepare for change, in a way that is disconnected from the typical regulatory process.
- Provides an opportunity for proactive thinking and planning, allows participant groups to be well positioned to be collectively ahead of the curve instead of merely reacting to new and dynamic information as it occurs.
- Can enhance stakeholder engagement, provide diversity and equity in decision making, and foster creativity and social innovations from stakeholders.

Draft Initiative Objectives and Focal Question

The following draft objectives and focal question will be considered during a scoping process, to be potentially refined based on scoping input:

Draft Initiative Objectives

The objectives for this initiative should address the question "Why are we doing this work?"

(i) To explore how fishery governance and management issues will be affected by climate-driven change in fisheries, particularly shifting stock availability and distributions.

(ii) To develop a set of tools and processes, which provide flexible and resilient fisheries management strategies that effectively address uncertainty in an era of climate change.

Strategic Challenge and Draft Focal Question

The "strategic challenge" these fishery management organizations are facing is essentially: **How should East Coast fishery management governance evolve in an era of climate change?** We might all have our ideas on the answer to that question, but if we are using scenarios, then the only correct answer is "it depends." A suitable evolution of governance will depend on how climate change affects fisheries, and we don't know the answer to that question right now. Hence the need for a scenario initiative, with the following draft focal/framing question:

How will climate change affect stock distribution, availability, and other aspects of fisheries over the course of the next 20 years? And what does this mean for effective future governance and management across multiple jurisdictions?

We cannot know the precise answer to this question. But we can create scenarios that provide us with a range of possibilities. These possibilities will then force us to think about a wide range of effective future governance/management models, and then decide upon any changes needed.

Draft Expected Outcomes

The core team and facilitator have identified the following expected outcomes and products of this initiative, with the potential for this list to be refined as the project progresses:

- A set of scenarios that describe different ways that climate change could affect the future of east coast fisheries
- An understanding of the implications of these scenarios and the challenges and opportunities facing fishery management in the future, including a better understanding of the limitations of current systems
- A set of near-term and long-term management priorities that help achieve fishery management objectives under a range of different future conditions
- Policy recommendations for broader governance changes that would improve our ability to adapt to varying future scenarios.
- A list of data gaps, research needs, and monitoring needs for changing conditions.
- A framework for ongoing conversation and idea generation with and amongst various stakeholders

Structure for Oversight and Participation

The ultimate decision-making management body for this process will be the NRCC with the addition of at least one South Atlantic representative. Given the number of management groups involved and the variation in their decision-making processes and timelines, it is unlikely to be feasible to seek explicit approval at each process step from each management body. Instead, it is expected that participating organization representatives will provide periodic updates to their respective management bodies and seek their feedback for incorporation into the core team/NRCC process.

It is also possible that Council and Commission advisory bodies could be used to inform various parts of the process where appropriate. Specifically, Committees, Advisory Panels, Technical Committees, and/or SSCs could provide input during the scoping process, during the development of specific driving forces to be explored during a scenario building workshop, and in the development of applications and products from this process. Members of these groups could also be identified to participate directly in the planned workshops. Consideration will need to be given to the feasibility of engaging and the level of involvement of these groups, weighing the additional complexity of involving many different groups.

As the process develops, further discussion will occur to identify how participants will be directly involved in the development of the scenarios and/or the development of applications and recommendations.

Proposed Scenario Planning Process and Timeline

The proposed scenario planning process consists of six major steps and is outlined in the table below. This process is adapted from the recommendations of the NRCC working group in July 2020 and is loosely based on the scenario planning process outlined in the NPS 2013 scenario planning handbook.

The NRCC working group recommended that the NRCC adopt a two-workshop model: the first workshop would be held to develop the draft scenarios in phase 4, and the second workshop would be held in phase 5 to discuss how the insights from these scenarios should be applied in the management process, including developing recommendations for management and governance strategies and priorities.

Table 1: Proposed process for scenario planning, adapted from NRCC working group July 2020 recommendations and based loosely on NPS 2013 Handbook stepwise process. Approximate timeline is tentative pending further NRCC discussion.

