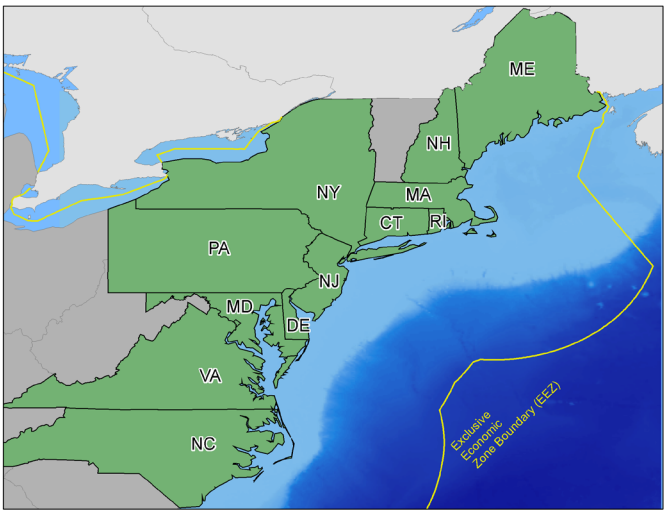
NORTHEAST REGION COORDINATING COUNCIL

Spring 2023 Meeting
May 9-10, 2023
Gloucester, MA



Meeting Briefing Book Table of Contents
(*hyperlinked*)

2023 SPRING NRCC MEETING AGENDA

Greater Atlantic Regional Office – 55 Great Republic Drive, Gloucester MA

All times are approximate

Tuesday, May 9

9:00 a.m. – 9:15 a.m.

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

9:15 a.m. – 9:30 a.m.

2. SAFE Reports
   Discussion leader: Fenton
   - Update on the process to make Stock Assessment and Fishery Evaluation (SAFE) reports uploaded and available online.

9:30a.m. – 10:00 a.m.

3. MRIP catch data
   Discussion leader: Science and Technology staff
   - Discussion led by the Office of Science and Technology (S&T) regarding the decision to not publish Marine Recreational Information Program (MRIP) catch data that has greater than 50-percent percent standard error (PSE).

10:00 a.m. – 10:15 a.m.

4. Equity and Environmental Justice (EEJ)
   Discussion leader: Pentony
   - Update on NMFS' EEJ Strategy

10:15 a.m. – 10:30 a.m.

5. Research Set-Aside (RSA) Program
   Discussion leader: Silva
   - Update on shift of the RSA program from NEFSC to GARFO

10:30 a.m. – 10:45 a.m. Break

10:45 a.m. – 11:45 a.m.

6. Offshore Wind
   Discussion leader: Pentony/Lipsky
   - Update on offshore wind activities
   - Status of survey mitigation program efforts

11:45 a.m. – 1:00 p.m. Lunch

1:00 p.m. – 5:00 p.m.

7. Scenario Planning
   Discussion leader: Core Team
   - Update regarding Climate Change Scenario Planning Summit

7:00 p.m. – Dinner at Tonno, 2 Main Street, Gloucester MA

Wednesday, May 10

9:00 a.m. – 11:30 a.m. (break as needed)

8. Stock Assessments

Discussion leader: Simpkins

- Assessment working group updates
- Schedule updates
- Update on Research Track Steering Committee
- Survey performance

11:30 a.m. – 12:00 p.m.

9. FDDI and CAMS Updates

Discussion leader: Gouveia

12:00 p.m. – 12:30 p.m.

10. Port Sampling

Discussion leader: Gouveia

- Update on port sampling issues, including potential avenues to fund additional samples.

12:30 p.m. – 1:00 p.m.

11. Meeting wrap-up and Other Business

- Complete any unfinished discussions or unresolved new business
- Review action items and assignments
- Identify Fall 2023 meeting date (GARFO chair)
- Adjourn meeting

1:00 p.m. Meeting adjourns

Color code key:
ASMFC MAFMC
NEFMC NEFSC
GARFO NRCC

NRCC Fall 2022 Meeting Action Items

October 24-25, 2022 Boston, MA

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1. Catch Accounting and Monitoring System (CAMS) and herring data
   Lead: **NEFSC**
   Appointees needed: N/A
   Next step(s): Follow up on whether Atlantic herring will be using CAMS for catch data moving forward.
   Due date(s): None.

2. Northeast Fishery Observer Program (NEFOP) Data Access
   Lead: **NEFSC**
   Appointees needed: N/A
   Next step(s): NEFSC will reach out to ASMFC regarding timely responses to NEFOP data requests.
   Due date(s): None.

3. Scenario Planning: Federal Advisory Committee Act (FACA) Issues
   Lead: **GARFO**
   Appointees needed: N/A
   Next step(s): GARFO will speak with General Council on any potential legal issues with funding participation of members outside of Council and Commission staff.
   Due date(s): As soon as possible

4. Scenario Planning: Lobbying Restrictions
   Lead: Scenario Planning Core Group
   Appointees needed: N/A
   Next step(s): NRCC members will explore respective limitations of recommending legislative changes and potential effects on outcome/messaging of Scenario planning exercise.
   Due date(s): As soon as possible, prior to February summit meeting

5. Scenario Planning- Draft Report
   Lead: Scenario Planning Core Group
   Appointees needed: N/A
   Next step(s): Core group members will compile draft report of Summit Meeting.
   Due date(s): Spring 2023 NRCC meeting

6. Did Not Fish Reports
   Lead: **GARFO**
   Appointees needed: N/A
   Next step(s): GARFO will query for-hire permits against reporting to determine if there is a substantial problem and to inform discussion and decision on whether to require Did Not Fish Reports.

Due date(s): As soon as possible, prior to December 2022 Council meetings

7. Stock Assessment Schedule Adjustments
   Lead: **NEFMC**, **NEFSC**, **GARFO**
   Appointees needed: N/A
   Next step(s): Staff from NEFMC, GARFO, and NEFSC will meet to discuss timing of cod RT and related action(s).
   Due date(s): Prior to Cod Research Track (November 10, 2022) and Groundfish Committee Meeting (November 22, 2022) meetings

8. Atlantic Sturgeon Action Plan
   Lead: **NEFMC**, **MAFMC**, **ASMFC**
   Appointees needed: N/A
   Next step(s): NEFMC, MAFMC, and ASMFC will talk with their respective staff on a potential joint effort to address the Atlantic Sturgeon Action plan. Hold a leadership call to discuss.
   Due date(s): Prior to the December Council meetings.

9. Port Sampling Issues
   Lead: **GARFO**
   Appointees needed: N/A
   Next step(s): (1) GARFO will investigate port sampling contract modification options to accommodate potential funding increases that would provide additional samples, and determine what the lead-time would be to bring on additional port samplers to achieve increased port samples.
   (2) Determine how much funding would be needed to achieve 2015 sampling level (225,000 samples).
   Due date(s): As soon as possible

10. Marine Recreation Information Program (MRIP)
    Lead: **NRCC**
    Appointees needed: N/A
    Next step(s): (1) Add discussion of decision to not publish MRIP catch data over 50 percent standard error (PSE) to agenda for the spring 2023 meeting.
    (2) Invite NMFS' Office Science & Technology staff to Spring 2023 Meeting
    Due date(s): Spring 2023 Meeting

11. SAFE Report Update
    Lead: **GARFO**
    Appointees needed: N/A
    Next step(s): Add SAFE report update to agenda for spring 2023 meeting
    Due date(s): Spring 2023 Meeting

Spring 2023 NRCC Meeting (GARFO host) – May 9-10, 2023
Location – Gloucester, MA or Portsmouth, NH

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
GREATER ATLANTIC REGIONAL FISHERIES OFFICE
55 Great Republic Drive
Gloucester, MA 01930

March 23, 2023

Tom Nies
Executive Director
New England Fishery Management Council
50 Water Street, Mill 2
Newburyport, MA 01950

Dear Tom,

This letter provides additional detail on our recent announcement that Research Set-Aside (RSA) program administration has moved from the Northeast Fisheries Science Center (NEFSC) to the Greater Atlantic Regional Fisheries Office (GARFO) Sustainable Fisheries Division (SFD). GARFO has assumed responsibility for RSA proposal solicitation, project selection and monitoring, and program outreach. The Regional Administrator is now the Selecting Official.

GARFO is in the process of establishing a new Cooperative Research Support Branch within SFD to meet the demands of the RSA program, as well as manage our research permit program (e.g., exempted fishing permits). This new branch will include the RSA Program Manager, the RSA Federal Program Officer, and research permit program staff. Integrating RSA grant and permit administration will streamline RSA program administration, consolidate RSA program staffing, and further integrate RSA compensation fishing oversight with grants administration, among other anticipated benefits.

This restructuring will not alter most facets of how the program operates. The RSA Program Manager has resided within SFD for several years, and will continue to oversee program implementation. NEFSC will continue to provide critical scientific expertise, reviewing project applications and reports, and providing scientific technical guidance to awarded projects, as warranted. We will continue to coordinate closely with the Council to ensure supported research is technically sound and aligns with research priorities developed by the Council, with the intention of having research results inform management decisions and science needs. The RSA program will continue to be a collaborative initiative between GARFO, NEFSC, and the Council.

This decision was made with careful consideration of how to best meet RSA program administration needs, and we are confident the programs will be more robust and resilient as a result. If you have questions or would like to discuss further please let us know.

Sincerely,

Michael Pentony
Regional Administrator

Jon Hare, Ph.D.
Science and Research Director

cc: Chris Moore, MAFMC

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Executive Summary

This document provides a comprehensive summary of ideas generated at an East Coast Scenario Planning Summit Meeting attended by over 50 East Coast fishery managers on February 15-16, 2023. Summit participants consisted of representatives from each of the three U.S. East Coast Fishery Management Councils, the Atlantic States Marine Fisheries Commission, and the National Marine Fisheries Service.

The goal of the Summit meeting was to develop a set of potential governance and management actions resulting from a scenario-based exploration of the future. It was not possible for the Summit to cover all the issues raised throughout the 2-year scenario process. Instead, focus was placed on three overarching themes highlighted in Council and Commission discussions during their meetings in November and December 2022. These themes were:

- Cross-Jurisdictional Governance and Management: evaluating the current East Coast fishery governance structure and identifying potential changes to increase our ability to respond effectively to changing conditions
- Managing Under Increased Uncertainty: identifying actions to take to prepare for and respond to an increase in uncertainty, where historical conditions can no longer be used to predict the future
- Data Sources and Partnerships: identifying how to better coordinate data collection systems and develop partnerships to leverage existing funding

The Summit agenda involved breakout group conversations and prioritization exercises designed to highlight the most promising potential ideas to address the challenges in each of these themes. Many ideas were raised, with particular emphasis placed on the following:

Cross-Jurisdictional Governance

Discussions centered around the importance of future governance structures being more adaptable to continual change, but also recognized the trade-offs between flexibility and consistency/coordination. Participants discussed the possibility of a single, East Coast Management Council with state or fishery-based opt-in representation. But a change of this magnitude, and the barriers of losing the unique characteristics of regional councils and a need to revise the Magnuson-Stevens Act, led to a discussion focused on how we could work toward changes within our current governance structure. Specifically, many supported reconsideration of committee representation, while moving toward more consistent use of committees across Councils and with consideration of modifying voting rules to enhance the role of committees in the process. In addition, many participants raised issues around clarifications of roles and considerations of efficiency in jointly or cooperatively managed stocks. The group recognized that there is a spectrum of approaches to joint or collaborative management, and while not all joint management needs to operate the

same way, clearly defining and recognizing the pros and cons of different approaches would be helpful.

Participants also discussed when and how changes in management authority should be made. Generally, participants felt that triggers should be used to initiate a *review* of management authority, and not trigger immediate change. Participants felt improved coordination within and between all management bodies (all three Councils, the Commission, and the National Marine Fisheries Service or NMFS) was needed. Ideas that received particular attention included improving the coordination between and within NMFS regions, and increasing cross-pollination of the three Council Scientific and Statistical committees (SSCs).

Managing Under Increased Uncertainty

Attendees agreed that improved risk policies may provide a means to better account for current and future climate impacts on species, including both negative and positive impacts. Participants also discussed the possibility of moving toward robust management options rather than trying to account for all kinds of uncertainty within stock assessment models, and raised the idea of considering different management approaches at the leading and trailing edges of a shifting species range. Across all of these, we may be able to make better use of tools such as climate vulnerability assessments and management strategy evaluations. Qualitative sources of information and local ecological knowledge have the potential to inform management in a rapidly changing environment, but we will need mechanisms to include these sources in our work.

Data Sources and Partnerships

Fostering better coastwide cooperation must extend beyond jurisdictional issues to include data collection and partnerships. Many scientific surveys are conducted along the East Coast, including by federal and state entities, but the methods of data collection and storage vary greatly. Many regions/entities may not even be aware of what data is collected by another. This contributes to difficulties in sharing data and risks duplication of effort. Participants discussed creating consistent surveys across regions, and at a minimum standardizing the way that data is stored to improve accessibility. Other ocean users also collect environmental data that is important to track under changing climate conditions, so attention should be paid to better partnerships with offshore wind developers, aquaculture, marine transportation, and the military.

There was extensive discussion on reducing uncertainty in fisheries dependent data. This discussion covered incentivizing fishermen to improve reporting of data and collect new data, improving recreational data collection, and improving social-economic data for use in management.

Managing under a changing climate requires a lot of data input, but it is impossible to collect everything of interest. Data prioritization needs to occur – but this requires a clear understanding of how the data will be used. Prioritization must involve increased communication between the science centers and management bodies, including periodic reviews of research priorities.

Next Steps

It was agreed that a report of the Summit Meeting (this report) would be presented to the NRCC for their review at their May 2023 meeting. Presentations of the findings from the Summit will also be presented to each of the three East Coast Councils and the Commission.

In addition, the Scenario Planning Core Team will also draft a separate document to make specific suggestions on which potential action areas to explore further. Following review and discussion of the elements contained in this "draft action plan" document, the NRCC will determine a way forward.

1. Introduction

Over the past two years, representatives from these East Coast fishery management organizations have worked collaboratively and engaged diverse stakeholders to explore how climate change will affect various aspects of fishery management. This exploration was based on a multi-stage scenario planning process, where stakeholders generated several different possibilities for how climate change might affect east coast fisheries.

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Previous steps of the initiative have included: 1) conducting a scoping process for issues facing East Coast fisheries over the next twenty years; 2) exploring the drivers that will shape future change in East Coast fisheries 3) creating a set of four scenarios describing possible conditions in 2042, and 4) gathering initial feedback from managers, Councils and Commission on important issues to address in response to climate related challenges.

The goal of the Summit meeting was to develop a set of potential governance and management actions resulting from this scenario-based exploration of the future. During the meeting, participants discussed ideas already generated throughout the process, added new ideas, evaluated them, and identified some practical next steps to take them forward. In order to encourage creative thinking about what changes might be required, participants were asked to consider the following:

> *Imagine you are a fishery manager in 2043. What do you wish the fishery managers of 2023 had done back then? What actions should they have taken? What things should they have started?*

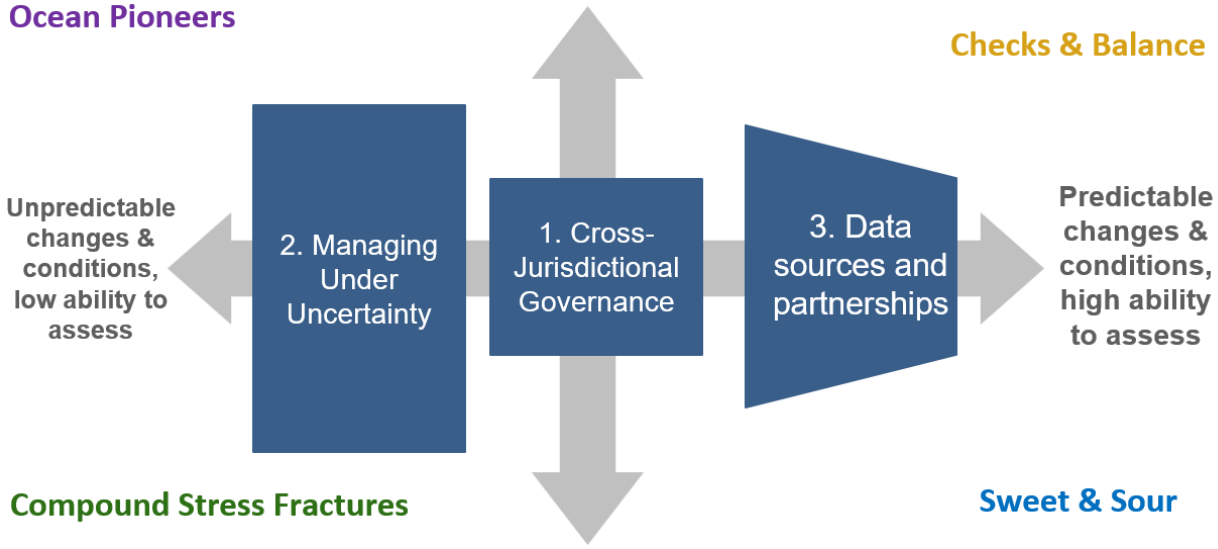
2. Overarching Discussion Themes

It was not possible for the Summit to cover all the issues raised throughout the scenario process. Instead, focus was placed on three overarching themes highlighted in Council and Commission discussions during their meetings in November and December 2022. The Summit began with scenario planning Core Team members providing an overview of each of the themes, followed by a brief plenary discussion.

Members of the Core Team provided a brief introduction to each of the three overarching themes, and outlined a number of key questions to be considered during the workshop. Additional detail on the themes below can be found in the Summit briefing materials, available at: https://www.mafmc.org/s/ECSP-Summit-Briefing-Materials-Feb-2023.pdf.

Theme 1: Cross-Jurisdictional Governance	A major goal of this initiative has been to evaluate the current East Coast fishery governance structure and identify potential changes to increase our ability to respond effectively to changing conditions. "Governance" here addresses the structure of power, authority, and responsibility for fisheries and geographic areas.
Theme 2: Managing Under Increased Uncertainty	Environmental changes are leading to changes in the distribution and abundance of marine resources. In some cases, these changes mean that historical conditions can no longer be used to predict the future, increasing our uncertainty around appropriate catch limits and management responses. Are there actions we can take now to prepare for and respond to this increase in uncertainty?
Theme 3: Data Sources & Partnerships	The scenario creation framework considered how well science will be able to assess and predict changes in stock production, distributions, and other changing dynamics. This hinges on the ability to produce and evaluate accurate and timely data. Summit discussions focused on how to better coordinate data collection systems and develop partnerships to leverage existing funding.

The three themes are related to the scenario framework in the following way:



- Cross-jurisdictional Governance: this theme is relevant across all expected future scenarios. Species range shifts will occur no matter which scenario plays out, so it is important to consider how fishery managers will cope with situations that pose challenges for existing governance structures.
- Managing Under Increased Uncertainty: this theme is particularly relevant for scenarios where climate change causes highly unpredictable changes in conditions, leading to less reliable forecasts and assessments (the left-hand side of the matrix). How must management and decision-making evolve to cope with such situations?
- Data Sources and Partnerships: this theme reflects the fact that fishery managers rely on timely and accurate information. This theme covers how best to coordinate data collection systems and developing partnerships to leverage funding - in doing so, this might shift us towards the right-hand side of the matrix, where better data creates an improved ability to forecast and assess future conditions.

Later sections of this report describe the discussions and outputs according to each of these three overarching themes. Although the report is structured in a way that treats each theme in turn, it is recognized that there are clear overlaps and interaction between the themes.

Participants were also made aware of a number of other issues that were raised during previous phases of the scenario planning process. These "other issues" were not the

focus of the themes for Summit meeting discussion, but it was recognized that they may intersect with the three overarching themes in various ways. The topics identified were:

- Planning for the challenges associated with other ocean uses (wind, aquaculture) and the potential for spatial analysis and planning to help with these challenges.
- Continuing movement toward ecosystem-based fisheries management (EBFM), and the need to consider the importance of forage species.
- Ensuring adequate shoreside access and infrastructure for recreational and commercial fisheries.
- Increasing trust between stakeholders and managers, including improving communication on science and uncertainty.
- Protecting the edges of stocks that move into new areas or as new fisheries emerge.
- Consider the appropriate role of the Councils, Commission, and NMFS in creating and supporting markets for fishery products as conditions change.
- Planning for the aging of the fleet.
- Understanding that politics (and litigation) can play a big part in fisheries
- management.

Participants were encouraged to add any potential actions for these themes by writing on flipchart sheets or using post-it notes.

Following the Core Team's presentation of the themes above, participants had the opportunity to ask clarifying questions and express initial reactions to these discussion categories. During this discussion, participants noted the need for this process to be able to consider multi-directional changes (e.g., in ocean temperature), the need to keep in mind the differences between open access vs. limited access fisheries, and the need to think about the possibility of increased funding and how to best use additional funding should it materialize (rather than just flat or reduced funding).

3. Summit Design and Agenda

Breakout Group Conversations

Following the introductory presentations, participants were divided into three breakout groups, each containing around 18 people. Each group had the chance to discuss a theme in a rotation format, with each breakout conversation lasting for approximately 90 minutes. For example, Group 1 started by discussing Cross-Jurisdictional Governance. After 90 minutes, they rotated to another room to discuss Managing Under Uncertainty. Finally, they moved to another location to discuss Data Sources and Partnerships. Groups 2 and 3 also rotated through the three themes, beginning with a different issue.

The result was that groups were able to generate ideas and review ideas from groups that had previously discussed the issues. By the end of the first day of the workshop, each participant had the opportunity to explore ideas across all of the three themes.

The main ideas that emerged from these breakout group discussions are presented in sections 4-6 below, according to theme. A more complete summary of all breakout group ideas is contained in the Appendix for each theme (Appendices B, C, and D).

Summary of Potential Actions

At the end of Day 1, the Core Team facilitators reviewed the notes from the day's breakout group conversations for their theme and created a non-prioritized list of potential action areas that had been identified throughout the day. It was not possible to capture every idea as an individual potential action, but the Core Team was able to group comments and ideas made across breakout groups into common themes and potential areas for action. The list of potential action areas is presented in the following report sections.

The full lists of potential actions were shared with all participants at the start of Day 2. Each breakout group had a chance to review the list of potential actions for each theme, and ask clarifying questions about what the potential action covered. This resulted in a small number of adjustments to the wording of some potential actions.

Prioritization of Potential Actions Using Dot-Voting

Participants were then asked to prioritize the potential actions in the following way. Everyone received 8 votes in the form of dot stickers. Votes could be allocated across any of the potential action areas in any of the themes, but participants could not vote for the same potential action more than once.

Participants were asked to prioritize and choose their votes based on the following considerations:

- Potential actions that will help fishery managers prepare for and cope with the challenges of climate change;
- Potential actions that fishery managers are able to influence;
- Potential actions that are feasible to implement, or where some progress can be made.

The results of the dot-voting exercise are presented in Appendix E.

Plenary Discussion to Identify Preliminary Next Steps

The dot-voting exercise revealed the potential actions areas that the group felt should be addressed as a matter of priority. We held a full plenary discussion to identify how best to make progress for each of those priority action areas. The details of these discussions, and the preliminary next steps agreed to by the group, are presented in Sections 4-6 below for each of the themes.

4. Cross-Jurisdictional Governance

The sections below provide an overview of the guiding questions for cross-jurisdictional governance, a summary of the main ideas discussed in the breakout group, the list of potential actions identified, and a summary of the follow up plenary conversations. Additional details on the breakout discussions around cross-jurisdictional governance can be found in Appendix B, and prioritization exercise (dot voting) results can be found in Appendix E.

Overview

Climate change impacts are already affecting ocean conditions. Ocean temperatures are expected to continue to rise in the decades ahead, no matter which of our scenarios plays out. These rising temperatures will lead to an increased likelihood of stocks shifting their location, often moving north and into deeper waters. In some scenarios, the shifts in location might not be as predictable as this, but changes are still highly likely to happen. These shifts will pose challenges for current governance structures and arrangements, which were mostly established under the assumption that stock locations would remain relatively stable over time. This is no longer the case. In all the scenarios identified in this process, we must assume that stocks will shift, and identify ways that governance approaches can respond.

During the small group discussion portion of the meeting, groups were asked to focus on three organizing questions related to the overall theme of "Cross-Jurisdictional Governance":

- What is the best structure and representation for governance on the U.S. East Coast?
- When and how should management authority change?
- How can we improve the efficiency and the efficacy of joint fishery management plans?
- How can we improve coordination and collaboration among management entities?

Breakout Group Discussions: Main Ideas

The three breakout groups discussed the governance questions outlined above, with an emphasis on the importance of future governance structures being more adaptable to continual change. The groups discussed broader governance organization, including discussions on how many decision-making groups there should be and who is represented at these decision-making groups. For stakeholder involvement, too many governing groups make participating in the process more difficult. There was discussion around whether the ideal governance structure could de-emphasize state-by-state representation, but many felt that state-by-state approaches had value.

