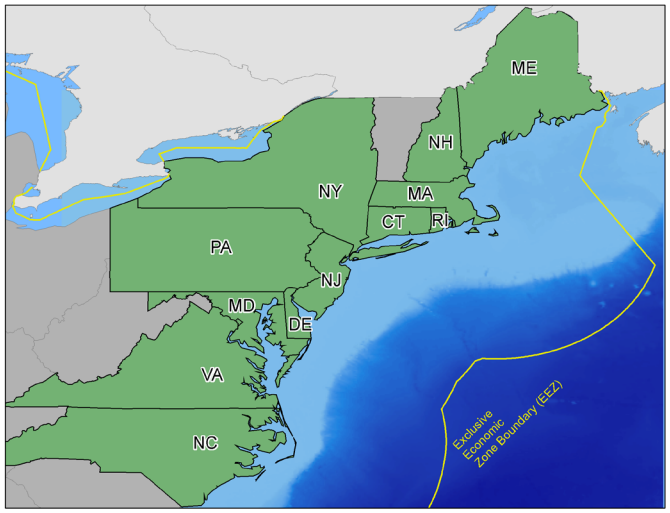
NORTHEAST REGION COORDINATING COUNCIL

Spring 2020 MEETING

May 14, 2020

Webinar



Meeting Briefing Book Table of Contents

(*hyperlinked*)

2020 SPRING NRCC MEETING AGENDA

via Webinar

All times are approximate

Thursday, May 14

9:00 a.m. – 9:15 a.m.

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

9:15 a.m. – 9:30 a.m.

2. Shared GARFO-NEFSC Catch Accounting and Monitoring System project (CAMS)
   Discussion leader: Gouveia/Simpkins
   - Update progress on CAMS system planning and development

9:30 a.m. – 9:45 a.m.

3. East Coast Scenario Planning Working Group
   Discussion leader: Pentony
   - Update on the creation of the Scenario Planning Working Group

9:45 a.m. – 12:00 p.m.

4. Stock Assessments and Related Topics
   Discussion leader: Simpkins
   - Review and make decision on NRCC Assessment Working Group recommendations regarding 2025 Research Track topics/assessments
   - Review ongoing assessment process and discuss and make decisions regarding proposed clarifications/improvements to guidelines.
   - Review and make decisions on any proposed changes to assessment schedule.
   - Provide update on content of assessment reports and data portals, following staff discussions on management track assessment documentation.
   - Provide update on annual stock assessment communications.

12:00 p.m. – 1:00 p.m. Lunch

1:00 p.m. – 1:45 p.m.

5. Regional BSIA Framework Working Group
   Discussion leader: Kelly
   - Moira Kelly (GARFO Sustainable Fisheries Division, and lead on the BSIA Working Group) will present the progress of the Working Group, for review and feedback from the NRCC.

1:45 p.m. – 2:45 p.m.

6. COVID-19 Response and Implications
   Discussion leader: Pentony/Hare
   - Discuss and strategize for delayed or cancelled meetings, lost survey data, etc.

2:45 p.m. – 3:15 p.m.

7. Offshore Wind Energy
   Discussion leader: Pentony/Hare
   - Provide updates on offshore wind energy activities

3:15 p.m. – 3:45 p.m.

8. Fixed Gear
   Discussion leader: Nies
   - Impacts of fixed gear on surveys and mobile fishing gear operations

3:45 p.m. – 4:00 p.m.

9. Presentation of GARFO's Annual Implementation Plan
   Discussion leader: Pentony

4:00 p.m. Meeting adjourns

Color code key:
ASMFC MAFMC
NEFMC NEFSC
GARFO NRCC

NRCC Fall Meeting 2019 Action Items

November 20-21, 2019 The Bostonian, Boston MA

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1. Creation of Workgroup to explore development of Regional BSIA Framework
   Lead: **GARFO** to coordinate
   Appointees needed: Representatives from Councils, Commission, SSC, GARFO and NEFSC
   Next step(s): Groups to select representatives and email GARFO staff with selections, GARFO to select first meeting date
   Due date(s): Early December 2019 (WG Members Selected)

2. NEFSC and GARFO to provide the NRCC with updates on progress on CAMS system planning and development
   Lead: **NEFSC, GARFO**
   Appointees needed: NA
   Next step(s): Update at Spring Meeting
   Due date(s): Ongoing

3. Discuss Council and Commission involvement in Federal Waters Aquaculture Siting Approval Process.
   Lead: **GARFO**
   Appointees needed: NA
   Next step(s): GARFO will invite Regional Aquaculture Coordinators (Kevin and Chris) to attend next NRCC meeting
   Due date(s): Spring 2020 Meeting