	Goal	Steps	Outcomes/Products	Who/What	When
Phase 1: Orientation	Establish project objectives, guidance structure, process, and timeline	• Form core team • Develop facilitation contract • Establish process, purpose, and scope of project, including focal issue (strategic challenge) to explore • Determine decision-making structure • Determine type of desired outcomes • Plan for scoping process	• Framework and timeline for a proposed process • Contract with outside scenario planning expert/facilitator • An understanding of the purpose, desired outcomes, focal issue, and scope of project • Plan for scoping	• Core team and facilitator with input from NRCC if needed	Late 2020 – Early Summer 2021
Phase 2: Scoping	Gain stakeholder perspectives on focal issue and external driving forces for east coast fisheries	• Work with core team and facilitator to conduct structured outreach ("scoping" process) • Refine project objectives and focal question if needed based on scoping feedback	• Synthesize public and stakeholder input for further use in process, particularly regarding focal question and external driving forces to be further explored during scenario building workshop • Introduce stakeholders to scenario planning and potential application in this context • Build preliminary list of possible workshop participants	• Core team, facilitator, interested stakeholders and public	Summer/Fall 2021 (Virtual)

Phase 3: Exploration	Identify and analyze drivers, variables, trends, and uncertainties	• Identify and describe drivers, variables, and uncertainties from interviews with experts, advisory bodies, core team, public input results • Identify potential impacts of these drivers • Plan for discussion during synthesis phase (i.e., scenario building workshop)	• A list of drivers, variables, or uncertainties that are likely to impact east coast fisheries over the specified time horizon • Supporting introductory information on these drivers, such as overview text, tables, conceptual models, charts, or maps that will help process participants discuss potential impacts	• Core team & facilitator, with input from experts, management & advisory bodies, stakeholders	Fall 2021 (In person and/or virtual)
Phase 4: Synthesize & Create Scenarios	Produce small number of scenarios using critical drivers and potential impacts identified in Phase 3	• Determine critical uncertainties with large impact on focal issue • Hold workshop to build scenario frameworks and choose scenarios • Develop scenario narratives • Review scenarios for plausibility	• 3-5 plausible, relevant, challenging and divergent scenarios using critical uncertainties to inform, inspire and test actions/strategies	• Core team works with input from NRCC, others. • Planned workshop to create scenarios	Late 2021/ Early 2022 (In person)

Phase 5: Applications	Answer "So what?" questions: What are the impacts of these plausible futures? What can we do about it?	• Identify scenario implications • Use scenarios to inform development of management strategies and priorities, and policy recommendations for future governance and research • Develop recommendations applicable to collective group of participants and/or individual management organizations	• Report with list of actions, strategies, or areas for additional research based on discussions initiated by scenarios	• Core team works with input from NRCC, others. • Workshop to understand management implications	Spring/Summer 2022 (In person)
Phase 6: Monitoring	Identify important indicators (trigger points) that can signal changes in the environment as future unfolds	• Select indicators to monitor • Monitor environment changes	• List of indicators and early warning signals for continued research and monitoring • A monitoring strategy	• Core team works with input from NRCC, others	Summer/Fall 2022 (In person and/or virtual)

2020 FALL NRCC MEETING SUMMARY

Webinar

November 9-10, 2020

Attendees

Atlantic States Marine Fisheries Commission (ASMFC)
Bob Beal, Executive Director
Toni Kerns, Interstate Fishery Management Program Director
Patrick Campfield, Fisheries Science Program Director

Mid-Atlantic Fishery Management Council (MAFMC)
Mike Luisi, Chair
Dr. Chris Moore, Executive Director
Brandon Muffley, Staff
Dr. Paul Rago, Chair, Scientific and Statistical Committee (SSC)

New England Fishery Management Council (NEFMC)
Dr. John Quinn, Chair
Eric Reid, Vice-Chair
Tom Nies, Executive Director
Chris Kellogg, Deputy Director
Dr. Jason McNamee, Chair, SSC

NOAA Fisheries Northeast Fisheries Science Center (NEFSC)
Dr. Jon Hare, Science and Research Director
Dr. Michael Simpkins, Chief, Resource Evaluation and Assessment Division
Dr. Russell Brown, Chief, Population Dynamics Branch