The largest structural change discussed was a change to a single, East Coast Fishery Management Council with state or fishery-based opt-in representation by species or fishery management plan, similar to the Board opt-in process used by the Commission. A change of this magnitude would require substantial revisions to the Magnuson-Stevens Act, which was acknowledged throughout the discussion. While some participants thought the opt-in approach would allow for focused participation and a system that could more easily adapt to changing conditions, others felt that a Council of this size would be tricky to populate and would result in stakeholders feeling less invested in and with less influence over the organization and its outcomes.

Much of the discussion was focused on the varying uses of committees across the various management bodies. Participants acknowledged that each Council uses committees somewhat differently, with committee use in the South Atlantic and New England somewhat more similar to each other compared to the Mid-Atlantic. The number of joint management plans with the Mid-Atlantic and the Commission Boards makes committees difficult to administer. Many felt the approach being used to add voting members from other Councils to species committees has been successful. However, others felt that this positive influence is muted when the full Council makes a different decision than the committee or when the committee is not used at all in the decision-making process. As a result, many supported moving toward more consistent use of committees across Councils, and consideration of modifying voting rules to enhance the role of committees in the process (for example, limiting the power of a Council to overturn a committee decision during final voting, with failed Council approval resulting in issues being returned to the committee).

In addition, many participants raised issues around clarifications and considerations of efficiency in jointly or cooperatively managed stocks. The group recognized that there is a spectrum of approaches to joint or collaborative management, and while not all joint management needs to operate the same way, clearly defining and recognizing the pros and cons of different approaches would be helpful. Joint management has benefits for representation, but also can hinder efficiency and efficacy when groups disagree, particularly if decision making is sequential. More explicit agreements between joint management participants could help to increase transparency and help groups work toward streamlining joint management processes. For both the committee and joint plan discussions, it was emphasized that these changes should apply at the plan level and would not need to be used across all plans in the same way.

Participants also discussed when and how changes in management authority should be made. Generally, participants felt that triggers should be used to initiate a *review* of management authority, and not trigger immediate change. Some participants felt strongly that a change in authority request should only come from one of the Councils. Additionally, because of the concerns regarding Council member and staff expertise, as well as the resources required for transition, transitions should be well-thought out and should not be structured in such a way that frequent changes would be required.

Participants felt improved coordination across and with all management bodies (all three Councils, the Commission, and NMFS) was needed. Ideas that received particular attention included improving the coordination between and within NMFS regions and increasing cross-pollination of the three Scientific and Statistical Committees (SSCs). SSC members and managers could benefit from more exchange of ideas and information across SSCs, particularly for species shifting across jurisdictions and for jointly managed species. In addition, mechanisms for more joint SSC workgroups or meetings and advice could be explored.

Potential Actions for Cross-Jurisdictional Governance (Non-Prioritized)

As discussed in Section 3, following the three breakout groups, Core Team members consolidated the concepts discussed into eight primary ideas for cross-jurisdictional governance. These ideas were primarily centered around the main questions that were considered, but were not presented in a way that required participants to make this/not that determinations. The dot voting was used to illustrate preferences for which actions should be investigated further in the shorter-term. The **potential actions highlighted in yellow** emerged as the top preferences in the cross-jurisdictional governance category.

Cross-Jurisdictional Governance – Potential Actions
Coastwide Council with varying voting representation by FMP ● One large Atlantic Coast Fishery Management Council that would allow members/states to opt-in to certain FMPs based on fishery interest. ● *Would require a modification to the MSA.*
Committee-Based decision making where committees have final vote ● In the style of ASMFC Boards, this would structure decision making so that the committees have final votes on FMP actions. The action would not need approval by the full Council. ● *Would require a modification to the MSA.*
Committee-Based decision making with final Council approval ● Modifying the Council SOPPs could allow increased decision making authority at the committee level, by changing procedures such that committee motions that do not pass the full Council get sent back to the committee to be reworked.
Clarify and potentially expand the roles of liaisons between Councils ● Consider more consistent use of liaisons across Councils ● *If roles were expanded to include voting rights, this would require MSA change.*
Change state representation on Councils ● Consider modifications needed to state representation, including potentially having more states sit on multiple Councils ● *Would require a modification to the MSA.*

Consider allowing proxies for Council members ● Proxies would help alleviate workload on individual members, especially if other changes such as increasing joint management or expanding committees occurs.
Re-evaluate and potential revise Advisory Panel representation ● Consider regional/stakeholder interests, including underrepresented/underserved groups
Evaluate mechanisms for cross pollination of SSCs, particularly for jointly managed species ● Managers could benefit from more exchange of ideas and information across SSCs, particularly for species shifting across jurisdictions and for jointly managed species. In addition, mechanisms for more joint SSC meetings and advice could be explored. This could include a coastwide SSC with species-specific complex decision making, joint SSC meetings or the use of SSC liaisons.
Move to more consistent use of committees across Councils and re-evaluate committee representation for each committee/FMP ● Currently, each Council and FMP uses committees differently in the decision-making process. Considering modifying regional/stakeholder group representation could be more effective if Councils used committees in a similar manner.
Improve coordination across NMFS Regional Offices, Science Centers, and General Counsel ● Coordination of processes, information, and guidance within and between different offices of NMFS will be critical as conditions continue to change.
Review joint management plans along coast to explore areas for increased efficiency ● Refers to management plans that are joint or complementary among two or more management entities. Review could occur for all joint plans at once or at an individual FMP level, or some combination of both.
Develop more explicit agreements for joint management ● Joint or cooperative management by two or more management entities currently has varying levels of explicit agreements about the joint management process. Agreements like MOUs could be developed (potentially with sunset provisions) to clarify roles, responsibilities, and processes.

Plenary Discussion: Identifying Preliminary Next Steps for Cross-Jurisdictional Governance

The above yellow highlighted potential actions were the focus of plenary discussion. The group discussed possible mechanisms to move these ideas into the management process. It was noted that the topic of governance structure would need a coordinating body (e.g., an expanded NRCC) to further examine the issues and make recommendations.

Move to more consistent use of committees across Councils, re-evaluate committee representation, and consider committee-based decision making with final Council approval

The discussion focused on finding mechanisms for more consistency in the governance structure between management regions, particularly more effective and better aligned use of committees between the three Councils. This could allow some representation concerns to be addressed in a more meaningful way without legislative changes, particularly for species where substantial portions of their distribution span multiple management jurisdictions or may in the future. Councils could come up with a framework with some consistencies across Councils but allow some flexibility to preserve the unique history and culture differences in the current process.

Evaluate mechanisms for cross pollination of SSCs, particularly for jointly managed species

The discussion focused on better mechanisms for information exchange between SSCs, particularly when two Councils are working on the same species. While there could be utility in looking at this issue on a national scale in the long term, it is important to address this on a regional scale to start. Sub-groups of each region's SSC could meet to discuss a topic or there could be one SSC for the whole region. The group noted that the Commission's scientific group should also be a part of this process.

Next Steps for the Above Actions

A leadership group should be tasked with the following as a first step to address the potential actions above:

- Leadership planning exercise to look at Council species committee structure (use of and more consistency). This would include the membership of the committee as well as how decisions are made.
- Leadership planning exercise to look at the SSC committee structure for cross pollination of Atlantic coast SSCs.
- Clarify Council liaison role and discuss how the liaison could be used consistently across the Atlantic coast Councils.
- For the long term, the national convening of SSCs (the Scientific Coordination Subcommittee of the Council Coordinating Committee) could be one venue to generate additional discussion of how to increase SSC cross-pollination and regional coordination.

Additional Governance Themes Identified for Near-term Wins

In the plenary discussion, participants also identified the following potential next steps for other governance-related actions:

- Identify additional coordination between the NOAA regional offices and science centers to decrease inconsistencies. Think about coordination among regional offices to promote consistent Council interactions.
- Reduce the number of committees and inputs to simplify the process; bring the stakeholders to one place. Seeking improved communication by reducing the number of layers instead of expanding the layers.
- Review the Joint and Complementary plans for ASMFC and the Councils for efficiencies (ways to segregate actions so there are less redundant actions) (this may be a short and long term potential action)
- Consider the final 304f Policy and the impacts to both the Councils and the Commission. The impacts of the 304f policy are important to consider when developing short and long-term potential actions.

5. Managing Under Increased Uncertainty

The sections below provide an overview of the guiding questions for managing under increased uncertainty, a summary of the main ideas discussed in the breakout group, the list of potential actions identified, and a summary of the follow up plenary conversations. Additional detail on the breakout discussions around cross-jurisdictional governance can be found in Appendix C, and prioritization exercise (dot voting) results can be found in Appendix E.

Overview

There are two main approaches to dealing with uncertainties in fisheries management: first, increase investment of time and funding into research and science to better understand the situation and potentially decrease uncertainty in predictions (moving towards the right side of the matrix), and second, create management approaches that will have a good likelihood of being successful even with uncertainty (moving toward the left side of the matrix). Given that conditions on both sides of the matrix are plausible, we need to prepare for all situations.

In addition to planning for uncertainty, being able to respond quickly to change (at management and stakeholder/community levels) will be both useful and necessary. Where science can predict and track changes (right side of the matrix), managers and stakeholders may be able to prepare for the coming changes (creating if/then structures to reduce response times). Where science is less able to predict and track changes, managers and stakeholders will need to be nimble as stocks shift, collapse or exhibit other unpredicted changes. See below for more on these ideas.

During the small group discussion portion of the meeting, groups were asked to focus on three organizing questions related to the overall theme of "Managing Under Increased Uncertainty".

- How can we increase flexibility, adaptability, and robustness in management?
- How can we better accommodate uncertainty in the stock assessment process and address related management challenges?
- How can we improve the ability for fishermen and other stakeholders to adapt to climate change?

Breakout Group Discussions: Main Ideas

Updating risk policies to better account for climate challenges was the topic discussed the most in the breakout groups. There was agreement that it would be useful to compare risk policies across all the Councils, including how they account for uncertainties due to climate. NEFMC has hired a contractor to compile this information and their report will be made available this spring. ASMFC has a draft risk policy that includes information on climate concerns and information on economic importance that can decrease or increase catch levels, respectively. There was concern that some

existing risk policies only decrease catch, and there is no mechanism for increasing catch for species showing positive responses to a change in climate. Multiple participants also noted a need to track risk, decisions, and consequences to better learn from past decisions (in management and in stock assessments). One participant noted the need to look at consequences, not just at risk, to help determine appropriate management. There were suggestions to include qualitative information when looking at risk. For example, this is done with red tide in the Southeast, and through risk tables in the North Pacific. Results of climate vulnerability assessments could also be used to understand areas of higher and lower risk. A participant noted that Europe has started providing maximum sustainable yield (MSY) as a range with other factors impacting what part of the range is used for management. Participants noted this would require Councils to be very disciplined or they would consistently pick the highest number on the range. One participant suggested moving toward dynamic reference points, but noted that as management adjusted to this new tool, there would be some failures before successes. Multiple participants agreed that the risk policy could be useful for determining what risks (and failures) would be acceptable.

During discussions focused on flexibility and adaptability, participants noted a need to define these terms to ensure common understanding and goals, and agreed that looking at what is achievable and what should be prioritized is also important. There was concern from some that too much flexibility could lead to large swings in management from year to year and that could be detrimental as businesses need stability for planning. At least one of the breakout groups spent a bit of time discussing permits and how they could be more adaptable. Revising or updating permits is a difficult subject to address, however, there could be some easier wins. For example, adding emerging species to existing permits and removing historical moratoria on permits could help add adaptability. There are also requirements to bundle permits that may no longer make sense and should be reconsidered. A few larger changes in permits were also suggested, such as switching from species specific permits to area based permits, and switching from state permits to a universal federal permit that would adjust to species distribution and abundances (for charter boats). When discussing some aspects of permit flexibility (e.g., area based permits or permits that provide flexibility to land a mix of species that are related or caught together)), the tendency for fishermen to target high value species would need to be considered to ensure this does not create more choke stocks. There was also a discussion on the need to improve flexibility in fishing gear regulations (Councils have restrictions on what gear can be used to fish what stocks).

Part of the breakout discussions also focused on the idea of if/then management triggers. In general, by identifying triggers and the appropriate management response before the trigger is hit, management will be poised to be responsive and it will reduce administrative work. There were suggestions on how these if/then triggers could be added to existing processes. For example, the MAFMC could add triggers to their risk assessment process, triggers could increase responsiveness when there is joint management across multiple Councils, and triggers could be tied to ABC control rules.

There was a comment that increasing uncertainty should not only equal increased precaution and decreased catch limits. Participants also noted the need to think outside the box, for example, how could this idea tie to EBFM? Is there a way to incorporate qualitative information from fishermen or other sources into the triggers? Can other information also be considered, such as habitat, or predator and prey information, especially in situations where there is a disagreement on the status of a stock? In all of these situations, good communication and transparency about the process will be key.

Potential Actions Identified Across Breakout Groups for Managing Under Increased Uncertainty

As discussed in Section 3, following the three breakout groups, Core Team members consolidated the concepts discussed into eleven primary ideas for managing under uncertainty. These ideas were primarily centered around the main questions that were considered, but were not presented in a way that required participants to make this/not that determinations. The dot voting was used to illustrate preferences for which actions should be investigated further in the shorter-term. The potential actions highlighted in yellow emerged as the top preferences in this category.

Managing Under Increased Uncertainty – Potential Actions
Identify and establish best practices for if/then trigger management • If/then triggers include Identifying conditions (and necessary data) that would trigger a pre-specified management response • Provide examples where this has previously been successful • Consider when this type of management process could be useful, include consideration of governance change triggers and ecosystem-based triggers
Look into streamlining NEPA compliance and documentation • Examine whether programmatic EISs (evaluating broad proposals or planning-level decisions) could streamline document preparation for actions tiered off the programmatic EIS • Consider possibilities for use of functional equivalencies where possible (i.e., using MSA documents to fulfill NEPA requirements) • Establish consistent guidance across regions, including from the NEPA program and form General Counsel • Expand use of Supplemental Information Reports (i.e., reference but do not include information in NEPA analyses that is available elsewhere)
Include spatial considerations in management • Consider whether and how to manage the leading and trailing edges of a species distribution differently, perhaps considering different management (harvest strategies) for different portions of the stock

I**mprove the use of risk policies to better account for current and future climate impacts on species (both negative and positive impacts)**

- Future proofing
- Consider pros and cons of moving toward consistency across species or regions
- Consider including qualitative and ecosystem information in the risk policy framework to improve the understanding of risk and appropriate management responses

Consider risk assessments to identify fisheries at risk of not meeting management goals

- Risk Assessments = an assessment of factors that could hinder a fishery from meeting its management goals (front end)
- Risk assessments can combine qualitative and quantitative information, so can include more sources of information
- Consider how risk assessments can be used not just to set priorities but also in stock assessments and management

Move toward robust management options rather than trying to account for all kinds of uncertainty within stock assessment models.

- Consider dynamic reference points and indicator based management
- Assess options for better including climate vulnerability assessment results into management
- Consider when management strategy evaluations and other structured decision making tools are useful.

Use qualitative information to improve management, including our understanding of risk. Specifically, better incorporation of local ecological knowledge / traditional ecological knowledge into management is needed.

- Inventory where and how qualitative information, including local and traditional ecological knowledge is currently being used in management and identify ways into management process
- Explore participatory modeling

Consider and clearly communicate intricacies of uncertainty when making policy/ changing management

- Where does uncertainty matter?
    - For example - 2 tailed distributions- is uncertainty bigger in one direction vs. the other? Are both tails being considered?
    - A large uncertainty may not be a big issue if there is certainty that the stock is improving

Create a more adaptable structure for fishing permits

- Compile information on permits across entire East Coast
- Assess diversity of permits (who holds them, where, in what combinations)
- Assess permit accumulations
- Identify where there are limits in flexibility for fishermen
    - Are there any easy fixes?
    - Identify first steps for harder issues

Identify and remove institutional baggage

- Permit bundles
- Mis-match of mesh sizes across FMPs = regulatory discards
- Gear/trip limits
- Legacy regs

Improve the use of community climate vulnerability assessments in management

- For example, Colburn et al. 2016 (https://doi.org/10.1016/j.marpol.2016.04.030)

Plenary Discussion: Identifying Preliminary Next Steps for Managing Under Uncertainty

During the prioritization exercise (dot voting) the following three potential actions emerged at the top preferences for this discussion theme. Additional information on the ranking exercise results for all actions under all three discussion themes are provided in Appendix F.

- Improve the use of risk policies to better account for current and future climate impacts on species (both negative and positive impacts)
- Move toward robust management options rather than trying to account for all kinds of uncertainty within stock assessment models. Move away from trying to model more and more uncertainties and consider robust management approaches
- Include spatial considerations in management

The plenary discussion, which is detailed below, focused almost entirely on these three issues, at the direction of the facilitator and Core Team. This is not intended to convey a lack of interest in these other ideas, and they can be addressed by the Councils and Commission in the future.

Improve use of Risk Policies

Risk policies are a way for fishery management organizations to consider multiple elements of uncertainty and risk tolerance in an organized and transparent manner, as part of the management process. Addressing uncertainty has always been a core element of fisheries management, but climate change is increasing the magnitude of these uncertainties, and the range of issues that we are unsure about.

The discussion focused in part on what should be included in risk policies. Suggestions included expanding these policies to explicitly include climate considerations, and guide managers towards decisions that will promote resilience in human and natural fisheries systems. Considering risk policies in light of the four climate scenarios was offered as a way to approach expansion of risk policies. One approach to incorporating climate change into risk policies would be to consider climate winners as species for which catch limits might be increased. Another might be to consider whether risk tolerance should be adjusted to reflect differences in climate sensitivity and exposure by species (as documented in fish-stock level climate vulnerability assessments). In the northeast, black sea bass is an example of a species for which the recreational harvest control rule includes consideration of the biomass relative to the target and thus can take advantage of this species being a "climate winner."

There was recognition that management organizations use risk policies differently. Commonly they are applied to setting catch advice, but some policies are broader to cover other categories of decision making. NEFMC has recently commissioned a review of all eight regional fishery management Council risk policies and how they are used. Although the Commission's risk policies were not covered in this report, it was noted that ASMFC uses Mid-Atlantic Council risk policies for their joint Commission-Council Fishery Management Plans, and is adopting its own risk policy soon.

It is important to learn from one another's policies, seeking alignment where possible, but retaining differences amongst Councils as needed. One area where alignment might be most appropriate is in policies that relate to setting catch limits for jointly managed species.

There was some discussion about the purpose of risk policies, how they can be used in theory, and whether they are effectively employed, in practice, for making and understanding decisions, and as a tool for communication. Another consideration is whether these policies are sufficiently broad in scope to cover all of the decisions that a Council or the Commission might make.

Move Towards Robust Management vs. Modeling Uncertainties

The concept here is that assessment models can be very complex, and can include uncertainties across multiple elements (e.g., uncertainties related to environmental changes, changes in predator/prey relations, changes in fishing behavior, etc.). A possible solution is to move away from trying to incorporate information on all of these uncertainties within the assessment models used to set catch advice and instead

towards alternative models or mechanisms for setting limits. For example, management strategy evaluation could be used to identify harvest control rules or trigger-based management processes that are robust despite these uncertainties. This action received substantial support from Summit attendees, but there was limited concrete discussion around short-term 'wins' or actions.

One near term step may be to look for examples of where this is used and has been successful, to begin a conversation about how these approaches might be employed. For example, bluefin tuna management employs management strategy evaluation to evaluate reliable indicators and simulate expected outcomes of alternative approaches.

Another near term step is to look across all east coast managed species to identify those where uncertainties are significant in scale or occurring in multiple facets of the assessment, and focus on developing new approaches and strategies for those species. As with the risk policy evaluation, climate vulnerability assessments may help to focus this work on species that have greater sensitivity or exposure to climate change.

Include spatial considerations in management

The concept here is that for species with shifting spatial distributions, management approaches might need to vary at the leading and trailing ends of their range. There could be biological reasons for this, perhaps to preserve genetic diversity found in these areas, or to allow stocks to successfully establish a population in a new area. A related issue is lack of fishery access at the leading edge of species' range. This might be more pronounced as a species moves into another Council region, or offshore of states with low quotas where the species cannot be landed. Another potential action, creating more adaptable structures for fishing permits, is a related issue. A challenge is that the Magnuson Stevens Act requires management of stocks as a unit across their range, but does allow for variable management across space. For equity and clarity of communication consistent management approaches across the species range may be important. Whatever the specific concern, adequate scientific information is needed to support differences in management by area. More information about these issues is needed in order to generalize insights and strategies across different stocks. Monitoring of stocks as they move is needed. Where possible, on the water observations by fishermen should be reflected in management measures, including through increased use of LEK and TEK. Consideration should also be given to whether catch accounting is accurate across the entire range of the species. While the directed fishery would have the same monitoring throughout the species range, other fisheries and gear types encountering the species might have different monitoring or reporting rates, especially if a species is new to an area.

Specific management approaches could be considered. For example, establishing de minimis status along the trailing edge of a species range, or considering measures that provide conservation equivalency. Different size limits by state might also be appropriate, perhaps if fish attain different sizes by location due to environmental conditions or genetic differences. Cobia is an example of different size limits by state.

6. Data Sources & Partnerships

The sections below provide an overview of the guiding questions for data sources and partnerships, a summary of the main ideas discussed in the breakout group, the list of potential actions identified, and a summary of the follow up plenary conversations. Additional detail on the breakout discussions around cross-jurisdictional governance can be found in Appendix D, and prioritization exercise (dot voting) results can be found in Appendix E.

Overview

One of the primary axes used to develop the scenarios was based on the predictability of ocean conditions, which includes how well science is able to assess and predict changes in stock production and distributions. While the first two themes are centered on how to handle cross-jurisdictional issues and evolving the decision-making process to handle uncertainty, this theme focuses on our ability to provide the information necessary to do both. Providing information about stocks and their locations hinges on our ability to evaluate accurate and timely data. This theme asks, "How do we better coordinate our data collection systems and develop partnerships to leverage funding?" Coordination between management entities, federal entities, academic partners, fisheries stakeholders, and other ocean users will play a large role in which side of the axis we find ourselves within the scenario framework.

During the small group discussion portion of the meeting, groups were asked to focus on four organizing questions related to the overall theme of "Data Sources and Partnerships".

- How should we prioritize data/information needed to manage in a changing environment?
- How can we use current funding more efficiently?
- How can we better utilize the fishing industry for data collection?
- What are the best ways to foster outside partnerships for sharing data, especially with other ocean users?

Breakout Group Discussions: Main Ideas

During the Data & Partnerships breakout sessions the three breakout groups discussed a variety of different topics using the four organizing questions from above. The conversations went in a number of different directions. However, there were several main ideas that emerged from the discussions including fostering better coastwide cooperation, improving fisheries dependent data collection, and ensuring that data is being utilized for management.

The East Coast has a lot of jurisdictional issues that were discussed in other themes. However, fostering better coastwide cooperation extends to data collection and

partnerships as well. There are many scientific surveys that are conducted along the East Coast, including by federal and state entities. The methods and data collection/storage varies greatly across these surveys. In addition, regionalized institutions have created scientific silos where other regions/entities may not even be aware of what data is collected by another. Both of these factors contribute to difficulties in sharing data and may contribute to duplicative efforts across the region. Suggested actions to remedy this situation include creating consistent surveys across regions and at a minimum standardizing the way that data is stored so that it is more easily accessible to other researchers. Similarly, there are other ocean users that are collecting environmental data that is important to track under changing climate conditions. It would be good to align various ocean users' needs and wants to attempt to leverage new partnerships and reduce the burden on fisheries surveys. Some potential partners include offshore wind developers, aquaculture, marine transportation, and the military.

Aside from fisheries independent surveys, fisheries dependent data is an important part of fisheries management. There was extensive discussion on reducing uncertainty in fisheries dependent data. This discussion can be characterized by three main points: 1) incentivizing fishermen to improve reporting of data and collect new data, 2) improving recreational data collection, and 3) improving social-economic data for use in management.

The first point stems from the need for finer spatial scale data as well as more environmental data. The latter is extremely important when addressing climate change concerns. Fishermen are on the water for a greater proportion of the year than any fisheries independent survey and could provide data at a much finer spatial and temporal scale than surveys can. The question is how to get fishermen to provide accurate data and even expand what data they are collecting. Devising an incentive structure that rewards fishermen for providing data is one potential solution. There also seems to be a lack of communication between the science community and fishermen. Many fishermen are willing to provide data if given an opportunity but lack the instruction or instrumentation to do so. Often it comes down to whether funds are available or not. This led to a suggestion of creating shovel-ready projects that when funding becomes available can be quickly executed by fishermen.

The most discussion during the data sources and partnerships theme was centered on improving recreational data collection. Participants felt that it was a glaring need in the management process with some fisheries, particularly in the South Atlantic, having greater than 50 percent of their catch allocated to the recreational sector. Some of the suggestions on this topic address the other two points as well, such as creating incentives for reporting. Other suggested actions included the creation of a recreational study fleet to help improve recreational estimates. The structure of this study fleet would need to encompass a wide swath of user types from private shore-based anglers to charter vessels. Another suggestion was to utilize crowdsourcing as a means to expand data collection. This included mining of social media to get data from something recreational anglers love to do which is post pictures of their catch.