4. Establish a planning/scoping team to explore East Coast scenario planning. Group to include folks from NRCC member organizations but also reach out to SERO, SEFSC, SAFMC, and NMFS HQ.
   Lead: **GARFO, MAFMC**
   Appointees needed: TBD
   Next step(s): Establish membership, begin exploring proposal (scope, cost, effort, meetings, available resources)
   Due date(s): ASAP

5. Strategic planning update, presentation of GARFO's Annual Implementation Plan.
   Lead: **GARFO**
   Appointees needed: NA
   Next step(s): GARFO to present its Annual Implementation Plan to NRCC at next meeting
   Due date(s): Spring 2020 Meeting

6. Center to develop short summaries or "proposals" for each proposed research topic listed in "out year priorities." These proposals will be reviewed by the past NRCC

Assessment Working Group, which will provide recommendation(s) to the NRCC regarding 2025 research track topics or species.
Lead: **NEFSC**
Appointees needed: NA
Next step(s):
Due date(s): Spring 2020 NRCC Meeting

7. Center to provide some guidance on the content of "Level Zero" data updates in context of assessment related outputs.
Lead: **NEFSC**
Appointees needed: NA
Next step(s):
Due date(s): Spring 2020 NRCC Meeting

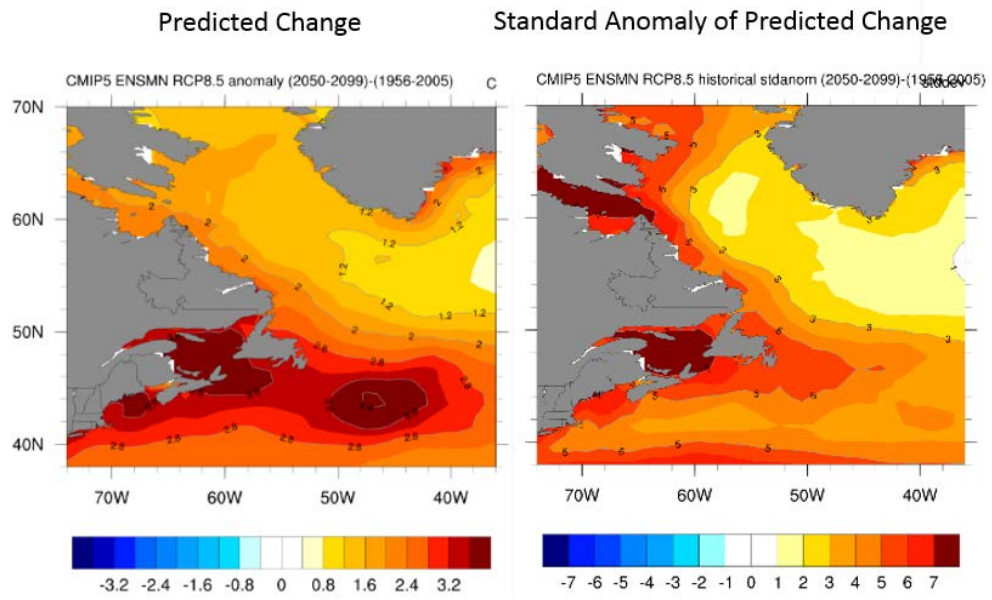
8. Center to lead development of FMAT for SBRM 3-year review, Center staff may chair
Lead: **NEFSC**
Appointees needed: NA
Next step(s):
Due date(s): Spring 2020 NRCC Meeting

9. Staff to staff meeting to discuss content of assessment reports and data portals for management track assessments
Lead: **NEFSC**
Appointees needed: NA
Next step(s): Reach out to discuss meeting set up
Due date(s): Spring 2020 NRCC Meeting

10. Begin planning first annual stock assessment communications meeting among communications staff of NRCC member organizations
Lead: **ASMFC**
Appointees needed: NA
Next step(s): Reach out to discuss meeting set up
Due date(s): December 2019/January 2020

Spring 2020 NRCC Meeting (MAFMC Host) – May 13-14, 2020
Location – Baltimore/Philadelphia

Introduction to Scenario Planning



Source: NOAA Climate Change Web Portal

Diane Borggaard[1] and Dori Dick[2]

[1] Protected Resources Division, Greater Atlantic Regional Fisheries Office, NMFS

[2] Ocean Associates, Inc. in support of Office of Protected Resources, NMFS

With thanks to Wendy Morrison[3] for fisheries examples

[3] Office of Sustainable Fisheries, NMFS

Presentation Overview

- Atlantic Salmon (Pilot)
- North Atlantic Right Whale
- Training Opportunities
- Scenario Planning White Paper

- Pacific Fisheries Management Council
- Rhode Island

NMFS Scenario Planning Participant Views

"The Atlantic salmon climate scenario project was one of the best prioritization exercises I have ever participated in for salmon. The process that was developed enabled us to focus on all of the threats to salmon, rather than the ones that are easiest to address."