NOAA Fisheries Greater Atlantic Regional Fisheries Office (GARFO)
Mike Pentony, Regional Administrator
Sarah Bland, Assistant Regional Administrator for Sustainable Fisheries
Liz Sullivan, Sustainable Fisheries Division (NRCC staff support)
Laura Hansen, Sustainable Fisheries Division (NRCC staff support)

Guest Presenters
Chris Schillaci, GARFO Habitat and Ecosystem Services Division
Kevin Madley, GARFO Habitat and Ecosystem Services Division
Emily Gilbert, GARFO Sustainable Fisheries Division
Jen Anderson, GARFO Protected Resources Division
Dr. Mike Asaro, GARFO Protected Resources Division
Moira Kelly, GARFO Sustainable Fisheries Division
Amanda McCarty, NEFSC Fishery Monitoring and Research Division Chief
Kiley Dancy, MAFMC Staff

Additional Attendees
Dr. Anthony Wood, NEFSC Population Dynamics Branch
Dr. Brian Linton, NEFSC Population Dynamics Branch

Dr. Charles Perretti, NEFSC Population Dynamics Branch
Dr. Dvora Hart, NEFSC Population Dynamics Branch
Gary Shepherd, NEFSC Population Dynamics Branch
Katherine Sosebee, NEFSC Population Dynamics Branch
Dr. Mark Terceiro, NEFSC Population Dynamics Branch
Paul Nitschke, NEFSC Population Dynamics Branch
Susan Wigley, NEFSC Population Dynamics Branch
Dr. Timothy Miller, NEFSC Population Dynamics Branch
Toni Chute, NEFSC Population Dynamics Branch
Dr. Jamie Cournane, NEFMC Staff

Public Attendees
Greg DiDomenico, Garden State Seafood Association

Note: NRCC decisions and action items that resulted from this meeting are in bold for ease of reference.

– Day 1 –

1. Aquaculture

Mr. Chris Schillaci and Mr. Kevin Madley, the Regional Aquaculture Coordinators at GARFO, provided a presentation regarding NMFS aquaculture efforts at GARFO and nationally. Mr. Schillaci first gave an overview of the aquaculture aspects of the Executive Order (E.O.) on Promoting American Seafood Competitiveness and Economic Growth, which focuses on regulatory reform to maximize commercial fishing, seafood trade, and the expansion of U.S. seafood production through more efficient and transparent aquaculture permitting. Mr. Schillaci highlighted Section 6 of the E.O., which designates NOAA as the lead agency for NEPA when an aquaculture project requires environmental review or authorization by two or more agencies, requires an environmental impact statement, and is located outside of the waters of any state or territory and within the EEZ of the U.S. He also gave an update on Section 7 of the E.O., which charges NOAA with the designation of 10 Aquaculture Opportunity Areas (AOA) nationally. He explained that NOAA is using a combination of National Ocean Service (NOS) siting analysis and mapping, combined with stakeholder input, and state and federal interagency coordination to identify two AOAs annually over the next 4 years.

Mr. Tom Nies asked if AOAs have any regulatory authority. Mr. Schillaci explained that there are no permits issued for these areas and that this is a science and planning effort. NOAA is using existing spatial data combined with stakeholder input on potential user and resource conflicts to inform an impact assessment for each AOA. Dr. Chris Moore asked about the process when multiple agencies are involved. Mr. Schillaci explained that USACE and EPA are the permitting agencies for aquaculture, and generally serve as the lead federal agency under NEPA. NMFS generally serves as a cooperating agency, conducting Endangered Species Act and Essential Fish Habitat consultations. When two agency authorizations are required, agencies have to coordinate to determine which agency will be the lead. CEQ regulations allow for a cooperating agency to be designated as the NEPA lead if they have special experience.

Mr. Madley provided a presentation on the Gulf of Mexico litigation regarding the Aquaculture Fishery Management Plan. The Fifth Circuit issued an opinion affirming the district court's decision that NMFS exceeded its statutory authority when it issued the final rule implementing

the FMP for aquaculture in the Gulf of Mexico. At the time of the NRCC meeting, NOAA Fisheries was standing by to continue assistance to DOC and DOJ as they assessed whether to "appeal" or seek further review of the Fifth Circuit decision.