The third point, while not discussed in as much detail as the other two, is also very important as we deal with a changing climate and shifting biological productivity. In the end, fisheries is about managing human activity and therefore the human dimensions of the system need to be addressed and monitored. Changing conditions could alter the very definition of what it means to be a fisherman. Do fishermen continue to fish on a particular species or adapt to whatever species are nearest to their port? The cost of chasing a species up the coast could become too prohibitive for smaller owner-operators. The data required to address this point can be difficult to collect and analyze but should be considered when any data prioritization within the region occurs.

The final main idea from data sources and partnerships was ensuring that data is being used in management. Managing under a changing climate requires a lot of data input to make the most informed decisions on the future. Unfortunately, it is impossible to collect everything. Therefore, data prioritization needs to occur. Before that prioritization happens there needs to be a clear understanding of how the data will be used. This will require increased communication between the science centers and management bodies. This should include periodic reviews of research priorities so that the management system can leverage partnerships with other institutions such as NGOs and academia that may look to those priorities when applying for funding. Discussions around priorities will also inform the other main ideas from this theme. For example, coastwide collaboration will be improved by considering what data is essential to collect during fisheries surveys and the shovel-ready projects to improve fisheries dependent data would also align with priorities.

Potential Actions Identified Across Breakout Groups for Data Sources and Partnerships (Non-Prioritized)

As discussed in Section 3, following the three breakout groups, Core Team members consolidated the concepts discussed into eight primary ideas for data sources and partnerships. These ideas were primarily centered around the main questions that were considered but were not presented in a way that required participants to make "this/not that" determinations. The dot voting was used to illustrate preferences for which actions should be investigated further in the shorter-term. The potential actions highlighted in yellow emerged as the top preferences in the data sources and partnerships category.

Data Sources & Partnerships – Potential Actions
Modernize data management to facilitate better sharing of data and prepare for an influx of new data streams (e.g. offshore wind data)
Focus on AI/technology development to more rapidly get data into assessments
Develop a process between management and science organization to prioritize data needs for climate-ready management (e.g., human dimensions data)
Prioritize recreational data collection to reduce uncertainty including developing incentives for better reporting
Hire staff dedicated to fostering partnerships and coordinating data collection/sharing between other ocean users, management bodies, and within Federal agencies
Expand study fleet, include recreational fisheries and ensure data are used, include shovel-ready data projects
Use survey mitigation around offshore wind to transition to industry-based surveys or other survey platforms
Standardize data collection to breakdown geographic barriers along the East Coast (both state and federal)

Plenary Discussion: Identifying Preliminary Next Steps

The above highlighted potential actions were the focus of plenary discussion. The group discussed possible mechanisms to move these ideas into the management process.

Expand study fleet, including recreational fisheries, and ensure data are used, include shovel-ready data projects; Prioritize recreational data collection to reduce uncertainty including developing incentives for better reporting

Two of the potential actions that received the most votes for data sources/partnerships were primarily focused on the recreational sector. During the plenary discussion, these two potential actions were discussed in tandem. Recreational catch is an important piece to the story especially with regards to climate change. The recreational sector is often the first to see climate-related changes especially in regions or times where the commercial fleet is not operating. The clear message was to develop a plan for how the data will be used. The idea of a recreational study fleet would be to integrate with Marine Recreational Information Program (MRIP) to decrease uncertainty in its estimates. In order to establish a rec study fleet, the centers, regional office, and councils would need to work together in a partnership to identify priority data needs and establish a pathway for integrating the data into management. GARFO could lay the groundwork for such a partnership in its Recreational Saltwater Fisheries Policy Regional Implementation Plan. The Councils and Commission could follow-up by establishing work plans that use the recreational study fleet data. In addition to the

study fleet discussion, the topic of "shovel-ready" or "ready-to-go" projects were discussed. There are many data gaps that fishermen are willing to help fill but need to be provided the right guidance on what and how to collect data. Science Centers in conjunction with the management bodies could develop a series of projects that could be quickly implemented if funding becomes available. These "shovel-ready" projects should extend to the commercial sector as well.

Standardize data collection to breakdown geographic barriers along the East Coast (both state and federal)

The conversation around this potential action can be broken into two main points. The first was around fisheries independent surveys. As noted above, there are many federal and state fisheries independent surveys operating along the East Coast. Many of them use different gears and protocols from one another. This makes it difficult to directly compare survey indices. Standardizing surveys across the coast will not be an easy fix. Any changes to survey protocol could break time series. This is not something to be done lightly and therefore requires a clear vision of how the data would be used. The second point raised during the discussion extended beyond the biological and physical variables and centered around socio-economic data. This data is extremely important but is rarely the focus of data discussions. The need for good socio-economic data may be exacerbated by other ocean users such as offshore wind or catastrophic events such as hurricanes. There are examples of demand models being developed in the recreational sector that could be applied to the commercial sector. Economic models like this can help identify potential business decisions which in turn can inform potential impacts from management decisions.

7. Reflections and Concluding Thoughts

At the conclusion of the Summit Meeting, participants recognized the wide-ranging challenges that climate change poses for the future of East Coast fishery management. Session conversations revealed that climate change intensifies the pressures that fishery managers have been facing for years: limitations in information, the need to balance flexibility and stability, and the best way to promote coordination across organizations. Many of the themes identified are long-standing issues. Climate change has brought an added urgency for them to be addressed.

This meeting generated several ideas, and created a potential agenda for action that can help shape changes to fishery management approaches over the coming years. While the focus of this session was limited to three of the most important themes to address, it was clear that climate change will raise several other issues that fishery managers must deal with.

Regarding the next steps that followed from the Summit, it was agreed that a report of the Summit Meeting (this report) would be presented to the NRCC for their review at their May 2023 meeting. Presentations of the findings from the Summit will also be presented to each of the three east coast Councils and the Commission.

In addition, the Scenario Planning Core Team will also draft a separate document to make specific suggestions on which potential action areas to explore further and their appropriate next steps. Following review and discussion of the elements contained in this “draft action plan” document, the NRCC will determine a path forward.

8. Appendices

Appendix A: Summit Participants

Atlantic States Marine Fisheries Commission

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Rick DeVictor (SERO)
Emily Gilbert (GARFO)
Jon Hare (NEFSC)
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Roger Pugliese (SAFMC)
Jonathan Star (Facilitator, Scenario Insight)

Appendix B: Cross-Jurisdictional Governance Breakout Groups Summary and Potential Actions

This appendix attempts to capture a complete paraphrased list of ideas and considerations raised during the brainstorming sessions for the cross-jurisdictional governance theme. These were ideas identified by participants for the purpose of generating discussion and creative problem solving. Not all of these ideas had broad support and in some cases may have had very little support.

Q1. What is the best structure and representation for governance on the U.S. East coast?

- *Enhance flexibility and adaptability in our governance structure.*
    - There is a general recognition of the need for more flexibility and adaptability in our governance structure.

- *Evaluate where questions of state vs. federal jurisdiction and authority may need additional clarity or revision.*
    - Additional clarity, definition of roles, and re-evaluation of responsibilities may be needed in some cases for cooperative state/federal management. States and the federal government have different tools at hand with different flexibilities and differing abilities to be nimble and responsive. We are currently taking advantage of these differences as much as possible, by picking which pieces work well for which parts of the process. However, this approach sometimes creates confusion about authority, and we could consider structural changes that make this piecemeal approach less necessary.

- *There is a need to think more critically about representation needs, both with regard to current concerns and future needs.*
    - What are the current representation concerns and what are they based on?
    - How many tables should there be, and who gets a seat at the table(s)?
    - When we think about representation needs for the future, we tend to think about it in terms of minor changes to current representation, but we should also think about who is currently underrepresented and underserved in our process.
    - We need to be thinking years and decades into the future about which FMPs will need expanded or modified representation. However, we should be cautious when thinking about this because there will likely be representation overlap between different groups which could create inefficiencies.

- *Consider moving away from designing governance around states as the primary unit of representation.*
    - Is it possible to rely less on organization of representation around the state level? It would be difficult to move away from federalism in this system and states would likely not support this; however, we are struggling to address state representation concerns.
    - Perhaps there is a way to better design the system for representing the best interests of the nation as a whole and introduce aspects of decision making that force conversations away from "what's in it for my state?" One way of doing this may be to integrate more neutral parties into the decision making process.
    - Increasing the number of at-large members could be another approach, and potentially designating at-large members based on affiliations other than states (e.g., stakeholder group).
    - Appointed Council members need to swear an oath under the MSA to manage for the overall benefit of the nation, but state designees do not. Maybe there should be consideration of state members having to compromise more on state interests.

- *Consider consolidating East Coast Councils into one large Council with opt-in species/FMP Boards or committees.*
    - Some suggested one big East Coast Management Council with opt-in participation by states. The full Council would not need to vote on each management plan; the opt-in participation could be at the level of Boards or committees designed to provide appropriate representation based on interest/fishery occurrence.
    - This may provide a system that is more flexible to manage on a species complex or area basis.
    - Expanded committees may be needed under this approach, where there are multiple representatives from each state (similar to the Commission's Board).
    - Coordination across the East Coast is somewhat built in with this approach, although there would likely still be governance complications with determining appropriate management authority between the federal Council and the Commission authority in state waters.
    - The Council system is likely to become more complex with an expanded number of representatives. It could also change current regional voting dynamics, for better or worse.
    - Finding members to represent more constituents across a broader area, and potentially having to cover more species/FMPs, may be difficult.
    - Depending on how it's structured, some stakeholder representation and connection to Council members may be lost (see below).
    - Under this type of system, a similar structure could be used for a large SSC, structured with differing representation by stock complex.

    - Some would consider this to be a longer term idea to consider if more modest adjustments to our governance structure don't accomplish what we need. In the coming decades, if there is increasing overlap in representation needs, it may be more efficient to consolidate the East Coast Councils.

- *Consider the important and unique role of the Councils in stakeholder representation when considering possible changes to governance structure.*
    - Fishermen in each region still need Council members who represent them.
    - One coastwide Council, or an expanded Council jurisdiction, could leave stakeholders with less access to their Council representatives and less invested in the process. Fishermen need to know who to reach out to and have easy access to them.
    - However, an ASMFC Board-style arrangement with a consolidated Council could help maintain sufficient regional representation for stakeholders.

- *Consider changes in state representation on Councils.*
    - Some states serve on two Councils (e.g., North Carolina and Florida) and this could be worth considering for more states.
    - Rhode Island has attempted to get a seat on the Mid-Atlantic Council based on landing more mid-Atlantic managed species than every other mid-Atlantic state. Coastal representation could be balanced by considering changes in voting representation on Councils.
    - Giving states votes on Councils has an advantage over giving liaisons voting rights, as it would allow access to at-large seats.
    - Changing state representation on Councils would require a change to Magnuson and is likely a less flexible/nimble way of changing governance structure.

- *Consider that representation/changing distributions may not always become a problem worth revising governance structure for.*
    - Many current plans manage a unit stock that extends beyond the Council's boundaries, and some of these are working well and may continue to work well under changing conditions.
    - Solutions that don't require the entire governance structure to change in the same way for every FMP may be more flexible.

- *Reconsider the use of committees across Councils, and reconsider committee representation/structure.*
    - The Councils currently use committees differently. Adding voting members or otherwise modifying representation has more of an impact for some Councils than others.
    - There is a sense that the committee level is where most of the work either gets done or should get done. In other regions, the Council vote is more of a formality because the more difficult work has already been done by the committee. In the South Atlantic this is even more effective with many of the committees presently structured to include all Council members.
    - Councils could modify their rules to give committees more authority The groups discussed a few different ways this could be done.
        - Simply giving committees the final vote could be accomplished through a Magnuson revision.
        - It also may be possible to change the Council's SOPPs to cede authority to the committees on certain types of decisions. The full Council may still need to vote, but a procedural change could make it so that if the full Council vote fails, the issue is simply returned to the committee.
        - Additional legal guidance may be needed on this issue and the question of whether the full Council would necessarily need to vote on every issue without changes to Magnuson.
    - If relying more on committees, it may be beneficial to consider a more prescriptive approach to committee population. For example, considering the economic importance of each FMP to different states, or having a certain number of committee representatives by state/sector, etc.
    - Representation between the recreational and commercial fisheries would be important to consider on committees for many fisheries as well as state/regional representation.
    - Committee representation would need to be reconsidered periodically as species distributions and fishery characteristics change with climate change.

- *If committees are expanded, consider staff support from multiple Councils to support the work of the committee.*
    - In situations where committees are expanded and the role of the committee becomes more important, it could be advisable to have staff from multiple Councils, or the Commission, providing support to the committee. The lead staff person could be from the managing Council, but involving staff from other organizations could improve support for committee decision making and keep both management bodies in the loop about actions.

- *Consider voting rights for Council liaisons.*
    - One suggestion was to think about giving one Council a single vote on another Council. This could be done by giving liaisons voting rights, which has been suggested in the past.
    - There was some question whether giving liaisons voting rights would make a meaningful difference in most voting outcomes. Perhaps if the liaisons were the ones making motions it could, but one additional vote does not necessarily have a major impact.
    - Giving liaisons voting rights would require a change to Magnuson.
    - As discussed below under "General Coordination/Collaboration," the roles of liaisons can be variable in practice and may need to be clarified.

- *Allow for designation of proxies at the Council level.*
    - The Commission currently allows for the use of proxies in representation, while the Council does not for appointed members. Allowing proxies at the Council level could help alleviate resource and workload issues. Particularly as management evolves to adapt to changing conditions, approaches like more joint management, more frequent committee meetings, and broadening of stakeholder engagement efforts may mean more strain on individual Council members and their families.
    - Allowing proxies at the Council level would likely require a change to Magnuson.

- *Evaluate Commission-specific structures and policies for potential changes.*
    - The Commission may benefit from more standardized term limits, similar to Councils.
    - Use of proxies could also be reevaluated at the Commission level.

- *Other Governance Structure Considerations:*
    - There is some inherent tension between increased representation vs. efficiency and nimbleness. The process is in some ways intentionally slow to ensure proper opportunities for public comments and ensure constituents needs are met. Increased representation would likely further slow the process in some respects: the more people you get involved in management by expanding representation, the more inefficient or cumbersome the process could become.
    - Managers should look for ways to move toward less siloed management and permit structures.
    - Evaluations of appropriate governance representation should go beyond where the stocks are distributed in the water, and even where fishermen are catching them. There is also consideration needed to where the people are that are impacted by the fishery, including shoreside stakeholders and businesses.

Q2. When and how should management authority change?

- *Guidelines should be developed for when to start considering a management authority transition.*
    - These guidelines should be specific to initiating a review process to consider whether authority needs to change, and not guidelines for automatically changing management authority. Formulaic assignment of management authority would make governance less flexible.
    - Concern about indicators or triggers that would cause species responsibilities to shift too often, leading to an impractical inefficient system.
    - Indicators or factors to be evaluated should include both biological/ecological information about the species but also social and economic information about the fisheries and associated infrastructure.
    - Even when stock distribution does not appear to be changing, there could be a shift in the fishery's importance to different areas. This is something that could be considered to trigger a review of management authority, but does not necessarily mean that transfer needs to occur.

- *Requests to transfer authority should come from the Councils.*
    - Because of the huge impact to the Councils, a request to change management authority should come from one or more Councils involved (ideally, both Councils involved).
    - A management authority will not always necessarily want to take over management of an FMP, and they should have input in the decision.
    - Councils should also be able to request to give up management of a species.

- *Transfers of authority should be slow and thoroughly considered.*
    - Transition should not occur overnight; an intermediate step such as joint management will likely be needed (though perhaps not in every case).
    - Much expertise and institutional knowledge will be lost in the transfer process and this needs to be considered.
    - It will likely be resource intensive to transition authority, in terms of staff time and potentially in terms of public involvement/outreach.

Q3. How can we improve the efficiency and the efficacy of joint fishery management plans?

- *Clarify definitions of "joint" management.*
    - There are many different configurations of joint management and differing arrangements and procedures. Using clear definitions when discussing joint management changes is necessary.

- *Consider modifications to joint voting procedures.*
    - For some species, sequential voting at separate meetings has produced mixed results, and there are mixed opinions on whether it works well. In some cases, it can cause wasted effort and inefficiencies when two groups disagree (for example, multi-year process to consider an IFQ program for monkfish).
    - In some cases, joint management doesn't feel truly joint where there is a "lead Council," in that decisions often flow from that Council and their SSC.
    - Consider changing voting structure to majority of total members instead of a majority of each group.

- *Consider where some aspects of joint management are currently working well and may continue to work well into the future.*
    - The problem of changing stock distributions isn't necessarily a new one; it is a problem that had to be dealt with in the original setup of the Council system. Some of the joint management plans we currently have may continue to work fine under changing conditions.
    - For some jointly managed plans, it is not clear there is much additional efficiency that could be achieved.

- *Consider where joint management agreements and procedures can be improved and made more efficient, in anticipation of more joint management agreements potentially being needed in the future.*
    - Additional joint management agreements, particularly between multiple Councils, may be needed under future changing conditions. In anticipation of this, it would be wise to review ways to improve joint management agreements and processes.
    - Joint management is currently a process that typically takes up a lot of time and resources. It can be a cumbersome and resource-heavy process. There may be ways to streamlining portions of it.
    - Joint management can also be heavily siloed and it is worth considering ways to break down the siloed approach and have a broader conversation about shared values and objectives.
    - Under a system with more heavy reliance on committees, formation of joint committees between management bodies may improve the efficiency of decision making.

    - Increased SSC coordination between joint Council-managed species could also streamline decision making.
    - A review of different types of joint management, and comparison of where they might work or not work in certain situations, should also look at other examples such as joint management agreements between the South Atlantic and Gulf of Mexico Councils. Some of these plans appear to be working well by allocating a certain amount of the resource to be managed essentially separately by each Council.

- *Consider degree of influence that one management group may have in comparison to the other management partner.*
    - In some cases, it feels as though one body has more influence than the other. This is often true in the cases where there is a "lead Council" and the other Council usually follows suit with management decisions.

Q4. How can we improve coordination and collaboration among management entities?

- *The role of Council liaisons should be clarified.*
    - The role of Council liaisons is blurry. They should be there to represent what their Council thinks, not their personal opinion, but this does not always happen (and is not always possible, based on the timing of meetings and when issues arise).
    - In some cases, issues come up where the liaisons may not know what the majority "position" of their Council would be, and there is not always time to consult.
    - Clarifying the role of liaisons without adding voting rights would not require a change to Magnuson.

- *Enhance mechanisms for SSC cross-pollination.*
    - Scientific advice may be improved by encouraging more idea-sharing between SSCs.
    - In addition, particularly for jointly managed species, having multiple SSCs weighing in on management decisions in a more coordinated fashion could help increase efficiencies and highlight potential issues earlier in the process.
    - Some existing mechanisms for SSC cross-pollination could be reviewed for application elsewhere in the process, and/or enhanced.

- *"Faction mapping" may help illuminate areas of potential efficiency*.
    - Faction mapping could be used to map out different bodies' authorities and stakeholders. Where stakeholders overlap, there could be ways to reduce duplicative efforts and create efficiencies.

- *Reevaluate and potentially revise Advisory Panel representation.*

- With changing distributions and changing access to the fishery, as well as changing fishery dynamics, advisory panel representation may need to be reevaluated based on regional/state representation as well as stakeholder group representation. This is particularly true if AP representation has not been revisited for a while.
- Expanded AP representation provides a way for more voices to be heard in the process covering a broader regional extent.
- As noted above under Governance Structure & Representation issues, there is a need to better represent underrepresented and underserved communities on our Advisory Panels.
- In some cases it has been a struggle to achieve adequate representation when populating Advisory Panels. Increased use of webinar meetings and other virtual tools may be one way to broaden the universe of potential advisor input.
- However, it is also worth thinking about circumstances under which expanded representation may or may not actually be needed. For example, if a species distribution is changing, it may not be necessary to increase advisory representation until the importance of that species to the local community reaches a certain threshold.

Other Governance Issues

- *The complexity and disconnected nature of the East Coast permitting structure is a governance and management issue that warrants further consideration.*
  - Intersecting with management is the issue of permit silos. Many participants would like to make it easier to acquire permits in different fisheries. This needs to be weighed against the continued need to limit capacity in many fisheries.
  - Many hold permits that they are having to travel further distances to use. They may wish to get out of moving fisheries and into another fishery, but are limited in their ability to do so due to permit structure.

Appendix C: Managing Under Uncertainty Breakout Groups Summary and Potential Actions

This appendix includes the considerations and potential actions we heard during the managing uncertainty breakout groups. We did our best to include the ideas we heard during the breakouts. The ideas are grouped according to guiding questions, presented prior to the breakout discussions, and by potential action.

Q1: How can we increase flexibility, adaptability and robustness in management?

- There is a need to define the terms flexibility, adaptability, and robustness to ensure common understanding and goals.
- We need to better understand risk. Risk includes the probability that something will happen combined with the consequence if it happens. Many Councils/NMFs are not looking at risk this way.
- Looking at what is achievable is also important.
- Too much flexibility could lead to large swings in management from year to year and that could be detrimental as businesses need stability for planning.
- In all of these situations, good communication and transparency about the process will be key.

Identify and establish best practices for if/then trigger management.

- If/then trigger management describes a process where specified information is collected (stock, environmental, or other conditions), monitored, and when a specific threshold or trigger is met or passed, a pre-identified management response is implemented.
- This (if/then trigger management) will reduce administrative workload associated with implementing changes to fishery management actions, since the actions will have been previously analyzed and/or could be implemented directly by the NOAA Regional Administrator.
- This will also reduce flexibility in how management responds (and will not be able to account for other factors that may be important such as availability of alternative options).
    - Could if/then situations be created to allow some flexibility in response?
- It can be difficult to envision future conditions and set up if/then triggers.
- The tool assumes NMFS/Councils will know when a trigger has been met.
- Could qualitative information from fishermen or other sources be incorporated into the evaluating whether triggers have been reached?
- This tool already exists; there are allocations set up this way.
    - For example, the Bering Sea and Aleutian Islands FMP includes pre-arranged "if/then" allocations for yellowfin sole between two sectors depending on the total allowable catch (TAC). If the TAC for the two

sectors is greater than 125,000 metric tons (mt), then the first sector is allocated 60 percent; if the TAC for the two sectors is less than 125,000 mt, then the first sector receives an increasing apportionment.
    - Another example is closure thresholds: if a given percent of the ACL has been caught, then the trip limit decreases.
- The lobster fishery has created a rule that if recruitment is below a given amount, then the fishery automatically changes gauge size
- Suggestions on how these if/then triggers could be added to existing processes were:
    - MAFMC could add triggers to their risk assessment process;
    - Triggers could increase responsiveness when there is joint management across multiple Councils;
    - Triggers could be tied to ABC control rules;
    - Could identify ecosystem level triggers that monitor larger ecosystem processes.
- The NE and Canada have an example system of adapting catch allocations for shared stocks based on historical and current distribution.
    - This system is not perfect as there can be large swings in TAC between surveys and distribution shifts.
- Communication on triggers, why they are important and why changes are needed when triggers are met, is important to improve fishermen compliance with the regulation and add transparency to management. Could fishermen provide input on the scale of the response?

Look into streamlining NEPA compliance and documentation.

- Could NEPA Programmatic Environmental Impact Statements decrease response times for management?
- Could the ASMFC concept of conservation equivalency/functional equivalency be implemented for a faster NEPA process?
- Supplemental Information Reports could be used more frequently for compliance with NEPA, when an action builds directly upon prior actions in that fishery management plan, the measures being suggested are typical of the FMP, and stock and fishery conditions have not changed substantially.
- Consistency in NOAA General Counsel guidance across all regions could be helpful.

Include spatial considerations in management.

- Could variable management across an area be considered (a geographic approach)? For example, decreasing or increasing fishing pressure at the edges of a population?
- Could we identify stock status (overfished, subject to overfishing) by regions?

Other comments related to increasing flexibility, adaptability and robustness in management.

- Learn from other Councils.
    - For example, MAFMC has streamlined their specs process to 1 meeting and 1 vote.
- NMFS and Councils should better account for size and age structure in monitoring and management decisions.
- Councils need more socio-economic information to make better management decisions.
- Think outside the box, for example, how could this idea tie to EBFM?
- There were a few comments on the need for better reporting from all fishing sectors, especially the recreational sector
    - There are participants willing to share their data, but they need a structure to do this.
- Different Councils have heard different advice on the use of EC species and what constitutes management action. Consistent advice is needed.

Q2: How can we better accommodate uncertainty in the stock assessment process **and address related management challenges?**

Improve the use of risk policies to better account for current and future climate impacts on species (both negative and positive impacts).

- Risk policies are different from risk assessments; both could be useful, but only risk policies are discussed here.
    - A risk policy articulates the bounds of how risk tolerant or risk averse an organization's management approach is, given certain criteria. Though informed by scientific advice, risk tolerance is ultimately a policy decision.
- A risk policy could be useful for determining what climate-related risks (and failures) would be acceptable.
- Councils approach risk policies and uncertainty buffers differently.
- It could be useful to categorize risk as long term vs. short term risk, as the management response may be different depending on the temporal outlook.
    - In the NE there is a tendency to look at short term risk to businesses and ignore long term adverse effects.
- There was agreement that comparing risk policies from all the Councils, including how they account for uncertainties due to climate would be useful.
    - NEFMC hired a contractor to prepare a report with this information for all Councils. It will be released in spring 2023.
    - ASMFC has a draft risk policy that includes information on climate concerns and information on economic importance that can decrease or increase catch levels, respectively.
    - SAFMC has an ABC Control Rule that is complicated. It seems subjective because uncertainty varies between stocks.