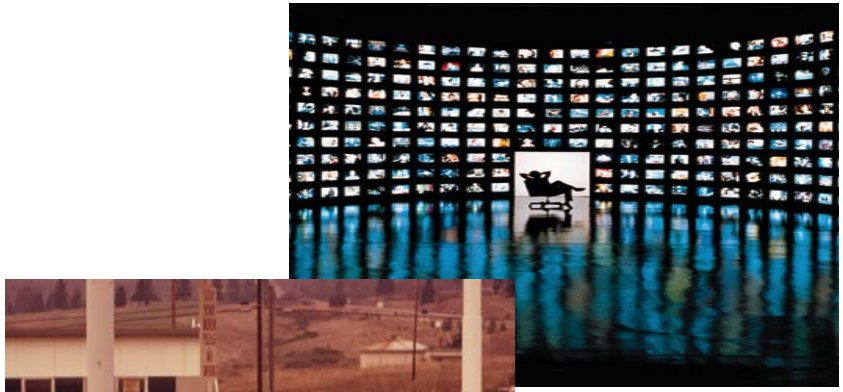
- *Kim Damon-Randall, Deputy RA, GARFO*

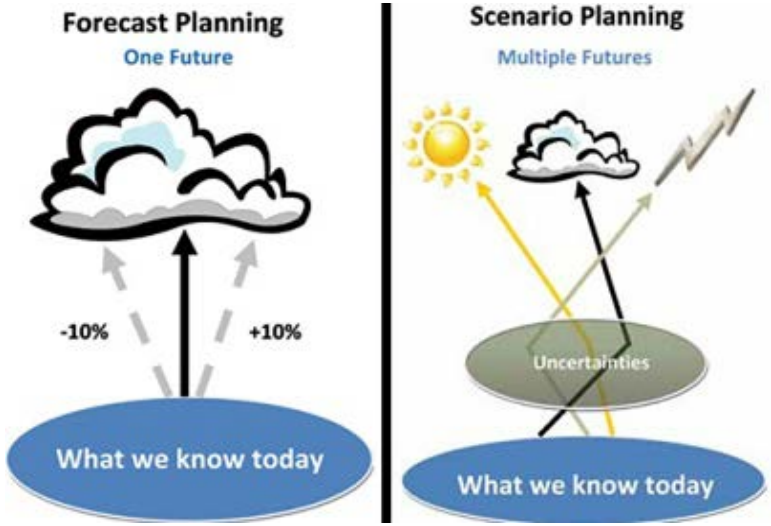
"The structure of the scenario planning brought together folks with diverse expertise and made tackling a "wicked" problem both manageable and intellectually stimulating. The outcome was truly a collective effort that I was pleased to be involved in."

- *John Kocik, Protected Species Branch, NEFSC*

Scenario Planning

- Provides framework to support decisions under conditions that are uncertain and uncontrollable
- Explores plausible alternative conditions under different assumptions
  - ➢Not prediction or forecast
  - ➢Does not have to be data intensive
- Flexible and adaptable process
  - ➢E.g., Adapt management now to add necessary flexibility for future