Mr. Madley gave an overview of the current process for EEZ aquaculture site screening. The informal process includes coordination with permitting agencies, site scoping, site decision and baseline environmental surveys. Following those pre-application steps, submittal of applications to the appropriate state and federal agencies would likely follow.

Mr. Nies asked if GARFO had looked at the aquaculture policy adopted by the New England Council in the late 1990s, which included elements such as having a single point of contact. Mr. Madley explained that the site screening process described is not a formal policy, and if a project required coordination with the New England Council, GARFO intent would be to inform the New England Council of the proposal and inform the project proponent of the New England Council aquaculture policy. Mr. Schillaci added that the NEFMC Habitat Committee is working on an aquaculture policy, and the goal is to make sure the Council is able to focus on the projects that have a higher potential for conflicts or impacts. There is a NOAA Fisheries Greater Atlantic Region Aquaculture Team that includes both GARFO and NEFSC staff. Mr. Schillaci explained that GARFO does not always know about potential projects until another agency comes to GARFO for consultation. NOAA resources, such as NOS siting tools, are often used by project proponents, but applicants can submit directly to USACE without coordination through NOAA.

Dr. Moore asked how the informal process for site screening relates to the E.O. Mr. Schillaci explained that the site screening process outline is an example of what a permit applicant would go through. It is very similar to what NOAA is doing for AOAs, except they take the next step to identify the most desirable alternative.

Mr. Nies asked if MAFMC or ASMFC had any plans to comment on the Manna Fish Farm proposal. Neither Dr. Moore nor Mr. Bob Beal indicated they did. Mr. Mike Pentony raised that at a state directors meeting, multiple states indicated concerns with the Manna Fish Farm, due to potential implications for striped bass. Mr. Beal explained that since Manna had shifted away from striped bass, states became less concerned. Mr. Madley added that regulatory constraints had pushed the applicant away from striped bass. Manna has recently indicated they do not plan to include striped bass as a culture species in their applications.

2. SAFE Reports

Ms. Emily Gilbert provided a brief update on the status of SAFE reports. Several years ago, the NRCC had decided that GARFO would be most appropriate to host the reports, and GARFO undertook uploading all relevant documents (which includes SSC meeting documents, appendices, stock assessment reports) to the website. However, website redesign, 508 compliance, and workload have hindered GARFO's ability to continue to update the SAFE report webpage. Ms. Gilbert explained that to solve this, a working group has suggested that GARFO would want to use a hybrid approach, where the GARFO website would be used to search for the documents, but the documents would be stored on other websites.

Mr. Nies pointed out that there are some SAFE report documents that aren't on Council websites. For instance, stock status is not updated annually. He cautioned about setting the expectation that the Councils would compile the information for the SAFE report. Dr. Mike Simpkins raised that 508 compliance is a wider issue, which affects documents such as stock

assessments. Dr. Paul Rago added that the national control over the NMFS webpage has caused problems, making it challenging to find the desired information on the webpage. Ms. Sarah Bland stated that GARFO would revisit. Councils should identify points of contact for GARFO staff to help identify challenges that GARFO would need to work through, and GARFO would provide an update at the Spring 2021 NRCC meeting (**Action Item #1**).

3. Wind Update

Mr. Pentony and Dr. Jon Hare provided an update regarding wind energy. The Synthesis of the Science Workshop, sponsored by the Responsible Offshore Development Alliance (RODA), took place in mid-October, and there was a lot of useful questions and exchanges of information. For Vineyard Wind, the regional wind team provided comments on the FEIS. The preferred alternative is not currently available, but at the DEIS stage, GARFO did not concur with the preferred alternative. If we do not concur on at the final stage, it would be related to process, rather than the permit. The biological opinion has been signed. **Update:** As of December 16, 2020, the Department of Interior announced that the federal permitting process for the Vineyard Wind project is canceled.

For South Fork Wind Farm, GARFO submitted comments to BOEM in October. The range of alternatives included one that would minimize fish habitat impacts. Mr. Pentony provided updates on staffing for the wind team, as well as new wind tools and analyses that are available online. Currently, there are 10 construction operations that require review, which will mean high workloads.