- There was interest in having more consistency in the risk policies across the different management bodies. Some felt consistency was needed and others thought the differences were appropriate. All agreed that inconsistencies will create challenges when stocks move across jurisdictional boundaries, especially if the Council in charge of the fishery management plan changes (see governance discussion).
- There was concern that some existing risk policies only result in a decrease in catch (i.e., they increase uncertainty buffers), and that there is no mechanism for increasing catch (i.e., decreasing buffers) for species showing positive responses to a change in climate.
    - We need a tool to identify species doing well and take this account within a risk policy.
    - We have $F_{rebuild}$ and F_{MSY}. Can we add a new F for stocks doing well? For example, if B/B_{MSY} >2, implement the higher F because of low risk.
    - Black sea bass are doing well but fishermen are not getting to take advantage of this. They feel like fishermen are being held accountable, but management is not being held to be accountable.
- Is there a way to influence SSCs to take more risk?
- When there is a required cut in catch, the response should be tied to the level of certainty, and anecdotal information should also be considered.
- In order to improve our understanding of risk, we could track risk, decisions, and consequences to better learn from past decisions (i.e., use adaptive management). This could be applied to both science and management decisions.
    - For stock assessments, we can improve our understanding of risk by looking at the history of assessments and retrospective variability.
- Results from NOAA's species and habitat climate vulnerability assessments could be used to identify species that have higher or lower risk of climate impacts.
    - For the Northeast, a crosswalk of the habitat and species assessments was recently completed that merges the findings of both assessments into a single evaluation.

Consider risk assessments to identify fisheries at risk of not meeting management goals

- Risk assessment is a systematic process of evaluating potential risks involved in an undertaking, including the probability that an outcome might occur and the severity of the consequences.
- Risk assessments can combine qualitative and quantitative information.
- Risk assessments help identify scientific and management priorities
- When you look at risk, the risk to the resource and risk to the permit holder should be discussed.

Move toward robust management options rather than trying to account for all kinds of uncertainty within stock assessment models.

- Consider moving toward dynamic reference points that adjust to account for current environmental conditions. There should be the expectation that as management adjusts to this new tool, there will be some failures before successes.
    - Use ecosystem and environmental information to inform appropriate dynamic reference points; use trial and error to ID systems that work.
- Accurately measuring uncertainty is hard if not impossible. Are there better ways to measure uncertainty?
    - One idea is to consider historical assessment variability rather than trying to quantify all forms of uncertainty.
- Could other information (habitat availability or condition, predator and prey information) be considered, especially in situations where there is a disagreement on the status of a stock?
- Management strategy evaluations (MSEs) can be used to identify management options that are robust to multiple possible future conditions.
    - Guidelines on how to focus MSEs could be useful.
    - There are other forms of structured decision making (similar tools to MSEs) that could be useful.

Use qualitative information to improve our understanding of risk. Specifically, better incorporation of local ecological knowledge into management is needed.

- Results from climate vulnerability assessments could be used to identify species that have higher or lower risk of climate impacts.
- NMFS and Councils could also explore participatory modeling that includes what fishermen are seeing on the water (good example from Gulf of Mexico)
- Fishermen can also collect data to clarify conditions on the water as they have done for red tide in the Southeast
- North Pacific Fisheries Management Council uses risk tables, a standardized framework to document concerns about the assessment model, population dynamics, and the ecosystem/environment that are not explicitly addressed within the stock assessment model. A qualitative scoring procedure is used to evaluate the severity of the concern.

Consider and clearly communicate intricacies of uncertainty when making policy/ changing management

- Not all risk is the same, and it can depend on the type and characteristics of uncertainty.
- The type of uncertainty matters.

    - A large uncertainty in fishing mortality might be more important than uncertainty of the utilization of a stock, especially in situations where there is certainty that the stock is improving.
    - More nuanced communication about the type of uncertainty is needed
- Characteristics of the uncertainty also matter.
    - For example, with a 2 tailed distribution- is uncertainty bigger in one direction vs. the other? Are both tails being considered? A highly skewed understanding of uncertainty could mean there were large consequences for a wrong decision one direction but not the other and this should influence decisions.

Other Comments related to improving our ability to account for uncertainty in management:

- Simulations could be used to better understand and communicate the risks associated with management decisions
    - There was concern that the high workload on assessment scientists would mean simulations will not be prioritized.
- If management does not account for current conditions, we could be aiming for rebuilding that is not possible. If we can show fishing is not the reason for a low abundance, then we can look to other management responses.
- Consider moving from the concept of maximum sustainable yield (MSY) to the concept of pretty good yield as it can provide more flexibility in its use
- ICES has started providing scientific advice on MSY as a range, with other factors (such as known uncertainties) driving what part of the range is used for management.
    - This would require careful adherence to a risk policy, so that management bodies could avoid consistently picking the highest number on the range.
- There were suggestions to better integrate considerations of scientific and management uncertainty (vs considering them mostly separately as is currently done).
- How do we deal with situations where the stock assessment was not approved. The Council needs the ability to do something in these situations.

- For stocks where we are lacking relevant survey information, what other information can we track? CPUE? An EBFM indicator? There was a suggestion that we need to decide in advance what will be used to make decisions.

Q3: How can we improve the ability for fishermen and other stakeholders to adapt to climate change?

Creating a more adaptable structure for fishing permits. Fishermen need the ability to change target species or locations in order to adapt to changes in environmental conditions and fisheries. Right now permits, permit systems, and

required reporting differ between Councils and between fisheries. Creating consistency in the permit system could allow for permits to be adjustable as stocks move and target fisheries change.

- Possible steps in this process include:
    - Compile information on permits across the entire East Coast.
    - Assess diversity of permits (who holds them, where, in what combinations)
    - Assess permit accumulations
    - Identify where there are limits in flexibility for fishermen.
    - Identify easy changes
    - Address coast-wide permit issues
- Easier wins were identified:
    - Splitting permits
    - Adding emerging species to existing permits
    - Removing historical moratoria on permits
    - Remove requirements to bundle permits that may no longer make sense and should be reconsidered.
- There is a need to consider and assess the community component of permits (who holds permits, and how changes impact communities) and track the accumulation of fisheries permits through time.
- There was concern that changing gear restrictions could increase uncertainty if this brings in latent effort.
- Different permits have different reporting requirements, which is challenging to fishermen.
- Permits are a difficult subject to address, given the financial investment many fishermen have in the existing system.
    - Should fishers granted permits/quota be treated differently than those who invested heavily in the permits/quota?
- Fishermen are concerned with "blowing up" the existing system. The combined impacts could impact uncertainties; so any changes should be tested with small changes first.
- If changes to permits are being considered, the capacity of a fishery should be considered as there are some fisheries that cannot add new capacity.
- It is easier to adjust permits when there are not state by state allocations. State IFQ programs also create less flexibility
- Larger changes in permits were also suggested, such as switching from species specific permits to area based permits (as the NEFMC eFEP contemplates), and switching from state permits to a universal federal permit that would adjust to species distribution and abundances (for charter boats).
    - When discussing a shift to area based permits, the tendency for fishermen to target high value species would need to be considered to ensure this does not create more choke stocks.
- Sub-regional permits could be used to address shifting stocks. There could be a stepwise approach to adding species to permits. For example, adding black

sea bass to lobster permits to allow lobster fishermen to land bass that are caught in the lobster traps.

Identify and remove institutional baggage. Some existing rules that limit the flexibility to respond to changes in fish stock abundance and distribution may no longer be needed or relevant. Councils should identify and remove this "institutional baggage". Ideas include removing:

- Restrictions on what gear can be used to fish what stocks
- Permit bundle requirements
- Restrictions on using one gear per trip
- Trip limits
- Mis-match of mesh sizes across fisheries (e.g., flounder and black sea bass)
- Limitations in endorsements (e.g., cannot crossover between pot and longline)
- Other legacy regulations

There was also discussion of shifting towards different means of conducting fishery-independent surveys. NEFSC is considering these issues under the Northeast U.S. Region Federal Survey Mitigation Strategy.

Improve the use of community vulnerability assessments.

- Climate change will likely create winners and losers. Are there management changes we can implement that will ensure everyone survives?
- Councils need more socio-economic information to better understand fisher needs

Other comments on improving the ability of fishermen to respond to changes:

- Increasing diversity of catch can increase stability and resilience of fishermen. However, specialized gears can make change hard. How can we incentivize diversity?
    - Potential action: Create a program to support diversification (gear, fisheries, etc.)
- Fishermen need stability. Large swings in management or catch limits are difficult for fishermen and processors.
- Economics (for example, gas prices) impact the ability to follow the fish.
- Commercial infrastructure is also important.
    - Loss of working waterfronts decreases options for where fish can be landed.
    - Sea level rise is also impacting these businesses
    - Could fisheries move to offshore infrastructure?
- Councils need to identify a better mechanism for managing emerging fisheries.
- Increasing market certainty could help with fishermen's ability to address other forms of uncertainty. For example, adding a market for an invasive species increases market certainty that may help fishermen deal with the ecosystem impacts of that invasive species.

Appendix D: Data and Partnerships Breakout Groups Summary and Potential Actions

This appendix includes the considerations and potential actions we heard during the data and partnerships breakout groups. We did our best to include the ideas we heard during the breakouts. Participants used post-it notes to bring ideas to each guiding question. The ideas are grouped according to guiding questions, presented prior to consolidation, the breakout discussions.

Q1. How should we prioritize data/information needed to manage in a changing environment?

- Develop a process between the NRCC and SEDAR to prioritize data (Use ACCSP as example)
    - One participant noted that the NRCC does not have control over data collection and this should not be pursued.
- Implement better coordination between federal and state recreational permits
    - Then collect data
- Reduce uncertainty in recreational data for species with high recreational catch and effort.
- Shift standard recreational survey to a directed survey.
- Use eDNA for gut content analysis
- Incentivize better reporting both recreationally and commercially.
- Start a conversation about data storage with regards to offshore wind instruments
- Consider data management in addition to data collection.
- Expansion of ocean monitoring systems (e.g., IOOS) regionally.
- Work to better understand what environmental data is needed to improve assessments.
- Evaluate how existing fishery dependent and independent data have been used, then refine and streamline.
- Compatibility and continuity of fishery independent surveys with different gear types.
- Standardize data collection requirements across jurisdictions. States often have less robust data standards, but more flexible regulator requirements.
- Standardize and expand cross-jurisdictional surveys.
- Paperwork Reduction Act could be a barrier for nimbleness.
- Increase communication between science centers and states (e.g., through workshops) and have the group identify data holes and what is not used.
- Be ready to prioritize, say "no", and/or stop some projects to ensure resources are available for this effort.
- Require finer-scale catch reporting (10-minute square or better)
- Prioritize and develop:
    - Data standards/methods that can be useful for ecosystem management.

    - Standards for government, education, and other ocean user development.
- Identify training opportunities for fisheries managers to learn/experience why human dimensions data is important to decision making.
- Prioritize human dimensions data (how people feel about changes/identity/etc) in grant opportunities (S-K, FIS, ACCSP), etc.
- Comprehensive habitat mapping is needed to EBFM and monitoring species' range (contraction/expansion)
- Review the huge list of research needs
    - Sort out those related to climate change and identify gaps.
    - Prioritize those data needs.
- Review ACCSP mode of prioritizing data.
- NRCC and SEDAR initiate a conversation on what can be done and what we can stop doing. New high-level commitment.
- Need to expand the recreational demand model to the commercial sector and up/down the coast.
- Develop a message around why we are prioritizing data
    - Helps with incentives to provide data.
- Use legacy environmental and survey data to make retrospective forecasts of changes in stock distribution to determine which data elements are key in making future predictions.

Q2. How can we use current funding more efficiently?

- Current funding:
    - We cannot prepare for the future with current funding.
    - Need to bring congress into conversation.
    - Combine partnerships with new developing ocean users.
- Expand and utilize technology more.
- Expand current use of environmental data loggers, etc, consistently across the coast of industry vessels (better utilize industry and current funding).
- Centralized, cloud-based data management system.
- Determine if all current funding is still useful and redirect or develop cheaper technology.
- Require environmental monitoring stations on wind turbines
- Plan to fully implement A.I. solutions for data collection and data analysis.
- Partner with NGOs in prioritizing funding decisions, i.e., use fisheries climate change priorities in proposal ranking.
- Conduct modeling to determine how best to "knit" together different existing regional surveys.
- Prioritize data collection in areas, sectors, and gears where uncertainty is highest.
- Strategic planning coastwide for projects and data needs to identify efficiencies.

- Expand study fleet and citizen science approaches consistently across the coast and identify the data/questions each approach is most appropriate for to collect more real-time data.
- Review and collect existing data streams not traditionally used.
- Transition to more efficient sampling methods (drones, gliders, eDNA, etc)
- Right size data collection (if we subsample otoliths, we have collected too many)
- NMFS should be more organized in terms of our programmatic needs and priorities.
- Management needs should drive data needs, not vice-versa.
- Maximize relevant data collection from existing surveys.
- Breakdown geographic barriers, i.e., NEFSC vs SEFSC
- Unified collection (standards) and centralized data management.
- Work with states and feds to standardize gear/collection methods.
- NMFS/states should review long-term fishery dependent surveys and assess their current usefulness and decide to stop doing surveys based on the results of the analysis and reprogram funds.
- Stop building ships to skiffs, i.e., replace white ship fleet.
- One permit system.
- Standardize data collection along the coast (state and fed).
- Clean house of people who do not do their jobs.
- Use for-hire fleet to assist in spatial scale data to assist in the Albatross/Bigelow surveys.
- Partner with organizations that would benefit from serving as a platform for data collection, e.g., USCG, DOD, pilot training, schools, merchant marine academy, marine technical schools.

Q3. How can we better utilize the fishing industry for data collection?

- Collect data to calibrate catch composition with temperature.
- Recreational study fleet
- Reduce size of statistical areas to generate finer, more accurate scaled data.
- Study fleets: (recreational, commercial) use as priors on existing data sources.
- Turn losers, non-reporting, recreational tilefish permitters into data collection instead of fines/sanctions
- Consult a professional outreach expert/firm.
- Actually use stuff, study fleet.
- Ensure whatever is collected is actually used.
- Deploy environmental sensors on fishing vessels.
- Invest in temperature sensors/CTDs and put them on as many boats as possible.
- Better commercial fisheries monitoring, i.e. 100% ASM in NE Groundfish.
- Expand and create RSA programs, e.g. Scallop RSA. Be very thoughtful of program design.

- Use the for-hire fleet
    - eVTRs: Temperature, length of trip, lat/long
- Use fishing vessels as platforms (moorings, temperature, manual observation, eDNA)
- Cooperative/Collaborative research
- Scientific effort to merge/use data from different scales and sampling designs.
- Incentivize data collection. Hybrid fish for science/commercial fishing.
- Trust that the fleet can collect scientifically valid information.
- Tell the industry what you need and work collaboratively to get it.
- Expand the study fleet.
- Begin transitioning current large-vessel government vessel surveys to industry platforms.
- Create an example of how data will be used.
- Create incentives: explain why data is needed, how it will be used and how it will benefit science/management.
- Citizen science reporting for the recreational fishing sector.
- Citizen science and cooperative research. NMFS should increase funding and have a larger role.
- Expand the study fleet and recognize that not every fisherman is cut out to be a study fleet participant.
- Create flexibility and opportunities for fishermen who pitch in to collect data.
- Inclusion of collected data in the stock assessment process along with greater transparency and flexibility in the incorporation.
- Create a number of incentives for fishermen to participate in data collection.
- Utilize fishing industry:
    - First determine what to collect as a harvester (what is needed)
    - Outreach on how to best collect with industry.

Q4. What are the best ways to foster outside partnerships for sharing data, especially with other ocean users?

- Create more regular, structured coordination across relevant Federal organizations for data collection, science, etc.
- Approach well-funded foundations who are about oceans and climate change (not just Federal funding)
- Better prioritize applied research.
- Clearly define how the data are going to be used.
- Be wary of wind farms. They do not have a vested interest in the future of our environment.
- Seek mutually beneficial projects. Each party must benefit somehow.
- We have data. What do we do with it based on climate change?
- How will we use new data?
- Leverage universities to develop stock assessment models for added capacity.

- Use wind turbine money to fund surveys but the surveys are conducted and overseen by NMFS.
- Full-time staff with coordination roles to focus on communication.
- Use OSW turbines as platforms of opportunity to collect species distribution data.
- Foster data sharing:
    - New ocean users collecting standard data in elements partnership.
    - Develop recommendations on what is to be collected.
- Define data gaps and needs, then coordinate with other Federal agencies to determine whether data needs can be met. Is data already available?
- Identify other users and ask for data contributions.
- Collect the right data, not just more data.
- Actually use the study fleet.
- Host a forum of known established partners to discuss what is available and data gaps.

Appendix E: Prioritization Exercise Detailed Results

This appendix provides the detailed breakdown of voting from the prioritization exercise conducted on Day 2 of the meeting (as described in Section 3). Based on the Day 1 discussions, Core Team members finalized a list of potential actions for each theme. These actions are listed and briefly described in the three tables in the body of the Summit report (Sections 4-6). Summit participants were asked to prioritize the potential actions in the following way. Everyone received eight votes in the form of dot stickers. Dot stickers were color coded according to each participant's affiliation, with additional labeling for attendees who are members of both a council and ASMFC. Votes could be allocated across any of the potential action areas in any of the themes, but participants could not vote for the same potential action more than once.

Participants were asked to consider prioritizing:

- Potential actions that will help fishery managers prepare for and cope with the challenges of climate change;
- Potential actions that fishery managers are able to influence, and
- Potential actions that are feasible to implement, or where some progress can be made.

Cross-Jurisdictional Governance

Governance Potential Actions	Total
Move to more consistent use of committees across Councils; re-evaluate Committee representation	25
Evaluate mechanisms for cross pollination of SSCs	17
Committee-based decision making with changes to Council SOPPs (Committee motions not approved by full Council get sent back to Committee)	17
Improve coordination across NOAA Offices	13
Coastwide council with opt-in representation by FMP based on fishery interest	12
Clarify and potentially expand the roles of liaisons between Councils	11
Change state representation on councils	8
Review efficiency/effectiveness of joint management plans along coast	8
Re-evaluate and potential revise Advisory Panel representation	4
Committee-Based decision making where Committee has final vote (does not go back to full Council)	1
Consider allowing proxies at Councils to alleviate workload issues	1
Develop more explicit agreements for joint FMPs	1
Total Cross-Jurisdictional Governance Dots	***118***

Figure 1: Summit dot voting totals for Cross-Jurisdictional Governance. These vote counts represent the total dots received for each potential action, and do NOT reflect double counting of those representing more than one management body.

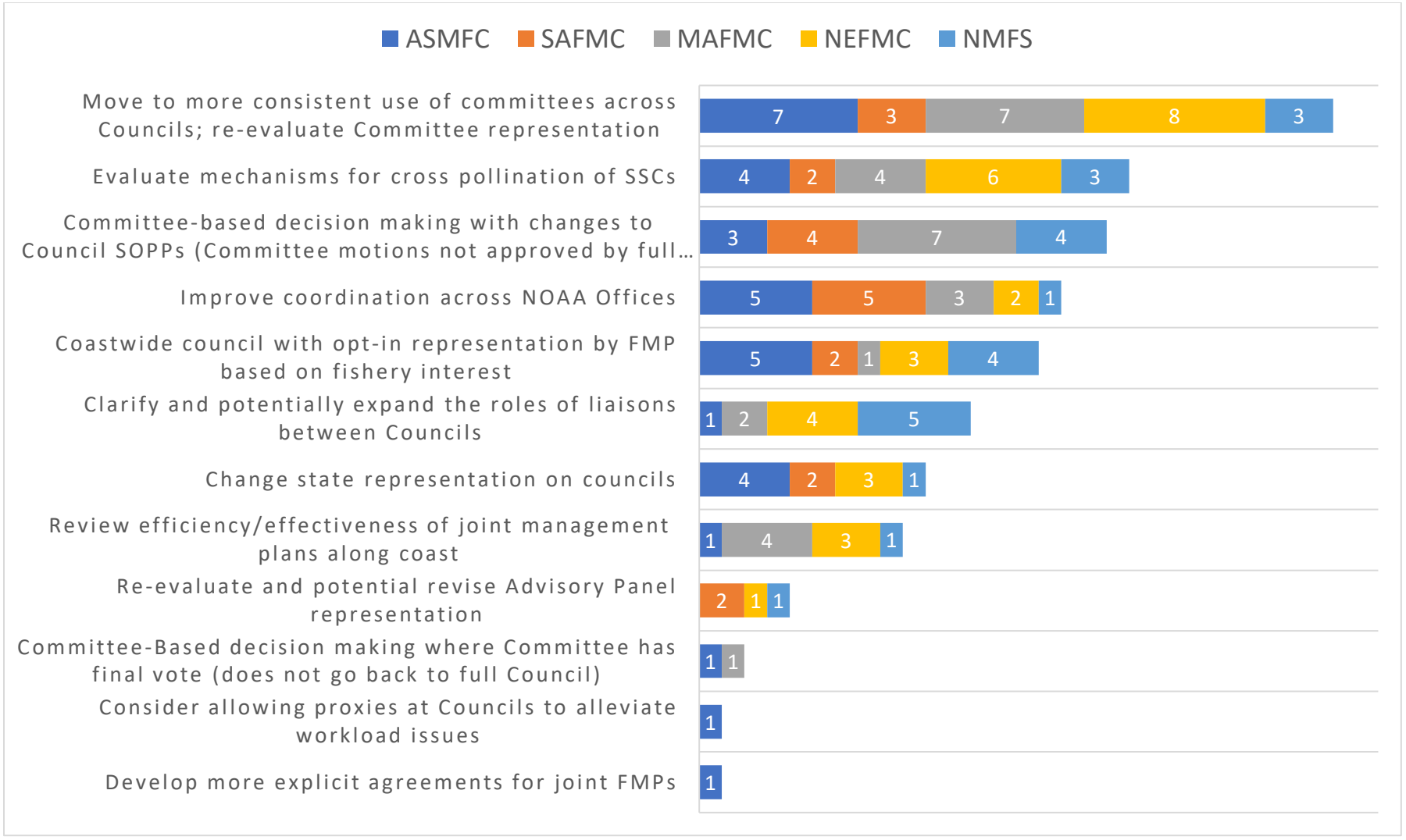

Figure 2: Summit dot voting results by management entity for Cross-Jurisdictional Governance. These results are intended to show interest by management body and therefore reflect double counting of those representing more than one management body. Totals will not add to those shown in Figure 1.

Managing Under Increased Uncertainty

Management Uncertainty Potential Actions	Total
Improving and better operationalizing risk policies	29
Move away from trying to model more and more uncertainties	25
Include spatial considerations in management	18
Identify/establish best practices for if/then management	14
Improve use of community vulnerability analyses	10
Look into streamlining NEPA compliance & documentation	8
Compile information on permits across entire East Coast	7
Consider risk assessment = meet management goals	5
Identify institutional baggage	4
Consider intracacies of uncertainty when making policy/changing management	2
Total Managing Under Uncertainty Dots	***122***

Figure 3: Summit dot voting totals for Managing Under Increased Uncertainty. These vote counts represent the total dots received for each potential action, and do NOT reflect double counting of those representing more than one management body.