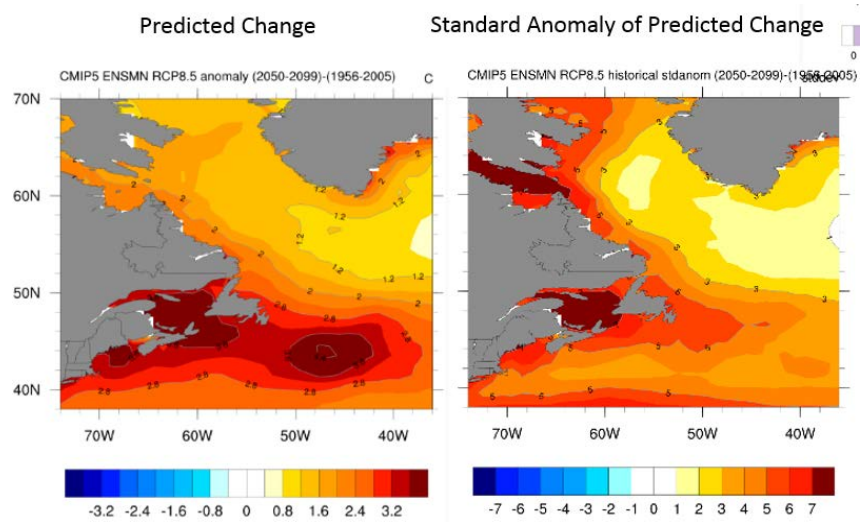
General Framework

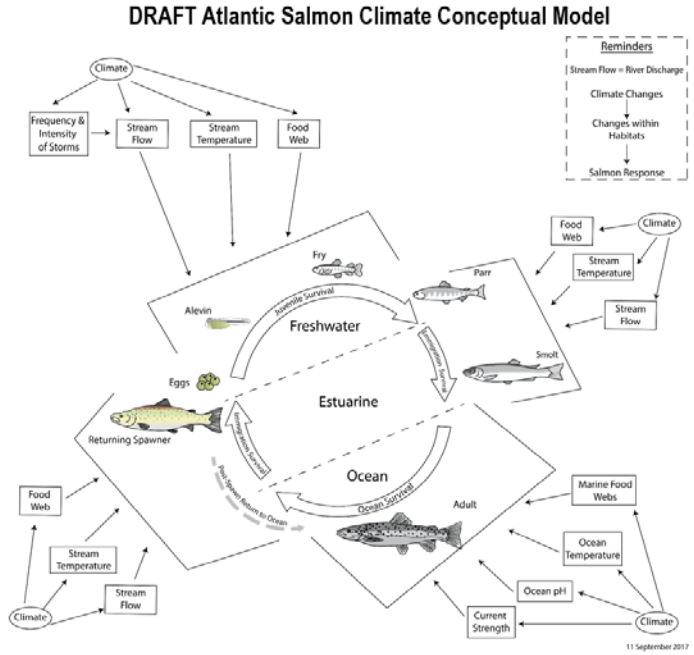
1. Clarify the focus and goals of the investigation (scope & time horizon)

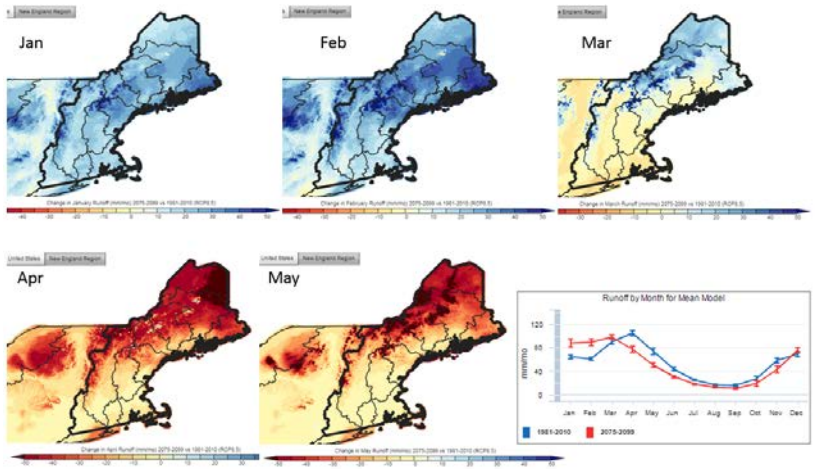
2. Research to identify factors likely to shape the future (climate drivers)

Identifying Drivers

- Climate/Physical Forces
- Biological/Social/Political/Economic/ Technological Forces
- Other Relevant Data Sources







Source: USGS Climate Change Viewer

Source: Borggaard, Dick et al. 2019

General Framework

1. Clarify the focus and goals of the investigation (scope & time horizon)

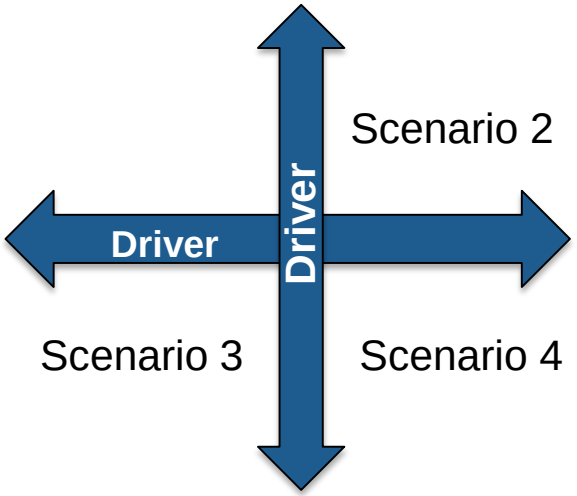
2. Research to identify factors likely to shape the future (climate drivers)

4. Craft a plausible, challenging story for each scenario

3. Combine drivers to create a scenario framework

Scenario Framework Development

- Identify drivers that are most critical and uncertain
- Driver axes should be independent
- Each scenario should be:
  - ➢ Plausible
  - ➢ Relevant
  - ➢ Challenging
  - ➢ Divergent