4. Scenario Planning

Ms. Kiley Dancy provided an update from the Scenario Planning Working Group. The Nature Conservancy has been approved for a grant from the Gordon and Betty Moore Foundation to support East Coast climate change scenario planning. The ASFMC has agreed to administer the grant, which could alleviate issues of the Councils or Agency receiving funds. The funding is intended to be used for costs such as hiring a facilitator or travel, while the Councils and Agency would continue to be responsible for their respective staff costs.

The working group recommended appointing a small core team comprised of NRCC membership technical staff. The working group also recommended the appointment of chair(s). The core team would be responsible for technical work and logistics, analogous to a plan development team or fishery management action team. The working group also recommended the formation of an ad-hoc committee, but the NRCC did not pursue this recommendation. The next steps would be to secure a facilitator, identify the key questions, establish a timeline, and identify goals and objectives. Dr. Moore added that the South Atlantic Council is very interested in being involved in the process, and the NRCC was supportive of their involvement. Mr. Nies reported that NEFMC has adopted scenario planning as one of the priorities for 2021. Mr. Beal added that ASMFC is also very interested, and that the Commission has agreed to handle the administration of the TNC grant.

Dr. John Quinn asked whether NOAA grant attorneys had concerns about using outside funds. While it was thought to only be an issue if the Council or Agency directly received the funds, Dr. Moore agreed that MAFMC would check with NOAA attorneys regarding having ASMFC administer the funds from TNC (**Action Item #2a**).

On the topic of governance, the NRCC agreed that it would serve as the Scenario Planning Steering Committee, and the South Atlantic Council should be included as well. There would need to be a meeting ahead of the Spring 2021 NRCC meeting. If a contractor were hired, they would be responsible for logistics, while the Steering Committee would focus on higher level issues. To make the process effective, the members of the NRCC would need to agree on the desired outcome, which might take a few meetings.

The Core Team (or technical team) would be made up of the Scenario Planning Working Group. The NRCC discussed whether TNC should be also included in the Core Team. In the Pacific, TNC is part of the Core Team, but this could raise perception concerns, and questions of why TNC would be included, and whether other groups should be invited to participate as well. While the idea of having a separate team was proposed, which could be opened up to multiple groups for membership (e.g., TNC, industry), members of the NRCC had concerns about how this would affect costs, as well as what its role would be, such as serving as advisors to the Steering Committee or Core Team. Mr. Pentony suggested that TNC could be a technical advisor, given that, for all participants, scenario planning is new, and TNC has experience that would be useful. TNC should not be deciding the outcome of the process, rather providing input on the process. Dr. Moore agreed, and expanded that TNC could advise the Core Team. **Update:** Following the meeting, Dr. Moore contacted the Pacific Council to confirm that they recommend the approach of using TNC as a technical advisor.

The NRCC agreed that ASFMC would take responsibility for hiring a facilitator for scenario planning, but would solicit input from the rest of the NRCC before making a selection. ASMFC will confirm that it is able to hire using a sole source contract, rather than going through an RFP, given that the source of the funding is private (**Action Item #2b**). The NRCC will identify the members of the Core Team (**Action Item #2c**).

5. Ropeless Technology

Ms. Jen Anderson and Dr. Mike Asaro provided a presentation on the current status of ropeless gear technology. The three styles of retrieval systems are gaining interest as an alternative to closures as entanglements of North Atlantic Right Whales have increased. NEFSC is conducting field testing of all three systems, and economists are working on cost estimates to forecast how costs could decrease over time. There are a number of challenges, including location markings for other mariners, enforcement, privacy concerns, gear conflicts, and how to transition away from the current requirement to have an exempted fishing permit (EFP) when using ropeless gear. There is a Ropeless Consortium, which is very focused on gear markings and gear conflicts. GARFO and NEFSC plan to keep the NRCC updated as they work through the issues. Most potential solutions would require changes to regulations, and will require coordination between many groups.