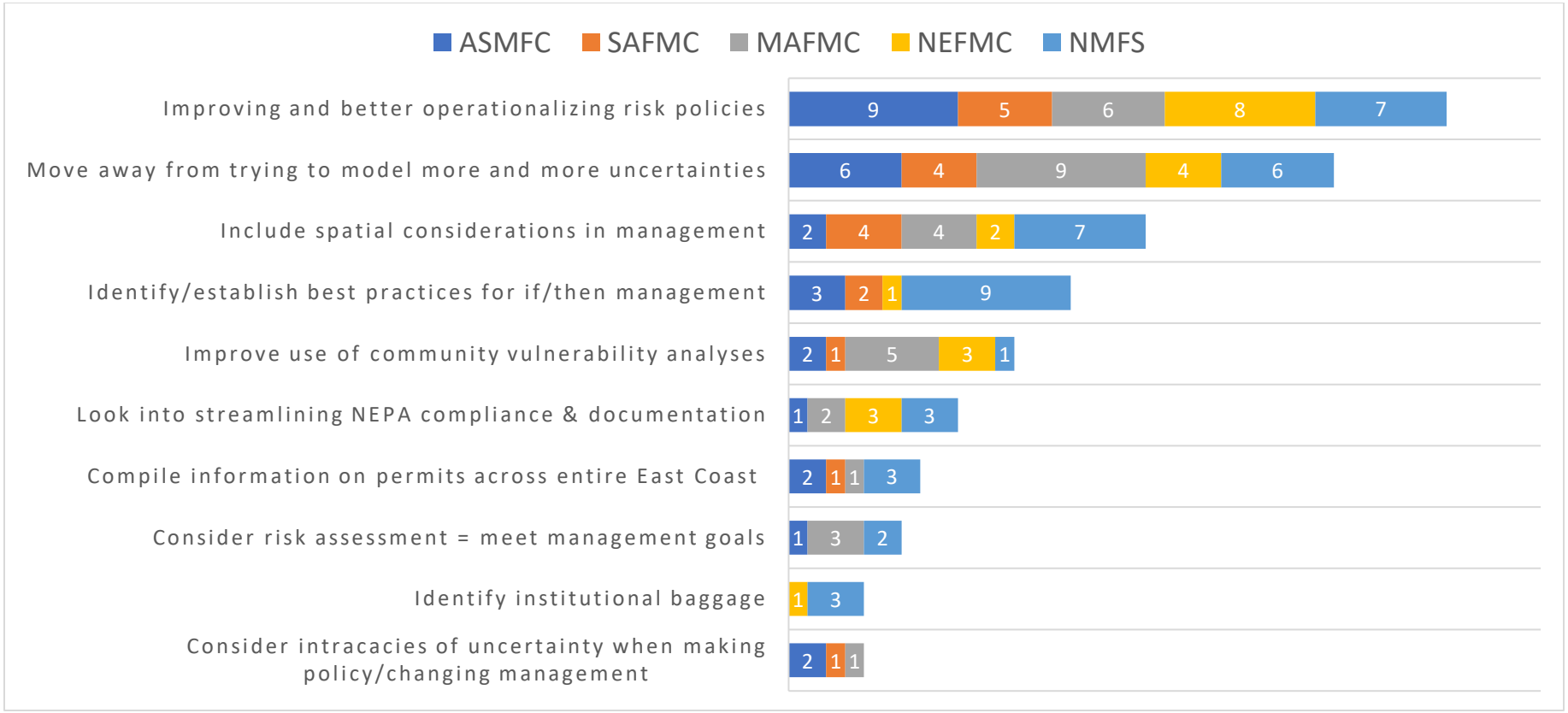

Figure 4: Summit dot voting results by management entity for Managing Under Increased Uncertainty. These results are intended to show interest by management body and therefore reflect double counting of those representing more than one management body. Totals will not add to those shown in Figure 3.

Data Sources and Partnerships

Data Sources and Partnerhips Potential Actions	Total
Expand study fleet, include recreational fisheries and ensure data are used, include shovel-ready data projects	26
Prioritize recreational data collection to reduce uncerainty including devleoping incentives for better reporintg	25
Standardize data collection to breakdown geographic barriers along the East Coast (both state and federal)	24
Modernize data manaement to facilitate better sharing of data and prepare for an influx of new data streams (e.g. offshore wind data)	16
Use survey mitigation around offshore wind to transition to industry-based surveys or other survey platforms	16
Focus on AI/techn development to more rapidly get data into assessments	5
Develop a process between management and science organization to prioritize data needs for climate-ready management (e.g., human dimensions data)	5
Hire staff dedicated to fostering partnerships and coordinating data collection/sharing between other ocean users, management bodies, and within Federal agencies	1
Total Data Sources and Partnerships Dots	***118***

Figure 5: Summit dot voting totals for Data Sources and Partnerships. These vote counts represent the total dots received for each potential action, and do NOT reflect double counting of those representing more than one management body.

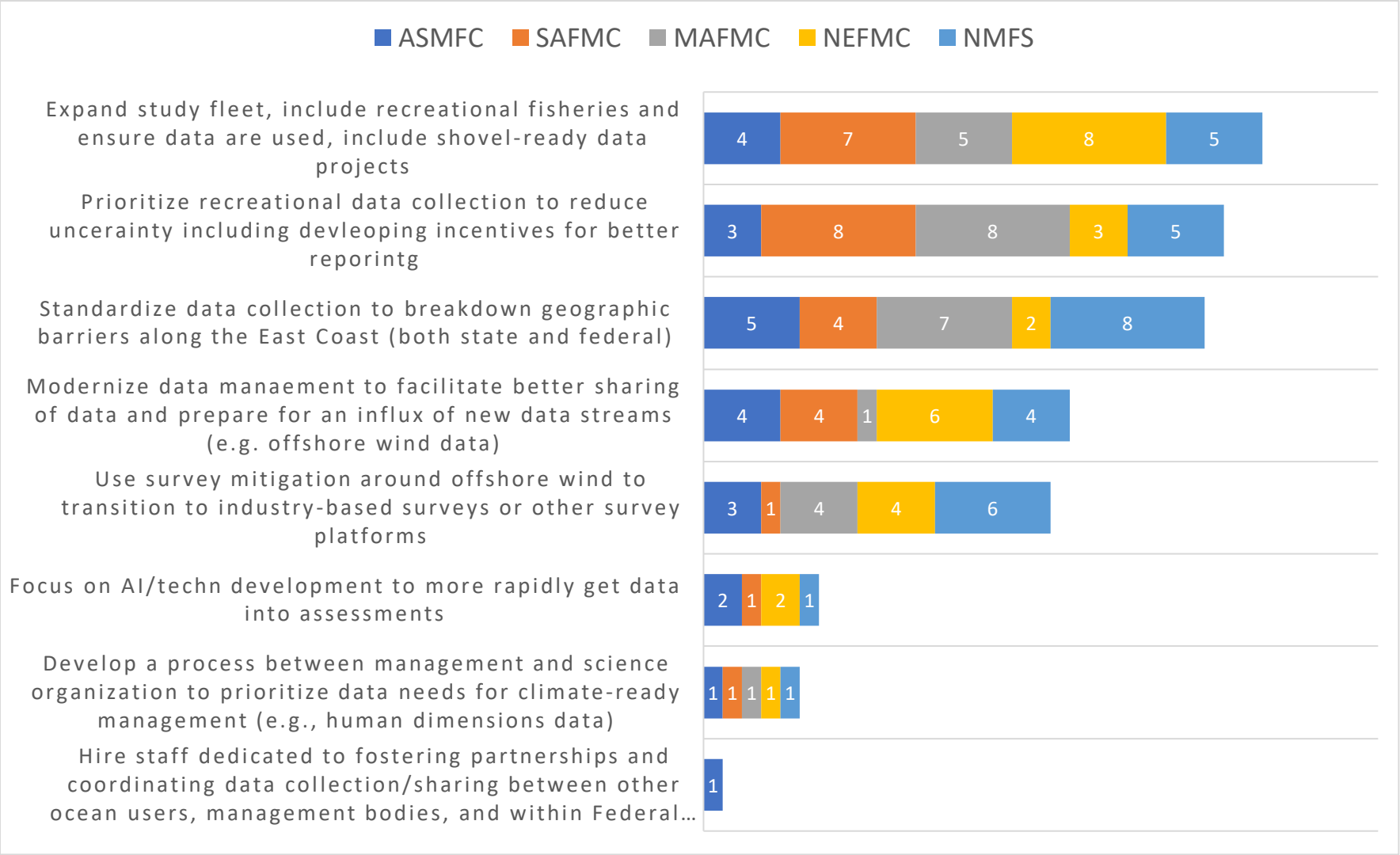

Figure 6: Summit dot voting results by management entity for Data Sources and Partnerships. These results are intended to show interest by management body and therefore reflect double counting of those representing more than one management body. Totals will not add to those shown in Figure 5.

INTRODUCTION

The U.S. East Coast Fishery Management Councils, the Atlantic States Marine Fisheries Commission (Commission), and the National Marine Fisheries Service (NMFS) began an East Coast Scenario Planning Initiative as a way to explore jurisdictional, governance and management issues related to climate change and fishery stock distributions. Over the past two years, representatives from these East Coast fishery management organizations have worked collaboratively and engaged diverse stakeholders to explore how climate change will affect various aspects of fishery management. This exploration was based on a multi-stage scenario planning process, where stakeholders generated several different possibilities for how climate change might affect east coast fisheries.

The capstone to this initiative was the East Coast Scenario Planning Summit Meeting, held on February 15-16, 2023. It was attended by representatives from each of the three U.S. East Coast Fishery Management Councils, the Commission, and NMFS. The goal of the Summit was to develop a set of potential governance and management actions resulting from a scenario-based exploration of the future. It was not possible for the Summit to cover all the issues raised throughout the scenario process. Instead, focus was placed on three overarching themes: Cross Jurisdictional Governance, Managing Under Increased Uncertainty, and Data Sources and Partnerships.

Role of Draft Action Plan

As described in the Summit report, Summit participants discussed ideas already generated throughout the process, reflected on them, and added new ideas for potential actions. The core team then grouped comments and ideas raised by participants into potential areas for action. After a prioritization exercise, Summit participants identified potential practical next steps for a limited number of ideas under each of the three themes. There was not time to develop practical next steps for all potential actions that generated some level of support.

Accordingly, this draft action plan reviews the potential actions identified at the Summit and suggests possible next steps beyond what could be considered at that meeting. It is intended to be an evolving document, providing a guide to address several issues raised at the Summit. It is not the intent that individual management bodies would necessarily approve or endorse this document, but that it would be used as a leadership planning tool to guide collective and individual priorities. Individual Councils/the Commission would refer to this when considering their own priorities. Many of the ideas discussed below would require collective prioritization and the cooperation of multiple management entities.

Structure of Draft Action Plan

The potential actions described below are grouped according to the three themes discussed at the Summit: 1) Cross-Jurisdictional Governance; 2) Managing Under Increased Uncertainty; and 3) Data Sources and Partnerships.

Following these sections, a set of general and process recommendations are highlighted to consider how to ensure work will continue to evaluate and address the potential actions highlighted here, as well as to communicate the outcomes of the scenario planning initiative.

The last section of the action plan highlights a few ideas the core team believed to be either lower in priority or in conflict with other approaches that had higher levels of support. The purpose of this section is to hold on to some of the Summit ideas for possible future reconsideration as conditions change, but not to take near-term action on them. As the NRCC reviews the potential actions and next steps in this document, they should consider whether there may be actions that would be considered a lower priority or infeasible to pursue at this time and should be moved to this "possible future consideration" section.

Things to Note about the Potential Actions

- Each potential next step lists a proposed group that would lead the work on the issue. In some cases, the proposed group is either the **Climate Leadership Group** or the **Climate Innovation Group**. These groups do not currently exist, but the proposal to form them is described in more detail in the "General and Process Recommendations" section. In short, the proposed Climate Leadership Group is an oversight group that would serve a similar role as the NRCC. The proposed Climate Innovation Group is a working group that would serve a similar purpose to the current core team.
- For some actions where multiple groups are listed, the NRCC may wish to consider identifying a lead group for that task.
- In some cases, the core team has taken the list of potential actions from the Summit and consolidated those that fit along similar themes and would have similar next steps. Thus, the list of actions in this document does not always align completely with those in the Summit report.
- The NRCC will note that some of the actions are more concrete and/or more developed than others. Some also appear more feasible than others. The practical next steps will vary widely based on how defined the issues are, how much support they may have, and the resources needed to begin addressing them.
- Not all potential actions will be appropriate to apply universally. Some may be relevant for only certain areas, management bodies, or FMPs, while others would need to be applied consistently or developed cooperatively in order to be effective.

Objectives for NRCC Review

This document is a draft for NRCC consideration, feedback, and revision. When reviewing the potential actions and next steps, the NRCC should:

- Ensure there is a common understanding of each action and that each is described adequately to be understood by a broader audience.
- Consider removing or revising actions that may not be near-term priorities, not supported at all, or not feasible in the near term. Some of these items could be moved down into the list of "possible future" actions if appropriate.
- Identify revisions needed to specific next steps and the appropriate group(s) to address them.
- Identify additional groundwork needed before considering certain issues.
- Under the general and process recommendations, identify the appropriate group(s) to continue pursuing this work, and the timing for forming those groups. In addition, the NRCC should consider the role and the life span of the core team beyond this meeting.

THEME 1: CROSS-JURISDICTIONAL GOVERNANCE

G1. Reevaluate Council committee structure, use, and decision making

Description: Several potential actions were identified at the Summit related to committee structure, use, and decision making. For the purposes of this action plan, these actions have been grouped together here as they are interrelated actions that should be addressed simultaneously for them to have meaningful impact.

As discussed in the Summit Report, these actions primarily address representation concerns related to changing species distributions; specifically stakeholders who may have increasing access to shifting species but may not have "official" representation in the Council process.

Further discussion will be needed regarding whether the potential actions below should occur for all Council-managed species, or whether modifications are only needed for certain species or FMPs that may be experiencing or are projected to experience notable distribution changes.

1. The Councils should **re-evaluate committee representation**, with a focus on FMPs where managed species have shifted or are highly vulnerable to climate change.
2. A few different approaches could be considered to **evaluate effective committee structure and, where needed, enhance the role of committees in decision making:**
    - Modify Council SOPPs or other procedures to allow increased decision-making authority at the committee level. committee motions that do not pass the full Council would get sent back to the committee to be reworked. The Council cannot simply override the committee and make a different decision; it must be sent back to committee.
    - Give committees final votes on FMP actions. The action would not need approval by the full Council. *This would require a modification to the MSA.*
    - Some combination of these two approaches could allow for committees to take final action on some types of management tools or approaches without full Council approval, while other actions would require going back to the Council; e.g., committees could set specifications without Council approval but amendments and frameworks would require Council approval. *This may require changes to the MSA.*

3. The Councils should **evaluate how to move toward more alignment in the use of committees across Councils**. Currently, each Council and FMP uses committees differently in the decision-making process. Considering modifying regional/stakeholder group representation could be more effective if Councils used committees in a more similar manner. This would not mean that every committee has to be used in exactly the same way or that each Council would have exactly the same rules for its committees; but would aim for some degree of increased consistency between Councils.

Practical Short-Term Next Steps:

Action	Group
• Conduct a leadership planning exercise to further explore options for committee-based decision-making, committee structure, and committee use, building on ideas discussed at the Summit	Expanded NRCC or East Coast Climate Leadership Group
• As part of the above exercise, consult with General Counsel on how modifications to committee voting procedures may or may not require changes to MSA	Expanded NRCC or East Coast Climate Leadership Group

Potential Barriers and Considerations:

- Depending on the changes pursued, modifications to the MSA may be required, as noted above.
- There are multiple aspects of committee structure, use, and representation that will need to be considered together under this potential action. As mentioned above, these issues are interrelated. In order for more consistent use of committees to have the intended effects, committee representation will need to be reconsidered. And without more consistent use of committees, changing committee representation may have limited impact on management outcomes.
- Increased reliance on committees may have drawbacks in terms of further entrenching management "silos," given that more deliberation would occur in smaller groups, with more limited discussion occurring at the full Council. This may lead to more differences in approaches between plans.

G2. Evaluate mechanisms for cross-pollination of SSCs

Description: As with G1 above, there are a range of possibilities for actions that could enhance cross-pollination between the different Council SSCs as well as the Commission's science groups, particularly for species that a) are jointly managed, b) are experiencing changes in distribution across jurisdictional boundaries.

Mechanisms for increased coordination and information sharing between SSCs could include (but is not limited to) formation of cross-SSC subgroups, holding more joint SSC meetings, holding joint subgroup meetings, or assigning liaisons between different SSCs. Further discussion is needed to explore where it might be helpful to have multiple groups involved in decision making/recommendations, vs. simply more coordination and exchange of information/ideas.

Practical Next Steps:

Action	Group
• Hold a workshop inviting a subset of all three East Coast SSCs and representation from the Commission Science Community to identify potential ways of improving coordination and knowledge sharing between East Coast SSCs, particularly for species spanning multiple jurisdictions and jointly managed species	Councils and their SSCs and invited participants from the Commission
• Consider adding to topics for discussion at future Scientific Coordination Subcommittee (SCS) meeting(s)	SCS steering committee; CCC

Potential Barriers and Considerations:

- Councils individually review applications and appoint members to their SSCs; there may be procedural barriers and/or general resistance to receiving advice from other SSC members not appointed by a given Council.

G3. Clarify and potentially expand the roles of liaisons between Councils

Description: As species distributions change and effective communication and coordination between different management entities becomes increasingly important, the role of the liaisons between Councils may become more important. In addition, as representation concerns become more pronounced, it is important to clearly define the ways in which liaisons are expected to represent the views of their Council and what degree of influence they should have on the other Council's deliberations. Summit participants discussed that the Council liaison role may be used somewhat differently between Councils, and between different people who have held that role at the same Council. The question of whether liaisons should be given voting rights led to a discussion of the intended role of the liaisons, e.g., whether liaisons are intended to be representing the views and positions of their full Council (which is not always possible), and/or to serve in a general communication/coordination role. Additional clarity around the role of Council liaisons, and potentially increased consistency in their use, may be beneficial. In addition, consideration could be given to potential changes to the role of the liaison, particularly in light of the representation concerns described above under G1.

Practical Next Steps:

Action	Group
• Develop report on the roles and use of liaisons between Councils and between the Councils and Commission, potentially building on 2007 Mid-Atlantic Fishery Management Council's Report to Congress on COUNCIL MANAGEMENT COORDINATION, but with recommendations for improving clarity and effectiveness of the liaison role	TBD
• Conduct an evaluation of the feasibility and pros and cons of liaison voting rights (at full Council)	CCC

Potential Barriers and Considerations:

- If there is a desire to give liaisons voting rights, this would require a change to the MSA.
- The role of liaisons may need to be considered in conjunction with, or following, reconsideration of committee structure and use as described above. These potential actions are motivated by similar representation concerns, and decisions on committee representation and use may influence the future desired role of Council liaisons.
- The Councils may wish to consider adding definitions/clarification of the liaison role into their SOPPs, operations handbook, or other written policies.

G4. Consider allowing proxies for Council members

Description: Currently, appointed Council members cannot use proxies or designees to fill in for them at meetings. The MSA allows only the principal state officials, the Regional Administrator, and the nonvoting members to designate individuals to attend Council meetings in their absence. Allowing for proxies may help alleviate increased workload issues for Council members, particularly if future governance changes lead to increased committee meeting frequency, more joint management meetings, or other changes that increase workload for Council members. Currently, equity and representation issues may arise from the workload and time commitments required for Council membership and how they would limit many people from participating.

Practical Next Steps:

Action	Group
• Consult with General Counsel on what would be required to allow proxies for appointed Council members.	NMFS Headquarters
• Raise at future CCC meeting to gauge interest and explore feasibility.	Councils

Potential Barriers and Considerations:

- If pursued, additional thought would need to be given to the distinction (if applicable) between and definitions of proxy, designee, or alternate. With these definitions, the role and abilities of a proxy/designee/alternate would need to be clearly defined. For example, what are the expectations and rules for attendance, voting, chairing committees, compensation, etc.?
- Additional clarity is needed on whether changes to the MSA would be required, and whether proxies would also need to be appointed by the Secretary of Commerce, likely in conjunction with the appointment of regular Council members.
- In the Commission's structure, Commissioners are allowed to appoint proxies (ongoing, board specific or meeting specific). This has advantages for spreading the workload across multiple people, but also creates a cost barrier of sending multiple people to meetings. This could create similar issues in the Council system for Council proxies if both the appointed member and proxy need to attend a meeting, particularly when considering Council member stipends.
- The role of proxies may need to be considered in conjunction with, or following, reconsideration of committee structure and use as described in G1. Some workload issues could be addressed under a review of committee representation and process (e.g., if there is explicit consideration of ensuring workload balance across committees for individual Council members; and if most committee meetings are held in conjunction with Council meetings or by webinar).

G5. Re-evaluate and potentially revise Advisory Panel representation

Description: Climate driven changes in species distributions are leading to increased concern about appropriate representation by geographic area in various parts of the management process. In addition to considering committee and other governance structure, the Councils and Commission should ensure that advisory panel (AP) representation remains appropriate and effective. While geographic representation is one important angle to consider, a review of AP membership should also consider how other ecological and socioeconomic changes may drive changing needs for AP representation (e.g., changes in participation in a particular sector; trends in the use of certain fishing techniques or gears, etc.).

Practical Next Steps:

Action	Group
• Individual management bodies conduct evaluation of AP representation and appointment process, including how AP members are recruited and identified, with consideration of underrepresented and underserved groups. This could be conducted for select FMPs or all FMPs, and should consider how representation needs (by geographic area, stakeholder group, or other factors) may be evolving with changing conditions.	Individual management bodies with staff level coordination between bodies

Potential Barriers and Considerations:

- Some management bodies have experienced recent struggles to recruit potential AP members, particularly when seeking broader representation. In addition, some have struggled with AP engagement, which could limit the effectiveness of revised AP membership.
- The Councils and Commission should examine how AP input is currently used, and how it can better serve the process.
- Modifying AP representation does not necessarily have to mean expanding membership, but at a minimum considering whether representation is adequate given changing circumstances.
- If APs are expanded in terms of total members, increased costs may be incurred for in-person meetings.
- New AP members to the management process will likely require training on fishery management and science concepts, e.g., through MREP or like programs, in order to be effective.
- There could be other barriers to full AP participation, such as limited internet availability or access to a computer, for web-based meetings, limited English language skills, or inability to take time away from work uncompensated. Such issues would need to be addressed to ensure equity of access to the process.

G6. Develop joint management agreements with aim of clarifying roles and increasing efficiency

Description: Summit participants noted the importance of clarifying roles and increasing efficiency in jointly or cooperatively managed plans. There is currently a spectrum of approaches to joint or collaborative management, and while not all joint management needs to operate the same way, clearly defining and recognizing the pros and cons of different approaches would be helpful. Joint management has benefits for representation, but at times can hinder efficiency and efficacy when groups disagree, particularly if decision making is sequential. More explicit agreements between joint management participants could help to increase transparency and help groups work toward streamlining joint management processes. This issue may be particularly important to address if there is a desire or need for more joint management approaches in the future in response to changing species distributions. In addition, for species that are currently jointly managed, it would be beneficial to review whether the existing procedures and agreements are expected to continue working under different potential future conditions.

Practical Next Steps:

Action	Group
• Review joint plans and agreements between the MAFMC and Commission (summer flounder/scup/black sea bass/bluefish) to identify areas for improved efficacy and efficiency	Commission and MAFMC staff
• Evaluate need for additional review and/or agreements on cooperative or jointly managed plans (Council-Council or Council-Commission plans)	Expanded NRCC or East Coast Climate Leadership Group

Potential Barriers and Considerations:

- While considering joint/cooperative management relationships or plans on a case by case basis may be the most efficient and appropriate approach to this type of review, looking at other examples (within or across regions/management entities) could provide insight into potential ways of improving a particular joint management process.
- This topic will also be impacted by, and will impact, the consideration of committee structure under G1.

G7. Improve coordination across NOAA offices and regions

Description: Climate driven species distribution changes have begun to engage the Councils, and at times the Commission, with additional NOAA offices and regions. Processes and guidance can vary by office and region for similar issues or management problems. Improved coordination, particularly on process, will be important for efficiency in responding to management issues and the efficacy of the management response. It is also worth considering where there might be redundancies or duplicated efforts that could be coordinated to more efficiently use resources.

The idea of improved coordination was heard in each of the themes. The actions under M8 (evaluation of permit structures) and D3 (evaluation of data collection process) are linked to this issue.

Practical Next Steps:

Action	Group
• GARFO and SERO review respective management action procedures and processing to highlight opportunities each employs which may benefit or expedite implementation of actions approved by the Councils.	GARFO, SERO

Potential Barriers and Considerations:

- This is a potential action that seemed to have some support but lacked specifics in how it should be approached, other than some specific actions considered under the other two themes (M8 and D3). The NRCC could consider other potential actions that might be appropriate.
- The draft action above pertains to the regional offices, but consideration should be given to whether a similar process for the science centers, or between the regional offices and science centers, or with other offices within NOAA, may be worthwhile.
- As noted above, this action intersects in important ways with the other two themes and many of the actions within them. Effective coordination between NOAA offices will be critical to making progress on this action plan.

THEME 2: MANAGING UNDER INCREASED UNCERTAINTY

Environmental changes are leading to changes in the distribution and abundance of marine resources. In some cases, these changes mean that historical conditions can no longer be used to predict the future, increasing our uncertainty around appropriate catch limits and management responses. Are there actions that can be taken now to prepare for and respond to this increase in uncertainty?

Organizing questions:

- How can we better accommodate uncertainty in the stock assessment process and address related management challenges?
- How can we increase flexibility, adaptability, and robustness in management?
- How can we improve the ability for fishermen and other stakeholders to adapt to climate change?

Better accommodate uncertainty in the stock assessment process and address related management challenges

Changing ocean conditions are affecting the location of fish stocks, the productivity of fish stocks, and the fishing industry's interactions with bycatch, protected species, and other ocean users. Fish stocks could become less productive or move out of range of the fishermen who catch them. In addition, changing ocean conditions also impact the collection and analysis of data used in the stock assessment process. This means managers need to be prepared to make decisions with more uncertainty and less clarity.

There are two main approaches to dealing with uncertainties in fisheries management: first, increase investment of time and funding into research and science to better understand the situation and potentially decrease uncertainty in predictions (moving towards the right side of the matrix of scenarios), and second, create management approaches that will have a good likelihood of being successful even with uncertainty (left side of the scenario matrix).