General Framework

1. Clarify the focus and goals of the investigation (scope & time horizon)

2. Research to identify factors likely to shape the future (climate drivers)

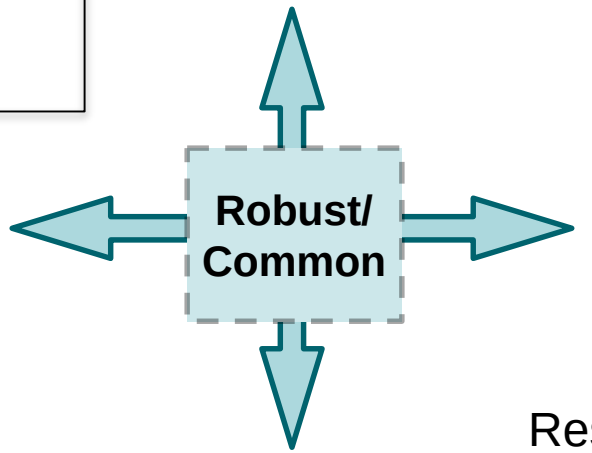
3. Combine drivers to create a scenario framework

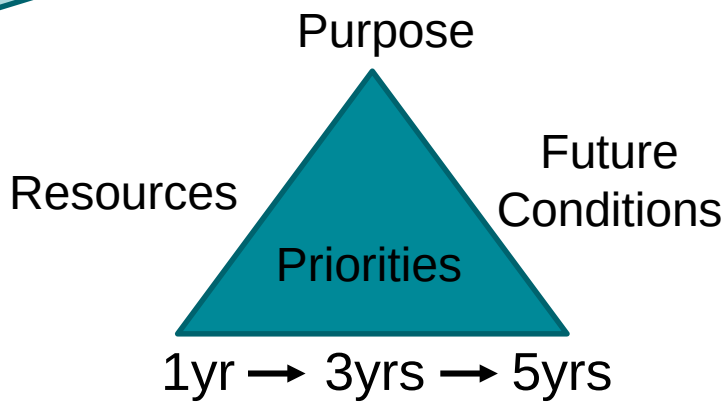
4. Craft a plausible, challenging story for each scenario

5. Use the scenarios for strategy, innovation, risk, vision-setting

Generating and Assessing Options

Identify actions to take <u>now</u> to prepare for or avoid the possible future





Benefits of Scenario Planning

1. *Flexibility to react quickly to a changing world*
2. *More robust decisions and plans*
3. *Innovative ideas*
4. *Early and broad risk identification*
5. *Alignment towards a common vision*