6. BSIA Framework and SSC Points of Contact

Ms. Moira Kelly followed up on the Summer Intersessional conversation about the agency having point(s) of contact at SSC meetings. GARFO and NEFSC have had staff at all of the SSC meetings held this fall, but it was not clear how the agency should notify the Council or the SSC that staff that were present were satisfying the goal of having POCs at the meetings. Both Mr. Nies and Dr. Moore indicated that formal notification was not necessary, but that the agency should email Mr. Chris Kellogg or Mr. Brandon Muffley, respectively, which staff in attendance were there as the representative of GARFO and/or NEFSC. GARFO and NEFSC should identify

a point of contact to the Councils, for the Councils to reach out to once an agenda is created for the SSC meeting. Dr. Simpkins added that under the current situation of virtual meetings, having staff present was relatively easy. In the future, when meetings return to in-person, it might be more challenging to have as many staff present, unless the SSCs continue to keep virtual attendance an option.

7. Gear Conflicts

Mr. Nies reported that the NEFMC has discussed making a priority the issue of how to deal with gear conflicts. The Council and Scallop Committee have discussed conflicts between lobster and scallop fisheries, and NEFMC repeatedly receives comments that there is nowhere for trawl fisheries to operate. The proliferation of Jonah crab gear in the EEZ has also led to additional conflicts, as well as more lobster gear moving offshore. The Council did not establish this as a priority for 2021, but the situation seems to be getting worse. Ms. Toni Kerns added that NMFS is catching up with the ASMFC rulemaking that requires a lobster permit to fish for Jonah crab, which may limit the number of traps that would qualify to be set.

8. FDDI Updates

Ms. Amanda McCarthy provided an update on FDDI. FDDI is currently focused on the technical programming led by NEFSC and policy work led by GARFO. The NEFSC is focused on linking datasets and developing and upgrading data systems, and GARFO is focused on eVTR. Both have been working on a vision and roadmap that lay out future efforts and resource needs, and these documents should be available to share in early 2021. Systems such as PTNS, OASIS, FLDRS have been redesigned and upgraded, and there has been redesigns of systems to issue and track COVID-related observer waivers. The Catch Accounting and Monitoring System (CAMS) project, which is a joint initiative to create a single comprehensive source for all US commercial catch, is currently on track for milestones. There is a contractor that is entirely focused on state data, to make sure that CAMS works with ACCSP.

Ms. McCarthy acknowledged that, when databases change, there are often issues, but part of the plan is to see how well CAMS lines up with the data currently in DMIS. Mr. Nies raised the issue of data from 2020, which will have inherent issues due to COVID, and asked if there was a plan to create CAMS data for years before 2019. Dr. Simpkins replied that if CAMS and DMIS data match well for 2019, that might not be necessary, but if not, it might be necessary to recreate data for earlier years. Regarding the "one-stop shop" for data, Mr. Pentony stated that, given the Joint Omnibus Electronic Vessel Trip Reporting Framework Adjustment publication date of November 10, 2020, the one-stop shop should be effective a year from then.

Mr. Greg DiDomenico, a member of the public, asked whether the agency would make eVTR mandatory for vessels that are not fishing. Mr. Pentony stated that this would essentially be a "did not fish" (DNF) report, which is no longer required, although the Councils could request that it be used again. Mr. DiDomenico suggested that DNF reports would show whether vessels are reporting, and whether permits are getting used. He argued that permit renewals should be tied to use of permits and reporting compliance.

– Day 2 –

9. Stock Assessments

Year 1 Suggestions and Lessons Learned

Dr. Simpkins led a discussion on the suggestions and lessons learned from the first year of the NRCC stock assessment process, including a summary of the assessment processes for Atlantic herring, red hake, and ocean pout. He provided an update on the index-based methods research track assessment, which needed more time and so the review was delayed. The peer review was scheduled for early December, and it was suggested that an SSC member chair that meeting (**Action Item #3a**). **Update:** The peer review panel was chaired by Dr. Paul Rago.

Several members of the NRCC brought up concerns with the past year of stock assessments. Ms. Kerns expressed disappointment that recent papers (Bell *et al*.) were not included in the winter flounder assessments, despite the NRCC previously agreeing that they would be. Dr. Simpkins agreed that there are challenges for how to include information when it does not fall within the existing framework and that guidelines for the types of updates that can be done through a management track assessment could possibly be adjusted in the future.