M1. Improve the use of risk policies to better account for current and future climate impacts on species (both negative and positive impacts).

Description: Many fishery management bodies have existing risk policies. Risk relates to both the probability of an event occurring, and the severity of expected outcomes. Risk policies identify the bounds of how risk tolerant a management body should be given certain criteria. These policies inform and work in conjunction with harvest control rules.

Existing risk policies might be based on assumptions of stationarity. At the Summit, participants discussed how these policies could be re-assessed to include the challenges related to a changing climate and non-stationarity in marine populations and ecosystems. Discussions noted a need to address species responding poorly to, and those benefiting from, changing ocean conditions. Summit participants also discussed North Pacific Fishery Management Council (NPFMC) use of risk tables as a quantitative way to assess and communicate multiple uncertainties, including those related to climate. During implementation of the risk policies, it will be important to clearly communicate uncertainty.

Practical Next Steps:

Action	Group
● Share NEFMC compilation of risk policies from across all Councils. Present the report to NRCC and explain what NEFMC is doing to revisit its risk policy, which is a multi-year work priority starting in 2023. Also present the Commission's new policy when finalized.	NEFMC/ Commission
● Develop a staff-level working group to discuss pros and cons of different approaches for accounting for climate-related uncertainties within the risk policies, including how to respond to species doing well in a changing climate. Bring forward to NRCC/East Coast Climate Leadership Group for discussion.	Climate Innovation Working Group
● Evaluate the need for all Councils/Commission to consider climate in their risk policies and explore potential benefits of aligning risk policies where practicable. Offer time to discuss alignment at future NRCC meetings.	Expanded NRCC or East Coast Climate Leadership Group
● Identify steps individual Councils/Commission can take to make risk policies more reflective of climate challenges	All east coast Councils and Commission
● Ensure the risk policies consider and clearly communicate intricacies of uncertainty (including the shape of the uncertainties) when making policy/ changing management	All east coast Councils and Commission

Potential Barriers and Considerations:

- No forcing mechanism.
- Need to consider benefits and challenges of aligning policies
- MAFMC recently updated their risk policy (2020) so are unlikely to want to update it again in the near future
- The Councils seem to want the ability to retain separate risk policies

Long-Term Objectives:

- Councils implement risk policies that account for climate change and this facilitates climate resilient fisheries. Provide pathways within risk policies for considering stocks that are climate change winners differently
- Where practicable and needed (i.e. for fisheries under joint management), align risk policies between management bodies so that management is consistent up and down the coast

- If there is interest, expand this discussion to include other Councils/regions via the CCC

M2. Consider broader ecosystem-level contextual information within the management process to help meet management goals

Description: Changing climate and ocean conditions can impact fish stocks, fish habitats, and interactions between species and fisheries, sometimes in surprising ways. It is important to proactively consider ecosystem level impacts when making management decisions. This can be via quantitative or qualitative information, including via the use of ecological risk assessments[1], such as the risk assessment MAFMC uses as part of its ecosystem approach to fisheries management framework; which results in a more holistic consideration of issues. NMFS has written a technical memo that provides some examples of how ecosystem risk assessments have been used in fisheries management.

Practical Next Steps:

Action	Group
• NMFS offers to present findings of newly released Tech Memo looking at example ecosystem risk assessments to Councils and Commission	NMFS staff coordinating with Councils/Commission
• Consider adding major state-only-managed fisheries to these ecosystem risk assessments for a more complete perspective	NMFS
• Identify opportunities to use specific types of quantitative and qualitative ecosystem information to identify and avoid risks	Climate Innovations Group, individual Councils and Commission
• Share lessons learned	NRCC or other

Potential Barriers and Considerations:

- No forcing mechanism
- Need here is likely to be council and FMP specific

Long-Term Objectives:

- Create a fishery management system aware of and able to respond to significant ecosystem changes.

[1] Ecological risk assessments are management decision tools that integrate information on individual and cumulative pressures to estimate the relative probability and magnitude of an undesirable ecological response. They provide a framework that can analyze relative risk broadly or in response to a small number of drivers. A climate vulnerability assessment is a more limited and targeted form of risk assessment.

M3. Move toward alternative, robust management options rather than trying to account for all kinds of uncertainty within stock assessment models.

Description: Changing climate and ocean conditions mean that underlying assumptions common to stock assessment models (assumptions about environmental stationarity and ecosystem equilibrium conditions) are no longer valid. This will make identifying appropriate catch limits even more challenging than it is now. There are two approaches to dealing with increased uncertainty - using scientific analyses to decrease uncertainty, or identifying management that is robust to the uncertainties. Given that changing climate and ocean conditions can impact many aspects of a fish stock (direct impacts on productivity and distribution of the stock, changes to habitat, changes to predator/prey relationships, etc.) it may be impossible to incorporate all important sources of uncertainty into stock assessment models and results. Therefore, it may be important to focus on alternative approaches to setting catch limits that are robust to multiple uncertainties. Management uncertainty (e.g., do measures lead to expected outcomes) can also be considered. Alternative approaches may not be useful for all fisheries, and thus there will be a need to triage which species need to consider new approaches.

Practical Next Steps:

Action	Group

• Look for case studies and deep dive into robust management options, including:
  • Indicator based management (Bluefin tuna)
  • Robust Harvest Control Rules (UCSB peer reviewed paper)
  • Dynamic reference points
	Climate Innovations Group

• Determine when MSE is useful - and track when MSE is used, was it helpful?	Climate Innovations Group
• Using the CVA results, identify east coast managed species that are particularly vulnerable to climate change and work towards developing new approaches for those species • For example, MAFMC and NEFMC are considering how a combination of species and habitat CVAs can be used to identify focal Habitat Areas of Particular Concern to prioritize consideration for conservation recommendations	All east coast Councils and Commission

Potential Barriers and Considerations:

- This is exploratory/discussion - early stages
- Communication across science and management spaces may be challenging
- MSE costly - lots of upfront investment - but intended to save time / resources long term

Long-Term Objectives:

- Explore options for creating management frameworks, harvest control rules, etc. that are robust to the uncertainties associated with a changing climate.

M4. Better incorporate qualitative information including local ecological knowledge (LEK), traditional ecological knowledge (TEK), and community vulnerability assessments to improve management in a changing climate.

Description: Implementing quantitative analyses of climate impacts on all species is not feasible. Therefore, identifying options for incorporating qualitative information on how the ecosystem is changing and fisheries are reacting may be both necessary and useful. There are existing examples to build on: MAFMC has a risk assessment that combines quantitative and qualitative information to better understand the risk a fishery will not meet its management goals, and NPFMC uses semi-quantitative risk tables to understand risks not included within a stock assessment. Participants at the Summit mentioned interest in ways to incorporate local or traditional ecological knowledge into the fisheries management process. These types of information are relevant across multiple actions identified here, including M1, use of MSEs, M2, ecological risk assessments, and M7, spatial considerations.

Practical Next Steps:

Action	Group

• Inventory where and how qualitative information, including LEK/TEK is currently being used in management and identify ways into management process, including:
  • Examine proposed and implemented ideas from the NPFMC climate taskforce
  • Consider examples from Southeast where participatory modeling incorporated LEK into stock assessments
	Climate Innovations Group

• Improve the use of Community Vulnerability Assessments
  • Identify NMFS' plans to characterize community vulnerability in the past and near future. Identify options for filling any gaps.
  • Discuss options for using knowledge of community vulnerabilities to plan for the future.
  • Note that not all community vulnerabilities are climate-focused.
	Climate Innovations Group

• Consider expanding State of Ecosystem (SOE, used in New England and Mid-Atlantic) and Ecosystem Status Reports (ESR, used in the South Atlantic) to include qualitative indicators, for example qualitative network models. • NEFMC discussed this during the 2023 SOE briefing	NEFSC/ SEFSC

Potential Barriers and Considerations:

- Need to establish trust of qualitative data and indicators as compared to quantitative indices
- Those who hold LEK/TEK will need to agree to provide it

Long-Term Objectives:

- Create a robust fishery management process responsive to quantitative and qualitative information.

Increasing flexibility, adaptability, and robustness in management

The U.S. fishery management process was not designed to be especially nimble as it prioritized public input/collaborative management. While there are definite advantages to this process, it can be difficult to identify regulations that are nimble and responsive to challenges associated with a changing environment. Given the impacts of climate change could result in surprises in environmental and fishery conditions (e.g., unexpected marine heatwaves, stock collapses, and distribution shifts as are now being seen in the North Pacific), creating management that is flexible, adaptable and robust is necessary.

M5. Identify and establish best practices for increasing nimbleness/ responsiveness in management

Description: In situations where plausible future conditions can be predicted either quantitatively, or qualitatively (e.g. quantitative or qualitative understanding that increased marine heatwaves are expected), it may be useful to create management frameworks that are nimble, adaptable and robust to expected changes.

Practical Next Steps:

Action	

• Identify good examples of if/then triggers being used in management. Examine examples for best practices. Brainstorm other areas where if/then triggers might be useful such as ecosystem based triggers or governance triggers.
  ◦ SE Shrimp example - close when states provide environmental info to RA
  ◦ Two examples from the Commission who is - considering the addition of GOM/GB lobster triggers, considering dropping fine scale monitoring northern shrimp unless a trigger condition is reached
	Climate Innovations Group; Councils, Commission, and NMFS

Potential Barriers and Considerations:

- Councils may be hesitant to use if/then triggers because they could tie the hands of a future Council. For example, a Council may find itself dealing with unforeseen circumstances that make a certain trigger response less appropriate or effective. Changing the trigger would be possible but could require a longer process.
- Doing sufficient National Environmental Policy Act (NEPA) analysis in the action where triggers are developed could be challenging and require assumptions about future conditions
- This action appeared to have stronger support from NMFS staff at the Summit compared to other attendees

Long-Term Objectives:

- Identify options for increasing nimbleness and robustness of the fishery management process.

M6. Streamlining FMP documentation and rulemaking

Description: Councils spend substantial staff time writing NEPA and other federal compliance documents, so processes that introduce efficiency should allow Councils to reduce administrative work, resulting in time savings that could be used to address new climate-oriented initiatives. Streamlining the FMP documentation and regulatory processes is also a key way to make the management process more nimble and efficient, so that management responses to changing conditions can be completed in a more timely manner.

Practical Next Steps:

Action	Group
• Review the use of programmatic Environmental Impact Statements (EISs) in for Council actions and encourage their use where appropriate.	MAFMC considering this near-term
• Identify areas where NEPA documents can be streamlined, including when incorporation by reference to recent related documents would be appropriate	GARFO, SERO, NMFS HQ, Councils
• Develop a process for FMP actions that qualify for a Categorical Exclusions under NEPA, including MSA document templates; identifying NMFS vs. Council responsibilities	GARFO, SERO, NMFS HQ, Councils
• Work with NOAA General Counsel (GC) to establish consistent GC guidance with regards to the use of CEs, rulemaking, public comment etc.	GARFO, SERO, NMFS HQ

● Identify process steps Council and NFMS staff can take to use MSA documents to satisfy NEPA requirements	GARFO, SERO, NMFS HQ, Councils
● Consider alternative rulemaking approaches or action development approaches	GARFO, SERO, NMFS HQ

Potential Barriers and Considerations:

- Programmatic EISs involve a large investment of time and resources up front; should consider whether the efficiency gained on the back end is worth it.
- Hesitancy to circumvent opportunities for public process
- Other actions contemplated above are about including information up front

Long-Term Objectives:

- Identify options for reducing unnecessary burdens associated with NEPA/ other documentation, especially where documentation does not support decision making, without sacrificing the public process and opportunities for meaningful input.

M7. Include spatial considerations in management

Description: Climate change is influencing the distribution of some fish stocks. As stocks shift their distribution, there may be advantages to managing the leading and trailing edge of a stock differently. For example, if stock genetic diversity is high at one of the edges, more conservative management may make sense. Similarly, if an ecological niche has been recently vacated in an ecosystem, then management may want to minimize fishing on a replacement species to ensure the replacement species is able to form a viable population in the new area.

Practical Next Steps:

Action	

• Create a working group to explore this issue.
  • Compile examples of where spatial considerations across a fishery or stock have been used in management decisions.
  • Explore ways to measure stock shifts (scientifically) and how to identify what should be considered leading and trailing edges
	TBD working group

• Recommend East Coast Councils/Commission consider if spatial management is appropriate for any of their managed stocks.
  • Figure out which stocks this is an issue for using LEK and ecological information
  • Consider spatial distribution when making management decisions (Review King and Spanish mackerel and cobia management and consider these approaches for other stocks with a focus on leading and trailing edges being managed differently than the core.
	Councils/Commission

Potential Barriers and Considerations:

- Need to manage a stock across its range - does not say need consistent/same management across the range, just that cannot discriminate against members of a state.
- Enforcement could be difficult if regulations differ between areas.

Long-Term Objectives:

- Plan for shifting stocks; ensure management has considered the potential needs of stocks leaving or moving into an area (it would be detrimental to fishermen if important stocks leave an area and no replacement stocks move in), and ensure the ecosystem remains healthy.

Improve the ability of fishermen and other stakeholders to adapt to climate change

Fishermen, and fishing related businesses need to be able to adapt their fishing practices to account for current or expected changes in fish stocks distribution or productivity. Are there management actions that can help fishermen adapt?

M8. Create a more adaptable structure for fishing permits

Description: Lack of access to fishing permits, allocation, or quota can limit a fisherman's ability to adapt to changes in fish stocks. Fishing permits are not consistent between fishery management bodies or fisheries. Can managers revise the permit system to make it more flexible and adaptable to impacts from a changing climate?

Practical Next Steps:

Action	
• Create a shared vessel registry to streamline data accessibility and advance One Stop Reporting.	NMFS electronic monitoring group

• Review permit systems on the East Coast to identify areas where the regulations can be modified to allow for flexibility and adaptability by the fishermen.
  ◦ Are there permits in place that can be split?
  ◦ Can emerging species be added to existing permits?
  ◦ Do some permits need to be bundled?
  ◦ Engage industry through advisory panels or other means to identify issues. Multiple engagement approaches are likely needed.
	NMFS, Councils, and Commission working with fishing industry

• Present findings and recommendations to modify programs to allow for adaptability to SAFMC, MAFMC, NEFMC, and Commission.	Council Staff/NMFS

Potential Barriers and Considerations:

- Fishing businesses have invested heavily in permits and thus may be hesitant to embrace change
- U.S. East Coast permitting structure is extremely complex - state vs. federal differences, regional differences, species/FMP differences

Long-Term Objectives:

- Create a flexible and adaptive permit system. For example, create a system that allows fishermen to adjust fishing to match the species present in their historical fishing area, or allows them to follow the fish and land the fish in a new location.

THEME 3: DATA SOURCES AND PARTNERSHIPS

D1. Expand study fleet, include recreational fisheries, and ensure data are used

Description: The vision of a study fleet is a partnership between the science centers, management bodies, and fishermen where the centers define data needs for assessments and management. There is currently a small commercial fisheries study fleet in the Greater Atlantic region; however, expanding the study fleet along the coast, particularly to include recreational fisheries, would greatly benefit the assessment/management process under a changing climate. This would require cooperation by all parties to better utilize fishery dependent data in the assessment/management process.

Practical Next Steps:

Action	Group
• Identify places where study fleet and associated projects' data can be utilized in Council and Commission work plans and actions. Develop a plan to track and communicate use of study fleet data.	Councils and Commission
• Include Recreational Study Fleet Pilot in GARFO's Recreational Saltwater Fishing draft policy implementation plan	GARFO, NEFSC
• Develop shovel-ready cooperative research projects that can be quickly initiated if funding becomes available.	Centers
• Use industry to collect more environmental data via instrumentation and data loggers. Incentivize industry to participate.	Centers
• Develop plan to incorporate the recreational study fleet data to improve recreational estimates from Marine Recreational Information Program (MRIP)	Centers

Long-term Considerations and Aspirations:

- Difficult to include study fleet in work plans before they are established.

D2. Develop incentives for better reporting to help reduce uncertainty

Description: The best way to improve the assessment/management process under changing climate conditions and shifting species distributions is to ensure the most accurate data is available. Fisheries dependent data is particularly useful as it is collected year-round and at a finer spatial scale than is possible with fisheries independent data. Therefore, it is important to incentivize accurate and timely reporting.

Practical Next Steps:

Action	Group
• Develop tools to better utilize citizen science	Centers, Councils and Commission
• Develop a report that identifies weaknesses in reporting requirements	Councils, Commission
• Develop plan to monitor and enforce compliance to reporting requirements	Councils, Commission, Law Enforcement, Permit Offices
• Better coordinate with State & Federal recreational data collection to utilize state volunteer survey data	Centers and Commission

Potential Barriers and Considerations:

- More consistently apply and enforce reporting requirements

D3. Standardize data collection to breakdown geographic barriers along the East Coast (both state and federal)

Description: Having standardized surveys and other data collection/storage methods across the various regions would allow data to be more easily transferable and usable. This is particularly important when considering survey changes/limitations arising from external factors like climate change and offshore wind development.

Practical Next Steps:

Action	Group
• Develop a National Survey Program	NOAA
• Northeast and Southeast Fisheries Science Centers develop a strategy for combining survey methodology (This could include standardizing survey gear where appropriate or a modeling framework to merge different survey technologies)	Centers/ State-Federal Programs
• Prioritize and develop data standards so that data can be readily used in various modeling frameworks that combine data across regions	Centers/State-Federal Programs
• Standardize data management and storage so the data is readily accessible by researchers	Centers/State-Federal Programs

Potential Barriers and Considerations:

- Confidentiality of state/Fed data. Offshore wind reluctance to share data.
- Consider economic data as well as environmental and biological.
- Need to evaluate regional and coastwide fishery dependent and independent data systems to facilitate assessment of shifting populations.
- Consider reviewing and standardizing east coast permits because data collection is so tightly linked to the permits. See M8 above.

D4. Use survey mitigation around offshore wind to transition to industry-based surveys or other survey platforms

Description: The development of offshore wind areas will present challenges for accessing survey areas using traditional methods/gear. This is an opportunity to redesign surveys and transition to industry-based or other platforms that could be more effective in offshore wind areas.

Practical Next Steps:

Action	Group
• Implement the survey mitigation strategy	Centers
• Explore opportunities to utilize smaller platforms such as commercial vessels for conducting surveys	Centers
• Develop plan for integrating multiple survey data streams into the assessment process	Centers

D5. Modernize data management to facilitate better sharing of data and prepare for an influx of new data streams (e.g. offshore wind data) and foster new partnerships

Description: Other uses of the ocean are rapidly expanding. While dealing with various sectors can be challenging, it also creates an opportunity for us to foster new partnerships. As such, we can and should anticipate an influx of new data streams.

Practical Next Steps:

Action	Group
• Hire staff dedicated to fostering partnerships and coordinating data collection/sharing between other ocean users, management bodies, and within Federal agencies	Centers
• Explore new partners that would mutually benefit from serving as a platform for data collection (USCG, DOD, IOOS/Regional Associations, merchant marines, transit, National Marine Sanctuaries, etc.)	Centers
• Approach NGOs and Universities to develop mutually beneficial projects and funding.	Centers, Regional IOOS Associations
• Host a forum of known partners to discuss available funding sources, potential collaborations, and data gaps.	Centers, Regional IOOS Associations
• Use offshore wind turbines as platforms for data collection.	Centers, Regional IOOS Associations, State/Federal Programs

Potential Barriers and Considerations:

- Relationships with other ocean users can be contentious.

D6. Develop a process between management and science organization to prioritize data needs for climate-ready management (e.g., human dimensions data)

Description: The need for more data will continue to increase under a changing climate. It is unlikely that we will be able to expand on existing data collection without sacrificing data that is currently collected. It will be imperative for the region to prioritize data needs. This way we can focus on what will be more important moving forward, especially human dimensions data.

Practical Next Steps:

Action	Group

• Prioritize human dimensions data and identify training opportunities for managers to help them better consider human dimensions in decision making.	Councils, Commission, Regional Offices, and Centers
• Hold a workshop to determine which data needs are necessary across regions to inform decisions and prioritize the collection of those data.	Centers

D7. Focus on AI/technology development to more rapidly get data into assessments

Description: Under a changing climate there will be a greater reliance on multiple data sources. To quickly synthesize data to keep pace with change will require reliance on technology to automate much of the processing.

Practical Next Steps:

Action	Group
• Start developing AI to better integrate video and camera surveys as well as other large data integration needs	Centers
• Develop methods to directly funnel fishery-dependent data (VTRs, observer data, study fleet, etc.) into assessments and for use in monitoring.	Centers and Regions

D8. Improve the use of existing data.

Description: While there is definitely a need for new and novel data sources, there is a wealth of data already available in the region that could be better utilized. This includes being more transparent on how current data is used but also thinking of ways to take advantage of existing behaviors (e.g posting on social media). Making use of this kind of selective/anecdotal data as opposed to relying solely on census or unbiased data is more important when traditional data is scarce. In addition, as we expand our data collection activities we need to make plans for how it will be used.

Practical Next Steps:

Action	Group
• Hold meetings to discuss what existing data streams and historical datasets could be better utilized to inform decision making, assessments, and monitoring. Do this across regions and management bodies.	Councils, Commission, Regional Offices, and Centers

● Have similar meetings at the PDT/FMAT level for more immediate FMP needs.	Councils and Commission

GENERAL AND PROCESS RECOMMENDATIONS

The Summit identified several actions that should be considered for east coast fishery management to become better prepared for a future of climate change. In addition to these actions, there are several **general process recommendations** the NRCC should consider. These suggestions provide details for how the Summit actions can be implemented and supported, and for how an overall scenario planning approach can be used to help fishery stakeholders cope with an era of climate change.

For Consideration:

1. Form An East Coast Climate Leadership Group to Help Implement Identified Actions

The outputs of the Summit (i.e. potential actions) represent important changes to fishery management approaches. Change is difficult to achieve, given how busy everyone is, and how much coordination is involved. To provide the best chance of making effective changes happen, it will require an organizational body to oversee the implementation of these potential actions. This body will ensure actions are prioritized, jointly or by individual management organizations, appropriately resourced, and executed in a coordinated fashion. Note that all potential actions do not need to be applied universally – some might apply to only some areas, or management bodies, or FMPs.

In the short-term, we expect the NRCC will assume the role overseeing the potential actions, with representatives from SAFMC included as part of those conversations and decisions. We propose that the NRCC discuss and determine the feasibility and need for a broader East Coast future oversight/leadership group.

While the current approach of the NRCC with SAFMC representation has worked well through the scenario planning initiative, it is worth considering whether expanded representation may help ensure continued coordination and prioritization of action items. In particular, increased involvement from southeast offices of NMFS, and potentially NMFS headquarters may be beneficial. Maintaining oversight at the NRCC may make it more difficult to efficiently involve the South Atlantic region if scenario planning related actions end up spread across multiple NRCC agenda items and initiatives.

We realize the formation of an additional group is not ideal, given the limitations on everyone's time. As a result, the NRCC should consider whether a current group / arrangement exists that could fulfill this need. If a new group is deemed necessary, it will be important to discuss: the composition of the group (how many representatives from which organizations); its relationship to existing decision-making and authority; arrangements for feedback from Councils/Commission/stakeholders; and mechanisms required to support the group. Ideally this leadership group would be established prior to fall 2023, when the Councils and Commission begin to identify work priorities for 2024.

2. Form a Climate Innovation Group

As described above, the remit of the Leadership Group proposed above is to ensure agreed-upon actions are prioritized, resourced, coordinated, and executed. In contrast, the remit of a Climate Innovation Group will be to identify ideas at an earlier stage that are worthy of consideration by a Leadership Group.

Essentially, a Climate Innovation Group looks out for important changes, brings these to the attention of the Leadership Group, and identifies possible actions to undertake. We expect that the existing East Coast Scenario Planning Core Team will form the basis of the Climate Innovation Group, but there will also need to be an evolution of the role and composition of this team.

The following provides a suggested set of tasks for such a group:

1. Regularly review changes to the factors shaping East Coast fishery management. Using the scenarios as a framework, the group will highlight shifts that might push us towards a different scenario (or a completely new scenario). For example, the group could track evidence[2] showing changes in ocean conditions, new evidence of climate impacts, developments in technology, changing influence of new ocean users, shifting policy environment etc. The group could also track various initiatives and tools that could be useful to apply when addressing the various action items. On a regular basis, the group will meet to review and assess new evidence and discuss whether conditions are changing in important ways.

2. Highlight potential actions from the broader list of Summit suggestions. The Innovation Group should determine if some ideas may be resurfacing as more important / more supported than they were at the time of the Summit, or if the feasibility of implementing them has changed, based on changing conditions.

3. Generate any new potential actions. The group will also imagine potential new actions that seem appropriate given the changing conditions. For items (2) and (3), the basic approach will line up with the scenario theory about 'placing bets across a matrix'. Some actions might be robust (work across all scenarios). Others might be recommended to avoid a worst-case scenario. Others might be small experiments to try as a possibility comes more into focus.

4. On a regular basis (suggest annually), the Climate Innovation Group will present an update of changes and revised potential actions to the Leadership Group, who will decide if any additional actions should be prioritized, resourced and executed.