Source: Scenario Insight

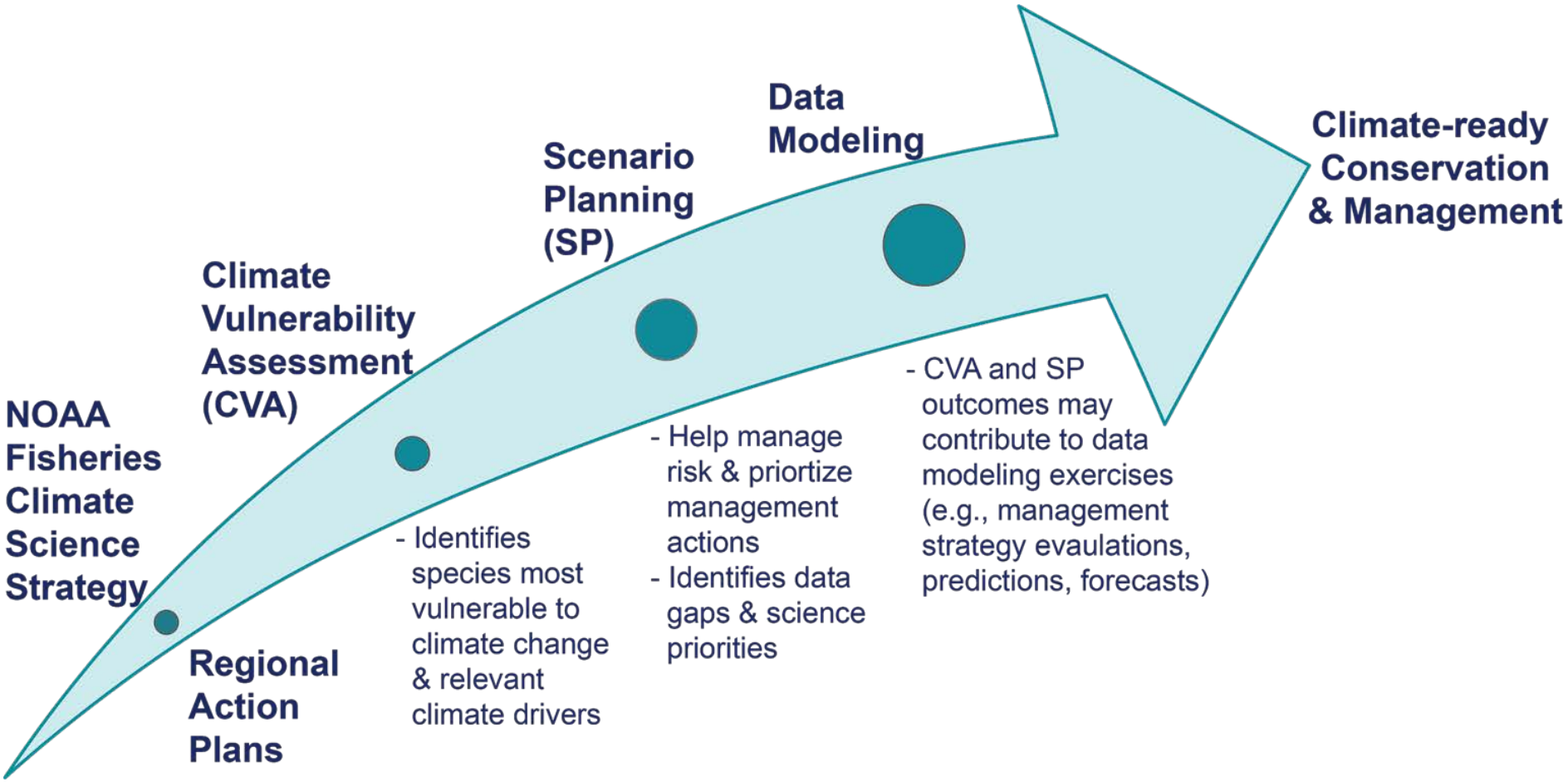
Challenges of Scenario Planning

For example:

- *Out-of-the-box thinking if other issues considered higher priority or in an emergency event*
- *Limited number of scenarios*
- *Not predictive*

Scenario Planning Examples

Key Organization(s)	Location
National Park Service	Acadia National Park; Assateague Island National Seashore, etc.
NOAA Greater Farallones National Marine Sanctuary	North-Central California Coast
Tijuana River National Estuarine Research Reserve	Tijuana River Estuary
GeoAdaptive, Florida Fish and Wildlife Conservation Commission	KeysMAP: Florida Keys Marine Adaptation Planning Project
University of Alaska Anchorage	Salmon 2050, Kenai Peninsula, Alaska
Point Blue Conservation Science	San Francisco Bay Estuary
Rhode Island Commercial Fisheries	Rhode Island



Source: Borggaard, Dick et al. 2019

Presentation Overview

- Atlantic Salmon (Pilot)
- North Atlantic Right Whale
- Training Opportunities
- Scenario Planning White Paper

- Pacific Fisheries Management Council
- Rhode Island

Atlantic Salmon Scenario Planning Pilot

Purpose

To explore what NMFS can do to improve U.S. Atlantic salmon population resilience to changing conditions in riverine, estuarine, and marine habitats across its current range.

Focal Question (Initial)

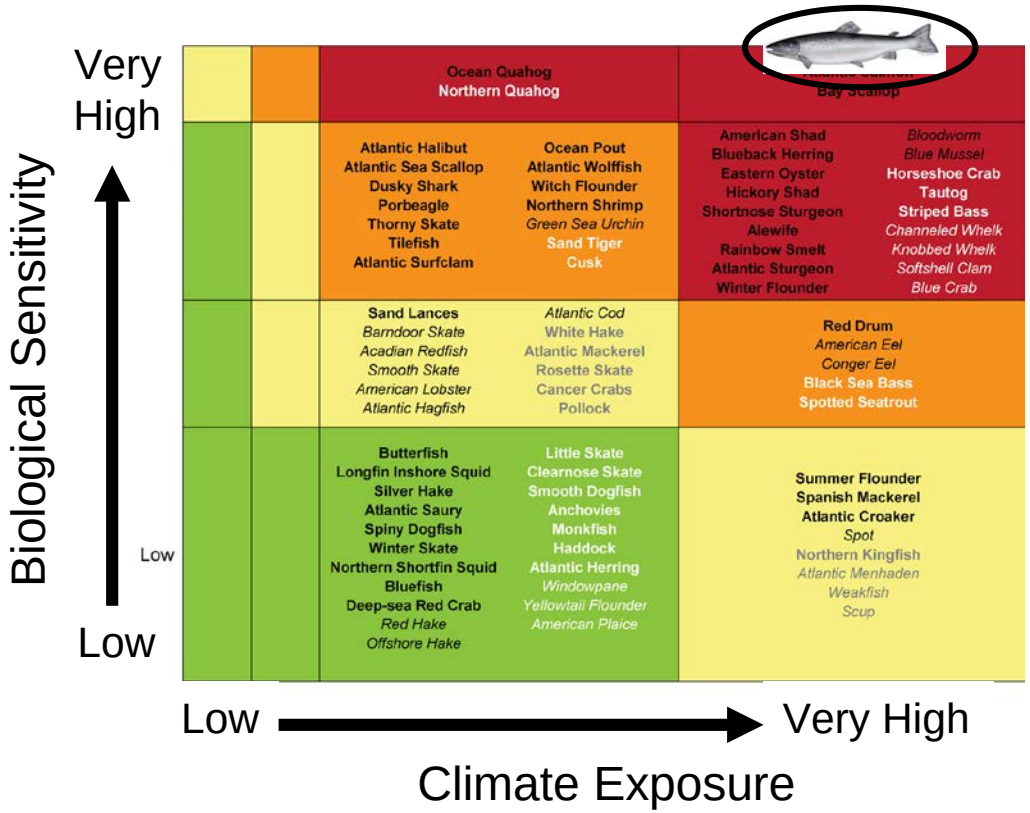
How could the effects of climate change impact the watersheds and marine ecosystems over the next 75 years?