Mr. Nies brought up several issues, including his concern regarding Atlantic herring having originally proposed as a level 1 assessment by the AOP. He raised that assessment oversight panel (AOP) meetings had become a mini review of the stock assessments, which was not the original intent. In addition, the AOP summary for the fall management track assessments inaccurately described the results of the red hake research track assessment and several sea scallop activities. Some of these errors mislead reviewers during the fall management track assessment. A potential solution for this is having the AOP chair run the report through the Council staff who were present at the AOP and research track meetings. Mr. Nies also brought up the data issues that were raised by the Atlantic halibut assessment. For the second year in a row, errors in the catch in a Level 1 assessment were not detected by the NEFSC's internal review and had to be corrected later by the Council's Plan Development Team. Relating to red hake, Mr. Nies expressed the concern that work that was expected to be done for the Level 3 assessments was not completed. For Level 3 assessments, it may be beneficial to consider forming a working group rather than rely on a single assessment biologist.

Regarding stocks with Plan B assessments, Mr. Nies raised the concern that, while Plan Bs provide catch advice, they do not provide information about the status of the stock. There also seems to be an assumption at the NEFSC that once a Plan B approach is used, the original approach cannot be revisited without a research track assessment. Dr. Simpkins replied that there could be a way to fix or improve the assessment so that it is approved the next time, but that this would need follow-up discussion with the assessment level guidelines working group.

Mr. Nies relayed that reviewers at the fall assessment were frustrated that not all background information they needed ahead of the peer review. Research track documents were not available and in some cases presentations were not available in advance. Mr. Nies also expressed concern that the data portal does not provide consistent information across all stocks. The management track assessment reports have not been updated to provide the information that has been requested in the past. Following up on the issue raised earlier by Ms. Kerns, Mr. Nies also relayed that the SSC has been frustrated about how long it takes to incorporate environmental concerns into research track assessments. As an example, analytic winter flounder assessments incorporating environmental variables were published several years ago, yet it seems the earliest they will be considered is after 2025 in a winter flounder research track assessment. Dr. Simpkins replied that, while the assessment schedule currently does not have a climate change topic based research track, the NRCC can change the schedule and include a research track topic

focused on these issues. Ms. Kerns raised that when there are topic-based research assessments, it is unclear how those then get incorporated into the individual stock assessments, and whether they have to wait for a research track or it can go into a management track assessment.

Mr. Eric Reid brought up the question of how the industry can assist in developing research track terms of reference (TOR), and several replied that this has been something that has been attempted, but the process can always be improved.

Dr. Simpkins recorded the issues raised and recommended forming an NRCC assessment work group to review and address the list of issues.

2021 Preparations

Dr. Simpkins gave a summary of 2021 plans and potential issues. The TORs for haddock were negotiated with the NRCC and TRAC/Canada, and a working group is underway with Canadian members. For *Illex* and butterfish, TORs were developed via the existing NRCC process, however concerns were raised after the TORs were final. Candidates for a working group have been solicited. Mr. Muffley recommended improvements for outreach to solicit membership for working groups, to increase participation beyond the NEFSC. It would also be useful to get a standardized TOR for climate change. Dr. Moore recommended that these suggestions be included in the proposed assessment work group priorities.

Regarding the impact of COVID-19 on management tracks, Dr. Simpkins provided an overview of data gaps (surveys, observer data, MRIP data, biosampling). Index assessments will not be able to be updated in 2021, and there would be large uncertainty in the 2020 terminal year estimates. There is the potential that unbalanced data could warp a model, given missing data across several different data streams, and variability in the extent of missing or potentially biased data. This could have a strong influence, if used as the terminal year. Dr. Simpkins recommended, and **the NRCC agreed, that, for 2021 management assessments, NEFSC use 2019 as the terminal year, but use 2020 to inform projections if appropriate**.