It is possible that the existing Core Team evolves into the Climate Innovation Group. However, it is also important to recognize the Innovation Group could encourage a broad range of colleagues and stakeholders to be part of the conversations. For example, it could be important to tap into economists and social scientists to understand changes in socio-economic conditions. The Group should also look to engage with and seek input from management bodies.

The Climate Innovation Group need not meet as regularly as the Core Team has over the last two years. We suggest the group meets three times a year: once to prepare for an update to the Leadership Group, once to debrief, and once in the intervening months before the next update is due.

[2] Relevant evidence could be sourced from indicators in existing reports (e.g. State of the Ecosystem), or in collaboration with Science Centers, scientific committees etc. Other more qualitative developments could be sourced from headlines / stories in relevant publications, or from scanning of social media posts.

The Climate Leadership Group and the Climate Innovation Group will need to be supported, in terms of organizing meetings etc. We suggest that the organizational support is provided by Councils/Commission/NOAA on a rotating basis, similar to the way that support is provided to NRCC currently.

3. Communication and Engagement of Scenario Process Outcomes

We should consider the short-term and long-term communication requirements separately. Both short and long term communication efforts should involve communications teams from each organization in addition to the Climate Leadership Group and Climate Innovation Group (or core team in the short term).

In the **short-term** we recommend that the outcome of the scenario work is communicated to all participants who attended events throughout the process.[3] This will mean sharing the Summit Report, and possibly some version of this Action Plan. Updates to the initiative webpage should be made to explain the outcomes of the process and link to the resulting documents. There are other options for communicating the findings, including a slide deck with voiceover, or a short video explaining the scenarios and the priority actions that emerged from the work. In communicating the outputs, it will also be important to notify all participants (and other stakeholders) of any forthcoming Council and Commission conversations that discuss the recommendations from this work. This ensures that observers can track how the ideas have been received and actions implemented.

Over the **longer-term**, the scenario materials can be used to structure ongoing conversations about how climate change will affect fisheries. Stakeholders should be involved in conversations that go beyond the specific implications for fishery managers priorities, and instead can address any other issues that fishery stakeholders are most concerned with as climate change continues. This might broaden the conversation to discuss new ocean uses, access, etc.

There are ways in which we could encourage climate scenario conversations without having to convene them ourselves. One possibility is to make the scenario framework and stories available to groups, so that they could have conversations about what each of the future conditions might mean for them. These groups are then likely to have conversations/idea generation sessions that are more focused on the issues of relevance to them. For example:

- Specific geographical areas / local communities (e.g. Chesapeake Bay)
- Specific roles/functions (e.g. harbormasters)
- Specific issues or concerns (e.g. future decisions about siting and designing an aquaculture facility)

We could support and encourage these conversations by creating a tool-kit that includes (i) a set of slides for presentation, (ii) a set of worksheets to organize and record conversations, (iii) an overall agenda for the session, (iv) a guide for facilitators.

[3] In the earlier stages of the scenario work, we encouraged broad engagement. The scoping and exploration phases held webinars attended by hundreds. The scenario creation workshop held in June 2022 was attended by ~75 stakeholders from all aspects of fisheries. Following the creation and deepening of the scenarios (heading into the Application phase), the focus shifted more precisely to the implications for East Coast fishery managers, so engagement was then restricted mostly to fishery managers. (Of course, all meetings were still open to the public).

Alternatively, groups might want to have ‘scenario conversations’ without having to use the existing scenario framework. In these situations, we could create a workshop approach based on the cards that were used in the scenario creation exercise in June 2022. In that session, we identified 20 ‘critical uncertainties’, 6 ‘predetermined elements’ and 6 ‘wildcards’. Groups can then create sketch scenarios based on combinations of these cards. For this, we would need to create a tool-kit that includes: (i) a presentation to set up the exercises, (ii) a set of cards, (iii) worksheets to organize and record conversations, (iv) an overall agenda for the session, (v) a guide for facilitators.

Additional Actions for Possible Future Reconsideration

As noted in the Introduction, this section is intended to hold ideas that are low in priority, infeasible to meaningfully address under current conditions, or in conflict with other approaches that had higher levels of support. The core team recommends regularly reviewing all potential actions and shifting priorities as needed based on what is working or not working, and based on how conditions may be changing. The intent of this section is to maintain a record of these Summit ideas for possible future reconsideration as conditions change, but to take no near-term action on them.

The NRCC should recommend if other actions should be added to this list.

Cross-Jurisdictional Governance

1. Coastwide Council with varying voting representation by FMP

Description: Some supported consideration of one big East Coast Management Council with opt-in participation by states. This was primarily supported as a means to increase levels of coordination, efficiency, and for increased ease of ensuring adequate representation as species distributions and other conditions change.

The full Council would not need to vote on each management plan; the opt-in participation could be at the level of Boards or committees designed to provide appropriate representation based on interest/fishery occurrence. Expanded committees may be needed under this approach, where there are multiple representatives from each state (similar to the Commission's Board).

This governance structure would require a modification to the MSA.

This potential action is included in the list of possible actions for potential longer-term consideration due to the legislative barriers to implementation, as well as the desire to first explore other, smaller scale changes within our current system. Some considered this to be a longer term idea to consider if more modest adjustments to our governance structure don't accomplish our objectives. In the coming decades, if there is increasing overlap in representation needs, it may be more efficient to consolidate the East Coast Councils.

Potential Barriers and Considerations:

- This would require a change to the MSA.
- Concerns were expressed about this structure leading to a loss of more local representation by Council members and to stakeholders feeling less connected to and invested in the process.
- It may be difficult to populate a large East Coast Council if members would need to be responsible for keeping track of more management plans than they do currently.

2. Change state representation on councils

Description: To address representation concerns caused by changing stock distributions, some Summit participants supported consideration of the states with voting representation on each East Coast Council. This included the suggestion of evaluating whether there should be more states that sit on multiple Councils (like North Carolina and Florida currently do).

Giving states votes on Councils would be a more meaningful change in representation compared to giving liaisons voting rights, as it would allow access to at-large seats.

Potential Barriers and Considerations:

- This would require a change to the MSA.
- This is a less flexible or nimble way to modify governance structure and would be much more difficult to make further changes in the future if needed.

New England Fishery Management Council
50 WATER STREET | NEWBURYPORT, MASSACHUSETTS 01950 | PHONE 978 465 0492 | FAX 978 465 3116
Eric Reid, *Chair* | Thomas A. Nies, *Executive Director*

January 13, 2023

Mr. Michael Pentony
Regional Administrator
Greater Atlantic Regional Fisheries Office
55 Great Republic Drive
Gloucester, MA 01930

Mr. Robert Beal
Executive Director
Atlantic States Marine Fisheries Commission
1050 N. Highland Street, Suite 200 A-N
Arlington, VA 22201

Dr. Jonathan Hare
Science and Research Director
Northeast Fisheries Science Center
166 Water Street
Woods Hole, MA 02543

Dr. Christopher Moore
Executive Director
Mid-Atlantic Fishery Management Council
Suite 201, 800 N. State Street
Dover, DE 19901

Dear Mike, Jon, Bob and Chris:

The Council requests that a management track assessment for white hake be conducted in the fall of 2023. We believe a Level III assessment is warranted, but recognize the ultimate decision will be made by the Assessment Oversight Panel.

At its December 2022 meeting, the Council passed the following motion:

> *That the Council supports a modification in the stock assessment schedule to accommodate a white hake management track update in 2023. The white hake update should follow a Level 3 Enhanced Review to accommodate the recommendations under the 2022 Management Track Peer Review Panel Report and the Scientific and Statistical Committee report dated November 23, 2022.*

White Hake was assessed in the fall of 2022. While the assessment concluded the stock was not subject to overfishing and was not overfished, the Peer Review Panel and subsequent Scientific and Statistical Committee reports for white hake indicate a number of important uncertainties in the stock assessment. In particular the SSC wrote of white hake[1]:

> *The SSC noted several uncertainties including poor characterization of catch and numbers-at-age, low sampling levels, missing 2020 surveys, and a major retrospective pattern. The retrospective error was reduced in the 2022 Management Track assessment compared to the previous 2019 assessment, partially due to the addition of the shrimp survey index.*

[1] SSC Report available at: https://www.nefmc.org/library/nov-9-2022-ssc-report-re-groundfish

The SSC noted that the SSB_{MSY} reference point is based on a cumulative distribution function (CDF) of recruitment estimates from 1963-2019, whereas the projections are based on a CDF of recruitment estimates from 1995-2019. The SSC highlighted that the use of different recruitment time stanzas may not be appropriate for the stock and leads to uncertainty about the outcomes of catch advice.

The SSC highlighted the high utilization rate of white hake and the potential for the stock to become a choke species for the groundfish fishery. The SSC commented that the mixed signals for white hake presented challenges to set catch advice within the constraints of the current ABC control rule. The SSC recommended exploration of internal consistency between biological reference points and projections and consideration of change point analysis or recruit-per-spawner analysis to inform recruitment time stanzas. The SSC recommended exploration of the conflicting trends in biomass and recruitment and potential sources of uncertainty. The SSC reiterated recommendations from the 2022 Management Track Peer Review Panel to explore splitting the survey time series between the Albatross and Bigelow and continue explorations of the utility of the Bottom Longline Survey. The SSC commented that the importance of this stock and the uncertainty in the assessment may warrant an earlier than scheduled assessment update.

Furthermore, representatives from the commercial fishery indicate encountering a consistent level of availability and abundance of white hake while targeting other stocks. The catch of white hake is critical to the catch of other target stocks (e.g., pollock, redfish, monkfish).

Thank you for considering the Council's request. Please contact me if you have questions.

Sincerely,

Thomas A. Nies

Thomas A. Nies
Executive Director

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northeast Fisheries Science Center
166 Water Street
Woods Hole, MA 02543-1026

March 27, 2023

Thomas A. Nies, Executive Director
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Suite 201, 800 N. State Street
Dover, DE 19901

Dear NRCC Principals,

As you know, NEFMC passed a motion requesting an additional management-track assessment for white hake in 2023, to repeat and update the management-track assessment that was peer reviewed in 2022. This is the first request for a schedule change under the new assessment process that wasn't a result of other schedule changes (e.g., research track extensions) or external drivers (e.g., government shutdown, missed surveys due to COVID). In order to more fully consider this request, the NRCC Assessment Working Group (AWG) discussed the general standards/criteria for such requests, recognizing that (a) the new assessment process is intended to provide flexibility to adapt if needed and (b) the long-term schedule was negotiated to minimize the need for additional, intervening management track assessments.

In terms of standards/criteria for requests of additional assessments, the AWG suggested that such requests should be based on new science/information (e.g., strong signal in data) that indicates a substantial change in status of the stock from the expectation/projection from the most recent peer reviewed management-track assessment (e.g., overfishing, overfished, or substantial change in biomass or catch expectations). Such requests could also be based on identification of errors that cannot be addressed appropriately without peer review.

The AWG considered the NEFMC's white hake request with these criteria in mind and felt that the request did not meet these standards, although Chris Kellogg, as NEFMC staff, supported the Council motion (for the rest of this paragraph, "AWG" refers to all other AWG members, not Mr. Kellogg). The white hake request is premised on SSC comments regarding several uncertainties and data issues that were reviewed by the peer review panel and have not changed since the terminal year of the assessment data. The NEFMC request also raises SSC concerns about the time frames of recruitment used to estimate reference points and develop projections. The recruitment time frame approach was reviewed by the peer review panel, who accepted its use and provided a research recommendation to evaluate the approach in future management tracks. Notably, the review panel did not recommend an earlier revisiting of the assessment to address this, or any other, research recommendation. The SSC and Council also both raised concerns about economic impacts of white hake as a choke stock. The AWG felt that requests for additional assessments, with

associated additional peer review, should be based primarily on new scientific information not economic impacts.

With regard to workload capacity, the NEFSC assessment lead for white hake is also leading efforts on data preparation for the cod research track and the spiny dogfish management track assessment, is the assessment lead for skates, and provides significant support to NAFO. NEFSC does not have other staff capacity to pick up the white hake assessment, and even if such capacity existed, there would be substantial transition work by the assessment lead that is not feasible in 2023.

If desired, the NEFSC could provide the relevant NRCC scientific committees (e.g., SSCs) with a data update to provide context for the advice from the 2022 assessment.

Sincerely,

HARE.JONATHAN.ARTHUR.1365825242 Digitally signed by HARE.JONATHAN.ARTHUR.1365825242 Date: 2023.03.28 11:58:49 -04'00'

Jon Hare, Ph.D.
Science and Research Director

cc: Jon Hare <jon.hare@noaa.gov>,
Brandon Muffley <bmuffley@mafmc.org>,
Chris Kellogg <ckellogg@nefmc.org>,
Patrick Campfield <pcampfield@asmfc.org>,
Emily Gilbert - NOAA Federal <emily.gilbert@noaa.gov>,
Tara Trinko - NOAA Federal <tara.trinko@noaa.gov>,
Liz Sullivan - NOAA Federal <liz.sullivan@noaa.gov>,
Kristan Blackhart - NOAA Federal <kristan.blackhart@noaa.gov>,
Mike Simpkins <michael.simpkins@noaa.gov>

Some thoughts for our White Hake meeting

Jon Hare - NOAA Federal <jon.hare@noaa.gov> Tue, Apr 11, 2023 at 5:21 PM
To: Tom Nies <tnies@nefmc.org>
Cc: Michael Simpkins <michael.simpkins@noaa.gov>, Kristan Blackhart - NOAA Federal <kristan.blackhart@noaa.gov>

Dear Tom

In preparation for our meeting on Thursday, we wanted to provide you with our perspective of the situation. Is there anyone else that you would like to include in the meeting?

From our previous conversation, we understand that the NEFMC is interested in funding contract work to look at the research recommendations by the peer review panel and the SSC regarding short-term projections and reference points.

The NEFSC sees three options for addressing the SSC recommendations.

1. A robust evaluation of the scientific questions underlying those research recommendations conducted within a topical research track, namely the Projections Research Track currently scheduled for 2027. This is the NEFSC preferred approach.
2. Addressing the research recommendations during the next white hake Management Track in 2025 (using a level 3 review).
3. The NEFMC contracting with an individual or group to conduct a more focused effort sooner.

If option 3 is pursued, we anticipate that the work may be useful in supporting the Projections Research Track and would be informative for the next white hake Management Track assessment in 2025.

Further, if option 3 is pursued, we recommend conversations with GARFO beforehand so that there is an understanding as to what management actions might be forthcoming.

We also have attached preliminary thoughts regarding the analytical work that would be required to develop a robust answer. This has been developed as part of early planning for the Research Track, but is relevant to option 2 and 3.

We also need to work with the NRCC to clarify how changes to the assessment schedule are requested. You are correct that the NEFSC does not have a veto over requested changes to the schedule. However, in the case of the NEFMC White Hake request, alternatives were not presented, thus there are no alternatives for the NRCC to consider (e.g., if NEFSC does a White Hake Management Track in 2023, what does the NEFMC propose that the NEFSC not do). If we have time on Thursday, we can discuss this element of the issue as well.

Cheers,

Jon

Draft Recruitment Assumptions Used in Projections

Recruitment is an important part of estimating biological reference points, conducting short-term projections for catch advice, and conducting medium-term projections for rebuilding plans. Whether the recruitment used in each of these situations needs to be the same or can vary is currently an open question. To address this question rigorously, the following set of analyses should be evaluated.

1. A closed-loop simulation (aka management strategy evaluation) to evaluate risks associated with alternative assumptions about recruitment for the three purposes (biological reference points, short-term projections for catch advice, and medium-term projections for rebuilding plans). The ability to correctly specify recruitment (e.g., a cumulative distribution function from a specific range of years) for the different purposes should be the focus of this research.
    a. Risks include:
        i. Risk of overfishing or becoming overfished
        ii. Risk of foregone yield
        iii. Risk of being too lax or stringent with rebuilding
    b. Treatment that should be explored for specifying recruitment:
        i. Staying the same as recent (and defining recent)
        ii. Reverting back to the long-term mean (and defining long-term mean)
        iii. Autocorrelated recruitment
        iv. Doing something not previously seen
    c. Features that should be considered in the simulations:
        i. Model misspecification (e.g., lead to a retrospective pattern)
        ii. Different drivers of productivity (fishing and environment)
        iii. Regime shift/change-point analysis
        iv. Different levels of observation error
        v. Different ways of calculating the reference points
        vi. Changes in other biological and fishery characteristics such as growth, maturity, natural mortality, selectivity, and density-dependence
        vii. Different life history characteristics (e.g., groundfish vs. pelagic)
2. Evaluation of any proposed approach using actual assessments
    a. Retrospective forecasting
    b. Need to mimic decision making process within these evaluations
    c. Wide range of life histories and environmental and fishing conditions

Of note, traditional statistical catch-at-age models, such as ASAP, are not well suited for inclusion of environmental factors in the stock-recruitment relationship. State-space models, such as WHAM, are better suited for doing so and may provide a better path forward for dealing with this overall question. The modeling work should include both traditional statistical catch-at-age and state-space models given the range of currently used approaches in the region.

--

Jon Hare (pronouns: he/him/his)
Northeast Fisheries Science Center Director

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Eric Reid, Chair | Thomas A. Nies, *Executive Director*

April 26, 2023

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Dr. Christopher Moore
Executive Director
Mid-Atlantic Fishery Management Council
Suite 201, 800 N. State Street
Dover, DE 19901

Dear Mike, Jon, Bob, and Chris:

At its April 2023 meeting, the New England Fishery Management Council (Council) passed a motion requesting that the Council write a letter to the Northeast Fisheries Science Center (NEFSC) and Northeast Region Coordinating Council (NRCC) to include the Gulf of Maine (GOM) haddock stock as a case study in the Applying State Space Models Research Track Assessment.

GOM haddock was recently assessed in the fall of 2022. NOAA Fisheries concluded the stock is now subject to overfishing but remains not overfished and continues to be rebuilt. The assessment reduced the estimate of stock biomass since 2015. As a result, catches in more recent years resulted in overfishing, despite those catches being less than the specified acceptable biological catches (ABCs)/annual catch limits. The 2022 Management Track Peer Review and Scientific and Statistical Committee (SSC) weighed in on this issue.

In the 2022 Management Track Peer Review of the 2022 GOM haddock assessment[1], the Peer Review Panel recommended:

> *GOM haddock should be considered for evaluation using a state-space framework, which could provide insight into the rapid decline in biomass. The Panel suggested*

[1] Peer Review Panel Report available at: https://d23h0vhsm26o6d.cloudfront.net/10_2022-Management-Track-Peer-Review-Panel-Report-FINAL-10072022.pdf

that GOM haddock may be included as a case study in the State-Space Modeling Research Track effort.

In the SSC November 2022 report[2], the SSC noted:

> *An alternative assessment approach, such as a state-space model may be useful to explore the drivers of the rapid reduction in biomass and concurred with the Management Track assessment that GOM haddock may be a useful case study in the ongoing Research Track on Applying State Space Models.*

Representatives from the commercial groundfish fishery have testified to high encounter rates and catches of small haddock in the Gulf of Maine. The catch of haddock is critical to the targeting of other stocks in the Gulf of Maine. The Council passed an additional motion at the April 2023 meeting requesting the Greater Atlantic Regional Fisheries Office take emergency action to set the GOM haddock ABC for FY2023 at 90%F_{MSY}. The relief gained from emergency action would partially address short-term concerns that the commercial groundfish fishery will catch its entire allocation within the first few months of the fishing year.

The inclusion of the GOM haddock stock as a case study in the Applying State Space Models Research Track Assessment would help to address uncertainties in the long term. We acknowledge this may be difficult given other work underway by Center staff, but this work is very important as the Council will continue to be challenged in future discussions of GOM haddock.

Please contact me if you have any questions.

Sincerely,

Thomas A. Nies
Executive Director

[2] SSC Report available at: https://d23h0vhsm26o6d.cloudfront.net/221109-Final-SSC-Groundfish-Report-2022-11_23_22.pdf

Mid-Atlantic Council Request on Black Sea Bass Stock Projections

For discussion by the Northeast Regional Coordinating Council (NRCC)

April 2023

The Mid-Atlantic Fishery Management Council (Council) staff would like to modify the previous request to the Northeast Fisheries Science Center (NEFSC) regarding information to inform the setting of 2024 specifications for black sea bass. Specifically, we maintain our request for a black sea bass data update by June 1; however, we no longer see the value in the NEFSC providing the previously requested stock projections for the reasons described below. We reached this conclusion after discussions with staff from the NEFSC Population Dynamics Branch, the Greater Atlantic Regional Fisheries Office, and the Atlantic States Marine Fisheries Commission.

In December 2022, the Northeast Regional Coordinating Council (NRCC) agreed to postpone the peer review of the ongoing research track assessment to October 2023. As a result, there was not sufficient time for completion of a subsequent management track assessment for use in setting 2024 specifications. Therefore, the Council requested an update of the projections only, without an updated assessment model run, to inform 2024 specifications. As we understand it, these projections would simply update the assumptions about total catch through 2022. The underlying assessment model run, which includes data through 2019, would remain unchanged. Therefore, the projections would not be informed by new estimates of recruitment, availability, and other potentially important factors, past 2019.

After further discussing these projections with NEFSC Population Dynamics staff, we are concerned about the precision of projections five years out from the terminal year of the model run (i.e., a terminal stock assessment year of 2019 informing 2024 projections). Stock projections are generally most precise within a few years of the terminal year model run. Therefore, our previously requested projections may be highly uncertain and it may be just as scientifically appropriate, and a more efficient use of resources, to maintain status quo specifications in 2024. Depending on the NRCC discussion, we may ask our Scientific and Statistical Committee to consider this approach during their July 2023 meeting.

A management track assessment based on an improved stock assessment model should be available for setting 2025 specifications. In addition, given the very healthy stock status of black sea bass, there is likely little risk to the stock in foregoing updated projections in 2023 and instead waiting until next year to respond to an improved stock assessment.

2022 FALL NRCC MEETING SUMMARY

Hilton Garden Inn – 100 Boardman Street, Boston MA
October 24-25, 2022

Attendees

Atlantic States Marine Fisheries Commission (ASMFC)
Joe Cimino, Vice-Chair, Day 1
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
Wes Townsend, Vice-Chair
Dr. Chris Moore, Executive Director
Brandon Muffley, Staff
Dr. Paul Rago, Chair, Scientific and Statistical Committee (SSC)

New England Fishery Management Council (NEFMC)
Eric Reid, Chair
Rick Bellavance, Vice-Chair
Tom Nies, Executive Director
Chris Kellogg, Deputy Director
Dr. Lisa Kerr, 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
Dave Gouveia, Assistant Regional Administrator for Analysis and Program Support
Liz Sullivan, Sustainable Fisheries Division (NRCC staff support)
Laura Hansen, Sustainable Fisheries Division (NRCC staff support)

South Atlantic Fishery Management Council
John Carmichael, Executive Director, Day 1

Guest Presenters
KB McArdle, NEFSC, Fisheries Monitoring Operations Branch, Day 1
Kiley Dancy, MAFMC, Day 1
Jonathan Star, Scenario Insight, Day 1
Douglas Christel, GARFO, Day 2
Dr. Brian Linton, NEFSC, Day 2

Additional Attendees- Virtual
Geoff White, ASMFC, ACCSP Director
Julie DeFilippi Simpson, ACCSP, Day 1
Mary Sabo, MAFMC staff
Jason Didden, MAFMC staff, Day 1
Julia Beaty, MAFMC staff, Day 2
Jose Montanez, MAFMC staff
Hannah Hart, MAFMC staff, Day 2
Karson Cisneros, MAFMC staff
Dr. Cate O'Keefe, NEFMC SSC Vice-Chair, Day 1
Mike Pierdinock, NEFMC
Angela Forristall, NEFMC Staff,
Dr. Jamie Cournane, NEFMC Staff
Jonathon Peros, NEFMC Staff
Janice Plante, NEFMC Staff
Sam Asci, NEFMC Staff
Joan O'Leary, NEFMC Staff
Rachel Feeney, NEFMC Staff
Robin Frede, NEFMC Staff
David McCarron, NEFMC Staff, Day 1
Jennifer Couture, NEFMC Staff
Michelle Bachman, NEFMC, Day 1
Dr. Anthony Wood, NEFSC
Dr. Charles Adams, NEFSC
Sean Lucey, NEFSC
Brant McAfee, NEFSC, Day 1
Dr. Charles Perretti, NEFSC, Day 2
Dr. Larry Alade, NEFSC, Day 2
Jessica Blaylock, NEFSC, Day 1
Paul Nitschke, NEFSC
Ryan Shama, NEFSC, Day 1
Sara Weeks, NEFSC, Day 1
Susan Wigley, NEFSC, Day 1
Dr. Victoria Luu, NEFSC, Day 1
Bridget Harner, NEFSC, Day 1
Moira Kelly, GARFO Staff, Day 1
Spencer Talmage, GARFO Staff, Day 2
Cynthia Ferrio, GARFO Staff
Douglas Potts, GARFO Staff, Day 1
Sue Tuxbury, GARFO Staff, Day 2
Sam Tolken, GARFO Staff, Day 1
Karla Gore, NOAA Southeast Regional Office, Day 1
Roger Pugliese, South Atlantic Fishery Management Council (SAFMC) Staff, Day 2
Myra Brouwer, SAFMC, Day 1

Public Attendees
Katie Almeida, The Town Dock
Dr. Matthew Cieri, Maine Department of Marine Resources
Francine Karp, Harbor Light Software, Day 1
Brooke Lowman, Virginia Marine Resources Commission, Day 1
Jacki Odell, Northeast Seafood Coalition
Jay Odell, The Nature Conservancy (TNC), Day 1
Kate Wilke, TNC, Day 1
Kelly Whitmore, Massachusetts Division of Marine Fisheries, Day 2

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

– Day 1 –

1. Catch Accounting and Data Management

Mr. Dave Gouveia provided an update the Fisheries Dependent Data Initiative (FDDI) and Catch Accounting and Monitoring System (CAMS). Since the spring, staff have been developing the regional electronic vessel trip report (eVTR) data model, transitioning from the design phase to implementation phase; modifying Fish Online eVTR applications to support lobster and clam reporting; making enhancements to the Commercial Fisheries Dealer Electronic Reporting System (CFDERS); continuing development of universal trip identifier (UTID) and "one stop reporting" (OSR) efforts; and continuing development of CAMS. It was noted that there is not a definite timeline for the UTID, due to competing priorities (noted above), and the team has been more focused on OSR. OSR work has progressed as ACCSP's eTrips eVTR application is capable of supporting OSR reporting of the GARFO eVTR and SERO SEFHIER logbook programs. However, a new permitting system recently implemented at SERO has created some technical issues that have prohibited additional progress. GARFO, HMS, and ACCSP are working with SERO to address those issues.