Source: Borggaard, Dick et al. 2019

NMFS Climate Adaptation Planning

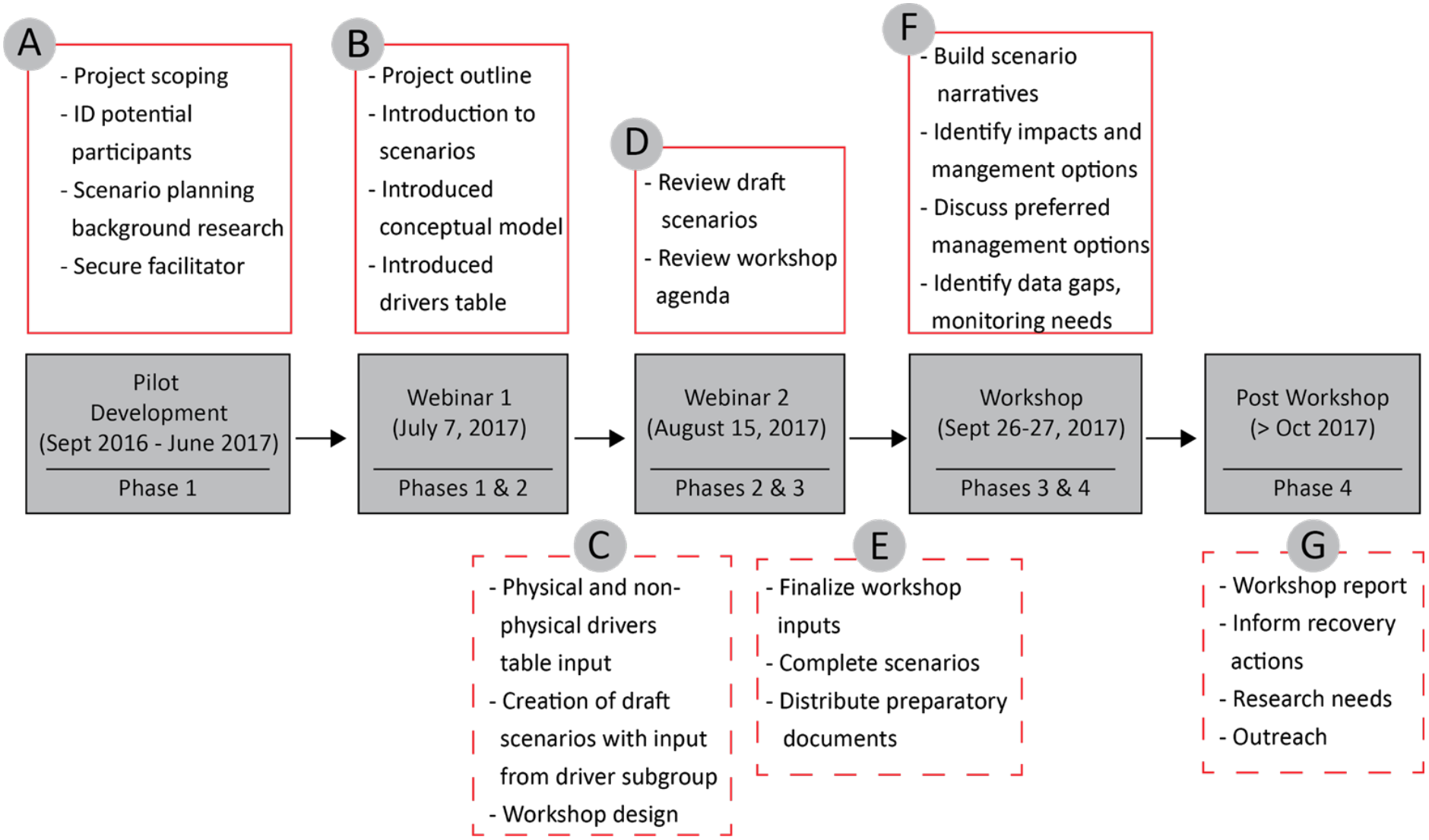
Atlantic salmon

Overall vulnerability = very high



Hare et al. 2016

Example Process Outline (Atlantic Salmon)