The NRCC had an in-depth discussion regarding the stocks on the 2021 management track schedule. **The following table shows the final NRCC decisions**:

Timing	Stock	NRCC Decision for 2021 Assessment
June	Mackerel	Keep
June	Summer flounder	Keep
June	Golden tilefish	Keep
June	Bluefish	Keep
June	Scup	Keep
June	Black sea bass	Keep
July	Cod - EGB (TRAC)	Keep
July	Yellowtail - GB (TRAC)	Keep

July	Haddock- EGB (TRAC)	Keep
June	Striped bass	Postpone
Sept	Scallops (area allocation model)	Keep
Sept	Cod - GOM	Keep
Sept	Cod - GB	Keep
Sept	Haddock-GB	Keep
Sept	Haddock - GOM	Keep
Sept	White Hake	Postpone
Sept	Scallops (status determination model)	Postpone
Sept	Witch Flounder	Postpone
Sept	Yellowtail - SNE/MA	Postpone
Sept	Pollock	Postpone
Sept	Yellowtail - CC/GOM	Postpone
Sept	American plaice	Postpone
Sept	Skates	Postpone

Dr. Simpkins will work with the Councils and provide an update at the Spring 2021 meeting regarding how the postponed stock assessments will be dealt with, and the downstream effects of these changes (**Action Item #3b**). The NRCC discussed encouraging the use of Level 1 assessments for as many stocks as possible, although there would be several stocks for which Level 1 would not be appropriate.

Future planning
Dr. Simpkins indicated that forming the research track working groups one at a time has kept the working groups on single year timelines. Dr. Simpkins put forward several options, such as having a steering committee for each stock or topic, having cross-cutting steering committees, either by FMP, region/area, or a single standing steering committee. He proposed a bulk solicitation of working groups through 2025, and the development of a steering committee(s) plan. Additionally, he recommended developing standardized TORs for research tracks to enable a bulk solicitation, while still allowing for additional, stock-specific TORs. Several raised the issue of ensuring a diversity of backgrounds (beyond Science Center staff) on the working groups. **The NRCC supported standardizing TORs to the extent possible and bulk solicitation, but more discussion is needed regarding steering committees.**

Dr. Simpkins recommended convening an assessment process technical team (working group) to discuss the assessment process issues brought up over the course of the Fall 2020 meeting, and develop recommendations. The NRCC would need to provide representatives from each group, and Dr. Simpkins would provide a collation of needs, to inform membership (**Action Item #3c**).

For the possible 2026 research track schedule, the left-over list from the Spring 2020 meeting included the following stocks: winter flounders, Jonah crab, longfin squid, and monkfish; and the

following topics: incorporation of ecosystem information and dynamic reference points. Mr. Nies suggested that the list also include a consideration of the recommendations from the Fishery Dependent Data Working Group, but this could change depending on the results of the working group. **The NRCC agreed that they would follow the same approach (proposal, review, recommendation) as last time, as well as using a Working Group or team.**

Regarding communication, the goal is to target existing groups that represent and connect with key stakeholders, including advisory panels and sector managers. While the website has created problems with how best to make information available, the Science Center is working on ways to make it more functional and searchable.

10. Joint Fishery Management Plans

Regarding FMPs with joint management, namely spiny dogfish (MAFMC lead) and monkfish (NEFMC lead), Mr. Nies raised the issue of how the MAFMC has committees-as-a-whole (made up of all Council members), whereas the NEFMC has committees (made up of a sub-set of Council members), which can lead to an imbalanced joint committee meeting. Mr. Luisi and Dr. Moore agreed that it would make sense to have a committee meeting, rather than a committee-as-a-whole in these cases.

11. Other Business and Public Comment

Mr. DiDomenico stated that there needs to be a clear set of rules when research track assessments are scheduled and underway, including having clear TORs that are available for the public to review and comment on. Several NRCC members responded that the assessment process work group could include this issue in their review. Dr. Hare suggested that it would be useful to provide guidance on when it is an appropriate time for groups to comment on stock assessment TORs.

Next Meeting

The Spring 2021 NRCC meeting will be a 2-day meeting, to be scheduled during May 25-27, 2021, chaired by NEFSC. The NRCC will decide via correspondence which of the 2 days to hold the meeting, and the decision to hold the meeting virtually or in-person will be made closer to the date, based on current conditions.