Mr. Gouveia provided an update on CAMS, and noted that an internal review and comparison of legacy AA landings outputs to CAMS was completed, which found CAMS data to be accurate and satisfactory for use in stock assessments. The majority of an internal review of CAMS discard outputs was also performed, but additional work was needed to finalize the review. As a result, only the landings component of CAMS was used in the 2022 stock assessments and discard estimates for assessments were based on previous methodology. Mr. Gouveia shared that the current project plan of CAMS is to use discard outputs and values for the spring 2023 assessments. He further noted that a peer review of CAMS by the Center of Independent Experts (CIE) is scheduled for January 2023. Ms. Toni Kerns expressed the concern that there are still two discard methods being used estimate discards, which will lead to continued discrepancies between NEFSC and GARFO estimates. Mr. Gouveia explained that they are in the process of finalizing a single discard method, but cautioned that although a single methodology would be utilized in CAMS, there still may be differences in the actual discard estimates depending on the

lens used for estimating discards. Mr. Gouveia explained that the primary charge of CAMS was to develop a common set of landings and discards for each stock for each fishing trip. In essence, creating one common set of base data. Those data will then be utilized for quota monitoring and stock assessment purposes by applying the appropriate criteria used for quota monitoring and stock assessments. Mr. Mike Pentony added that there will always be different estimates for discards given differences in fishing vs calendar year, or a different stratification, etc. With CAMS, however, they will be drawing on one set of data and using the same method of calculating discards. Dr. Mike Simpkins further stated that once the CIE review is complete, both quota monitoring and assessments should be using CAMS for landings and discards.

Mr. Tom Nies questioned whether the Assessment Oversight Panel (AOP) had truly approved the review and comparison of legacy area allocation (AA) landings outputs to CAMS, stating that they did not have a choice about using it, since the AA tables are no longer produced. Mr. Nies also asked whether Atlantic herring will be using CAMS for catch data moving forward. NEFSC will follow up on whether Atlantic herring will be using CAMS for catch data moving forward (**Action Item #1**).

Mr. Nies pointed out that the algorithm for the AA tables previously used for stock assessments were published in 2008, but that he does not know the algorithm for dealer matching imputation system (DMIS), and asked if the algorithms were comparable. Mr. Gouveia stated that as he understood it, the algorithm used in DMIS was a common open source method and that, based on the comparisons done between the CAMS and the AA Tables for 2019, the algorithms are comparable. Ms. Kerns and Mr. Nies expressed some concern about the amount of time available to prepare for the CIE review. Mr. Nies asked if the review would be public, and whether it will look at quality control (QC). Mr. Gouveia replied it would be public, but that the review was focused on the methods used to generate the base data to support quota monitoring and stock assessments, and that there is QC embedded in CAMS, but that is not within the scope of the CIE review.

Mr. Gouveia gave a presentation about the data processing and quality program at GARFO, which includes the collection of dealer and vessel reports, dealer and vessel compliance, dealer and vessel data auditing, and data reconciliation (industry data investigation, or IDI). The program is in the midst of modernizing the regional fishery dependent data collection system design and processes, including the incorporation of electronic technology as appropriate. There are several challenges, including the complexity of dealer reporting systems, which are distinct, and therefore business rules and audits cannot be deployed uniformly across each system. Additionally, the contract funding for staff devoted to assisting industry with data reconciliation was lost, which resulted in this task being shifted to our Port Agents. This additional task was added to their existing portfolio that results in less time dedicated to data reconciliation.

Dr. Chris Moore stated that it seems like things are going alright internally (at GARFO and NEFSC), but wondering about how to handle the overlap with the South Atlantic, especially as climate change begins to create more overlap. Mr. Gouveia explained that there isn't any reluctance from anyone, but that there are different structures in place. The South Atlantic has been a little behind in switching from paper to online, and APSD is trying to focus on the big ticket items, like highly migratory species (HMS).

Mr. Nies stated that it seems like a lot of the focus of quality control program was on timely data submission and correct vessel and dealer identification. He asked about how erroneous data or missing data was addressed (for example, unrealistic prices or poundage). Mr. Gouveia stated that there are thresholds for various species price and pounds as well as missing data fields. Missing data or data outside of those thresholds are flagged and the dealer or vessel operators are contacted to address the error or omission. But he added that it is impossible to catch every error. Mr. Nies also asked who looks for errors in the day-at-sea (DAS) database, pointing to a specific instance of a DAS overage in the monkfish fishery. Mr. Gouveia stated that his staff are working with enforcement to improve DAS monitoring.

2. Observer Program Performance

Ms. KB McArdle provided a presentation of the observer program performance, including Northeast Fisheries Observer Program (NEFOP), Groundfish at-sea monitoring (ASM), industry-funded scallop (IFS), and herring industry-funded monitoring (IFM). She provided an overview of the retention and recruitment challenges, and the efforts the Fisheries Monitoring Operations Branch (FMO) has taken to increase retention of observers, including cross-program efforts, work with provider companies, and program-specific efforts. She also gave some other program challenges, such as COVID-19, specialized gear fisheries, proximity to ports, competing needs of the observer program across multiple fleets, and observer safety.

Mr. Nies asked how the Northeast compares to other parts of the county, and Ms. McArdle explained that other regions manage their programs differently, for instance having 100-percent coverage. Attrition is high since Covid. Dr. Paul Rago asked if observers were acknowledged for their hard work, and Ms. McArdle explained that there are awards given to highly performing observers. Mr. Pentony asked if the achieved coverage rate thus far for 2022 (37 percent) was typical for this time of year, or indicative of an issue. Ms. McArdle replied that this was typical, but if a provider is not on track to achieve 90 percent, they must provide mitigation. Mr. Pentony pointed that if two reasons for leaving (advance career and lack of career advancement opportunities) are combined, that could be a top reason for attrition. While there is a lot we cannot control, career advancement is something within our control, and perhaps it should be highlighted how the observer program can be a stepping stone to other opportunities. Ms. Kerns raised a concern about ASMFC staff receiving NEFOP data, and NEFSC agreed to follow up separately (**Action Item #2**).

3. Standardized Bycatch Reporting Methodology (SBRM) 3-Year Report

Ms. McArdle provided an overview of the SBRM 3-year review. Susan Wigley had been the lead for SBRM, and it is transitioning to Brant McAfee. The SBRM omnibus amendment (2015) included the requirements of what must be included in the report for each 3-year review. Due to COVID-19, there were limitations on the discard analysis, and NEFSC is dealing with a backlog of data. NEFSC plans to produce a timely 2021-2023 SBRM 3-year review report as required to the best extent practicable. The report will be significantly pared down due to the impact of COVID-19 waiver of observer deployments from March to August 2020, and the resulting data gap. The only year in this review cycle to have a completed discard and sample size analysis is

2023. Work on the SBRM 3-year review report is planned for April-October 2023. Fishery Management Action Team (FMAT) and Plan Development Team (PDT) chair(s) will be selected by January 1, 2023, and membership will be identified by March 1, 2023, to start work in April. **The NRCC supported this timeline.**

4. Did Not Fish (DNF) Reports

Dr. Moore led a discussion of the DNF reports, which were discontinued in 2015, and noted that some Council members and stakeholders expressed interest in reinstating the DNF requirement as they could be a much needed validation tool. He noted that the South Atlantic region still requires them, and there are some permit holders who fish in both the South Atlantic and mid-Atlantic. Reinstating the DNF reports is part of the draft implementation plan for 2023 for MAFMC, but there are workload issues, and MAFMC would like input from NEFMC, as any action on this should be a joint action between the two councils.

Mr. Nies relayed that there was some interest from party/charter sector, but no interest from the commercial sector, and it was not on the NEFMC's priorities list. Dr. Moore indicated that he expects it to remain on the MAFMC's priorities list, and that MAFMC would take the lead if NEFMC agreed to participate. Mr. Rick Bellavance asked how important the DNF reports were, since there was no way to affirm a charter boat didn't fish. For example, if a vessel doesn't submit a report, the assumption is they didn't fish, but there isn't a two-ticket system like there is in the commercial fishery to verify if they were fishing or not. Mr. Pentony agreed that if a permit holder were to fill out a year of DNF reports, NMFS would have no way to validate that those reports and it would be important to evaluate whether it is worth the effort to find a way to validate the vessel reports. Mr. Bellavance pointed out that by signing the DNF, there is an extra level of enforcement. GARFO was asked to query for-hire permits against reporting to inform further discussion regarding the reinstatement of DNF reports (**Action Item #6**)

5. Stock Assessments

Dr. Simpkins gave a progress report from the assessment working group (AWG), which had been directed to focus on the larger-scale, priority issues, including the following:

- **Sustainability** - Seek a sustainable level of work for all staffs involved - For all issues, consider how to address w/ existing resources, or using fewer resources
- **Throughput** - Evaluate recent and planned throughput, consider ways to enhance
- **Flexibility** - Consider ways to enhance flexibility and reduce overhead
- **Guidance/oversight of RTWGs and WG chair** - How to support RTWGs, share best practices, and address challenges as they arise?
- **Data bottlenecks** - How to address existing data bottlenecks?
- **RTWG membership** - How to take best advantage of inclusion of diverse experts?
- **Report delivery times** - How to expedite delivery, while meeting requirements?
- **RT-MT transitions*** - Improve these and ensure sufficient time for success

Dr. Simpkins highlighted many of the successes the new assessment process has achieved in these issues, but also acknowledged the challenges for each topic the AWG has discussed so far. The AWG will continue to review these issues, and implement any recommendations. A critical

impediment has been with the processing and provision of data, and NEFSC is seeking resources for additional capacity.

Mr. Nies questioned whether the Georges Bank (GB) haddock assessment could be considered "successful," given the Canadians unwillingness to participate in the GB cod or GB yellowtail flounder assessments. Dr. Simpkins elaborated that he had been referring to the additional action that was taken to react to the challenges of the assessment, but Mr. Nies pressed this, pointing out that issues had been raised early, but it took a long time to address and resolve. He also expressed concern that the process was not sustainable. Mr. Nies also pointed out that research track (RT) assessments on the same stock are likely to be separated by 6-8 years. Dr. Hare clarified that all had seen issues in these groups before action was taken, and that this will be a good lesson to learn from, so that earlier action will be taken.

Mr. Nies also expressed concerned about finding errors in assessment reports too late. He also relayed concern about precision, Level 1 MT stock assessments, and the quality of the Level 1 reports. Level 1 assessments do not receive peer review, and so have ended up getting reviewed at the SSC meetings. Dr. Lisa Kerr pointed out that, given missing data, additional review was suggested, but this was not applied uniformly. Mr. Nies expressed concern about stocks that were not scheduled for an assessment (research track or benchmark) since 2008. Mr. Nies also questioned whether the qualifications for RT chairs, which had been agreed upon by the NRCC in 2015, were still be followed. He expressed concern about the shift of fiscal responsibilities (such as a Council hiring a facilitator to assist the RT). Last, he raised the overall timeline of RTs – while it has been taking approximately 2 years to complete an RT, another Council's executive director relayed that theirs are done in 2 months. Dr. Russ Brown pointed out that in the past with benchmarks, there would be a small group of internal people, and possibly a single Council staffer, and those reviews went faster. But now there is a more inclusive process, with more stakeholders being able to participate, especially with the shift to virtual meetings, rather than all meetings being held in Woods Hole. This does mean that there are more data issues (data access, participants being less familiar with databases, etc.), and the reviews take longer. The chairs used to always come from Population Dynamics Branch, but the new process has opened it up to others. Dr. Brown also mentioned that they are offering facilitator training to all RT chairs.

Ms. Sarah Bland reiterated Dr. Brown's response, and added that it can be difficult to find someone willing to serve as a chair, which led to the need for a facilitator (funded by NEFMC). She also mentioned that Michele Traver and others are putting together guidance documents to help pick a chair that allows them to expand the pool of who can chair.

Ms. Kerns asked if there would be a step in the process if ASMFC is brought in to host a data workshop.

Dr. Rago agreed that it is good to have inclusiveness, but that if the process or the terms of reference are too generalized, that can be a barrier that prevents ideas from coming into the mix. It might be necessary to relax one standard – either inclusiveness or generalizing.

Mr. Nies suggested that at the AOP meeting, the SSC Chair from the Council that manages the stock should have more of a say in the MT review level, and that the AOP should not make decisions about levels based on workload. He added that the SSC Chair has a better understanding of the issues likely to be raised during the development of ABCs, and that their opinion should carry more weight than of a representative who has limited interest in the stock or familiarity with the fishery. Mr. Eric Reid expressed concern about RT extensions being granted and time deadlines not being met.

Dr. Simpkins asked if the AWG should continue its review of priority issues (report delivery, RT-MT transitions, and sustainability), or move to something else. Mr. Bellavance suggest adding report accuracy to the report delivery. Dr. Rago asked, with respect to the AOP process, if there was something that could be improved, whether there was an algorithm to what the levels should be. Mr. Nies pointed out that some SSC members have said there should not be any Level 1s, due to issues that the SSC then tries to fix on the fly, and there have been inconsistencies about how the levels have been applied. Dr. Rago stated that those issues have not occurred for Level 1 assessments in the Mid-Atlantic. Dr. Brown pointed out that the value of the AOP is to structure the management track (MT) peer review to be efficient, and give the appropriate review time to each MT. The AOP attempts to reach consensus, but at some point, a decision must be made.

Dr. Simpkins gave an update on the Research Track Steering Committee (RTSC), for which Dr. Brown has volunteered to chair. There were four applicants from the New England and Mid-Atlantic regions, and the NRCC deputies recommended adding all four, in addition to the representatives from ASMFC, MAFMC, NEFMC, three participants from NEFSC's Population Dynamics Branch, and one representative from NEFSC's Ecosystem Dynamics and Assessment Branch. **The NRCC supported the membership for the RTSC.**

Regarding the schedule, the key challenge was the need to add up to two more cod stock MTs, given the work on the RT. Additionally, the cod RT will not be ready for the March 2023 review. While there was some discussion about the merits of changing the schedule, it was agreed that staff from NEFMC, GARFO, and NEFSC would meet to discuss the timing of the cod research track and related action(s), prior to the research track and groundfish committee meetings in November 2022 (**Action Item #7**).

Mr. Nies expressed some concern about the cod assessment delay having an impact on skates, as well as the next halibut assessment. Mr. Bellavance also was concerned about silver hake, which is not on the RT schedule. Dr. Brown agreed that there has not been an RT or benchmark on skates, and there are questions about reference points. Perhaps in a future skate MT, it can be a level 3 – while there is not much new information, there could be new ways to consider the data. If cod is delayed, skate can remain on the MT schedule, and perhaps be elevated for a higher level of review. Mr. Nies agreed, and pointed to some new technical memos on data limited stocks that could help. Regarding halibut, there are stock identification issues, plus the bi-national aspect, and Mr. Nies suggested that perhaps the management unit could be revised to exclude the Canadian management unit. Regarding silver hake, Dr. Brown would like to explore higher level models, and pointed to issues with tracking cohorts. He suggested that if it were on

the RT schedule for 2027, it could give the RTSC a reason to suggest research to help look at these issues.

Additional discussion regarding assessments took place on Day 2, but the summary is incorporated here for clarity.

6. East Coast Scenario Planning

Ms. Kiley Dancy and Mr. Jonathan Starr provided a presentation regarding the current status of scenario planning. A summit meeting will be planned for February 15-16, 2023. It was agreed that MAFMC would find and pay for the hotel for the meeting, but that member organizations would be responsible for their own participants to attend. Ms. Kerns suggested that if food was provided, a working lunch would be possible. Dr. Moore suggested that the agenda be developed first, but that MAFMC could provide lunch, if needed.

Regarding design, Mr. Starr stated that he expected a good list of priority issues to be discussed at the summit, and most discussions would likely be best in plenary, rather than breakout groups. Mr. Reid asked if breakout groups would create more work for the core team to recombine the information, and Mr. Starr agreed, pointing out that breakout groups would also require logistics (extra space) and so the goal should be to keep as much in plenary as possible.

Regarding the number of participants per organization, Dr. Moore asked if there was concurrence on ten. While several agreed, Dr. Jon Hare and Mr. Pentony expressed concern about limiting NMFS to ten people, given the need to cover two regional offices, two science centers, and headquarters. Mr. Starr stated that the majority of participants should be managers, and Mr. John Carmichael mentioned that it might be hard to bring in advisory panels or SSC members, and that science roles should be to provide information, not to make decisions. **The NRCC generally agreed that Regional Administrators, Science Directors, and likely someone from General Counsel should be included but not counted towards the limit of ten.** Mr. Nies asked if there were any concerns about inviting non-Council/non-staff to the summit. GARFO will speak with General Counsel on any potential legal issues (Federal Advisory Committee Act) with funding participation of members outside of Council and Commission Staff (**Action Item #3**).

Mr. Starr outlined the potential categories of actions:

- Actions that could be undertaken by individual management bodies;
- Multi-region or coast-wide coordinated changes, with no legislative changes;
- Recommendations that would require legislative change;
- Federal policy changes (non-legislative); and
- Guiding principles to evaluate future management actions in light of climate resilience/adaptability.

Mr. Nies expressed concern that there would be recommendations that a Council did not agree with. He also expressed concern about recommendations for legislative change, given the limitations on Council members with respect to grassroots lobbying. The Scenario Planning

Core Group will explore the respective limitations of recommending legislative changes and potential effects on the outcome and messaging of scenario planning exercise ahead of the summit meeting (**Action Item #4**). Dr. Hare pointed out that this was a list of potential actions, rather than recommended actions. Dr. Moore stated that if the report is too general, it would be useless, but too specific, it will cause issues – there needs to be a middle ground. Mr. Pentony pointed out that, if the outcomes are considered recommendations, which would require consensus. Likely, there will be a list of actions with associated limitations (legislative barriers, non-consensus, etc.), and seeing them as "potential" actions could be useful. Mr. Carmichael pointed out that "action" in this context did not need to be a fishery action (i.e. framework or amendment), but could be steps that could be taken. Mr. Nies suggested that the group "*identify* possible actions," to differentiate from recommendations. Dr. Moore asked whether ideas that are only supported by one or a few would make the list, and Dr. Hare suggested that participants could vote up potential actions. Mr. Carmichael also suggested there by some criteria for evaluating potential actions: Can it be done? What problem does it solve? What are the risks?

The Scenario Planning Core Group will compile a draft report of the Summit meeting in time for the Spring 2023 NRCC meeting (**Action Item #5**). Dr. Moore clarified that the review of the draft report is to agree that it represents what occurred, not to change what happened.

– Day 2 –

7. Atlantic Sturgeon Action Plan

Mr. Nies provided a brief overview of the sturgeon action plan, stating that most of the measures apply to gillnet fisheries, including several different fishery management plans (FMPs). He posed the question whether the Councils should take a coordinated approach, given the joint management of monkfish, and potentially do an omnibus to pull in dogfish, Northeast multispecies, and skates. Dr. Moore stated that sturgeon was discussed at the last MAFMC meeting, and it was moved up to be a definite action, despite there being no final implementation plan. He suggested talking to the chair of the protected resources committee, and agreed that working together could increase effectiveness and efficiency. Mr. Beal stated that ASMFC would not need to be included in a larger omnibus action, but would likely take action to follow suit on any actions that affected the dogfish fishery. Mr. Pentony provided the context that the Councils will need to develop an action in 2023 in time to implement by 2024. The NEFMC, MAFMC, and the ASMFC agreed to talk with their respective staff about a potential joint effort to address the Atlantic Sturgeon Action plan, and would hold a leadership call to discuss further (**Action Item #8**).

8. Port Sampling

Brian Linton provided a presentation about the reductions to port biological sampling, which will likely introduce uncertainty in landing-at-age data. Simulation testing is needed, as it would be useful to understand the magnitude of the issue on model performance and scientific advice. Conducting a simulation will also be useful to help us understand the tradeoffs between sampling costs and the level of sampling necessary to maintain reliable scientific advice. While the

Population Dynamics Branch does not currently have the full capacity to investigate this issue, this topic does offer the opportunity for potential collaboration.

The program costs approximately a million dollars per year. Mr. Pentony explained that, while the funding has remained flat, the costs (program administrative fees, quality control, the sampling contract) have increased with inflation. Dr. Moore suggested that the Agency could use Inflation Reduction Act money, and asked if additional funding would allow an increase in samples in 2023, or if nothing would be in effect until 2024. Dr. Brown suggested that if there were an infusion of funds in 2023, they could make recommendations to increase samples, but was not sure whether the contracting company could implement that increase. Mr. Wes Townsend suggested that observers could take samples as part of their work. Mr. Brandon Muffley ask whether there would be value for the Councils or Commission to work with NEFSC to support a contract for the simulation work. GARFO will investigate modifications to the port sampling contract to accommodate potential funding increases that would provide additional samples, and determine what the lead-time would be to bring on additional port samplers to achieve increased port samples. Additionally, GARFO will determine how much funding would be needed to achieve the 2015 sampling level (225,000 samples) (**Action Item #9**).

9. Offshore Wind

Mr. Doug Christel provided an overview of the offshore wind projects. Dr. Brown mentioned that the option of floating wind farms could potentially open the amount of habitat that could be covered by wind, but that there isn't enough communication regarding this topic. Mr. Christel explained that part of the reason NMFS has partnered with Responsible Offshore Development Alliance is to increase the amount of communication and information sharing including through an upcoming Synthesis of the Science workshop dedicated to floating wind technology. Efforts on the west coast have been more focused on floating, whereas the east coast has been more focused on fixed, and there are more efforts to explore. Mr. Reid expressed concern about how wind turbines are anchored to the bottom and connected to each other. Dr. Rago encouraged the use of vessel monitoring system (VMS) data, and asked if there was any potential linkage between VMS and CAMS data. Mr. Christel stated that there have been efforts to compare VMS data for some fleets, and to use other sources as well (cooperative research data, catch data, etc.). Mr. Bellavance stated that developers weren't interested in sharing the data from their fishery monitoring plans, and Mr. Christel replied that the Responsible Offshore Science Alliance is looking into the issue and that there are conversations about sharing the data responsibly through data sharing agreements. There is at least one memorandum of understanding (MOU) with a developer to share data with NMFS, with others possible. Mr. Reid asked how shore-based economic impacts were assessed, and Mr. Christel explained that they use ex-vessel prices and a multiplier. They are also exploring the topic with SeaGrant and other funding opportunities to learn more, and it's been raised as part of the draft fishery mitigation/compensation guidance being developed by BOEM.

10. Other Business

There was recently a decision to not publish Marine Recreational Information Program (MRIP) catch data that has over 50 percent standard error (PSE). Mr. Bellavance expressed concern

about who would have access to the data and whether it would have an impact on assessments. He also pointed out that there were other management uses for the data, beyond the incorporation into assessments. This topic will be discussed at the Spring 2023 meeting, and staff NMFS' Office of Science and Technology will be invited to the meeting (**Action Item #10**).

Ms. Sarah Bland provided a brief update on the Stock Assessment and Fishery Evaluation (SAFE) reports. GARFO and NEFMC staff have planned to use an upcoming herring action as a test case, and by the spring meeting, GARFO will be able to provide an updated process for the other FMPs to follow (**Action Item #11**).

Regarding future meetings, Dr. Moore expressed a desire to stop using the term "hybrid." He suggested that meetings have a virtual option, especially to allow for public participation, but that participants should be attending in person. Ms. Kerns also requested that meeting materials be submitted and distributed sooner, to allow for NRCC members to better review ahead of the meeting.

Next Meeting

The Spring 2023 NRCC meeting is scheduled for **May 9-10, 2023**, in Gloucester MA. GARFO is chairing and hosting.