Source: Borggaard, Dick et al. 2019

Driver Spreadsheets

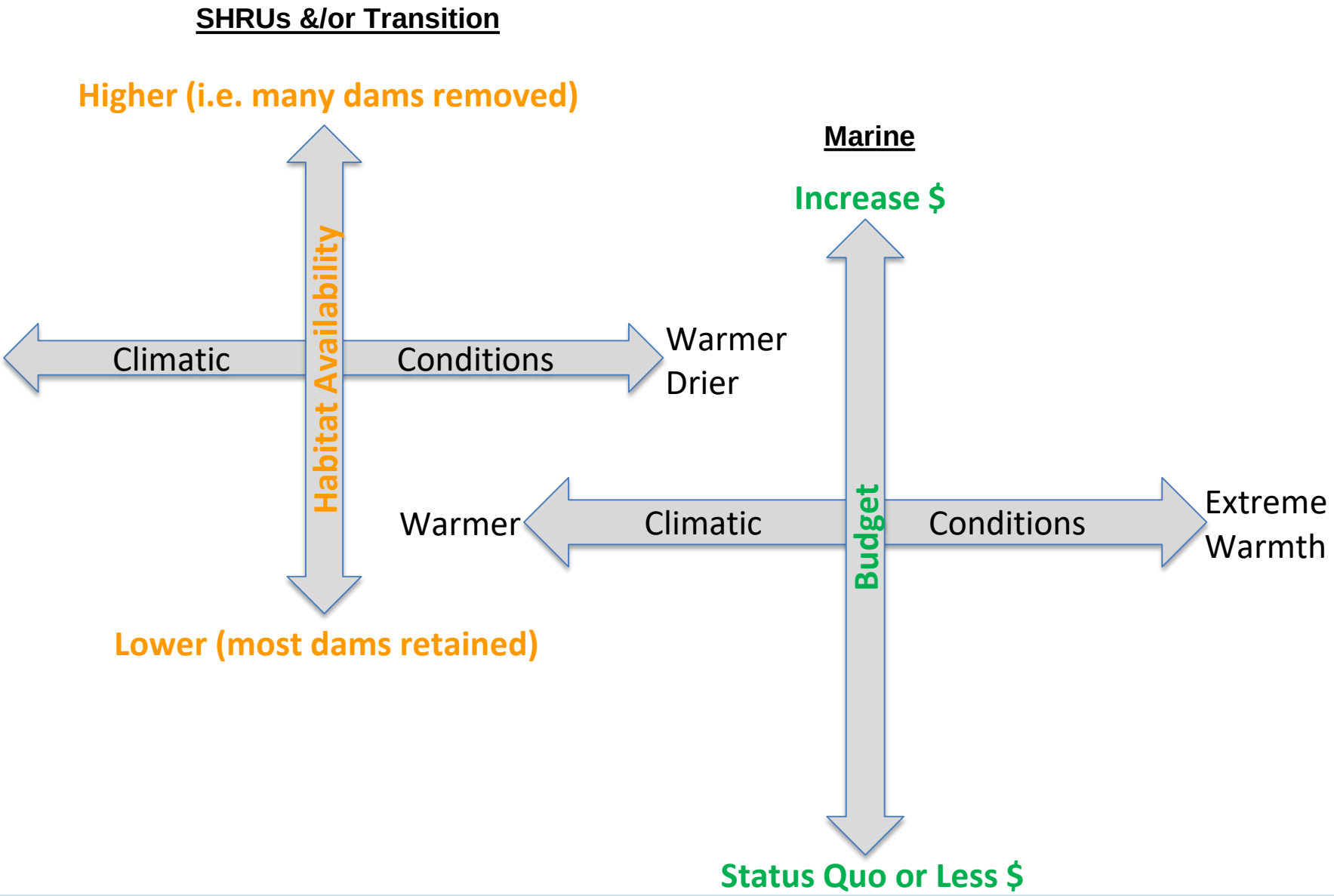
Climate/Physical Variable	Expected General Change	Specified Change Expected and Reference Period	Patterns of change	Confidence	Primary Source and Context
Sea surface temperature	↑	2050-2099: ↑3.2 to 4°C 2060-80: ↑3 to 5°C			https://www.esrl.noaa.gov/psd/ipcc/ocn/ Saba *et al.* 2016. doi.1002/2015JC011346/full
Precipitation	↑				
Ocean bottom temperature	↑				
Sea surface pH (ocean acidification)	↓				
Sea surface salinity	No Δ t				
Air temperature	↑				
Ice affected stream flow	↓				

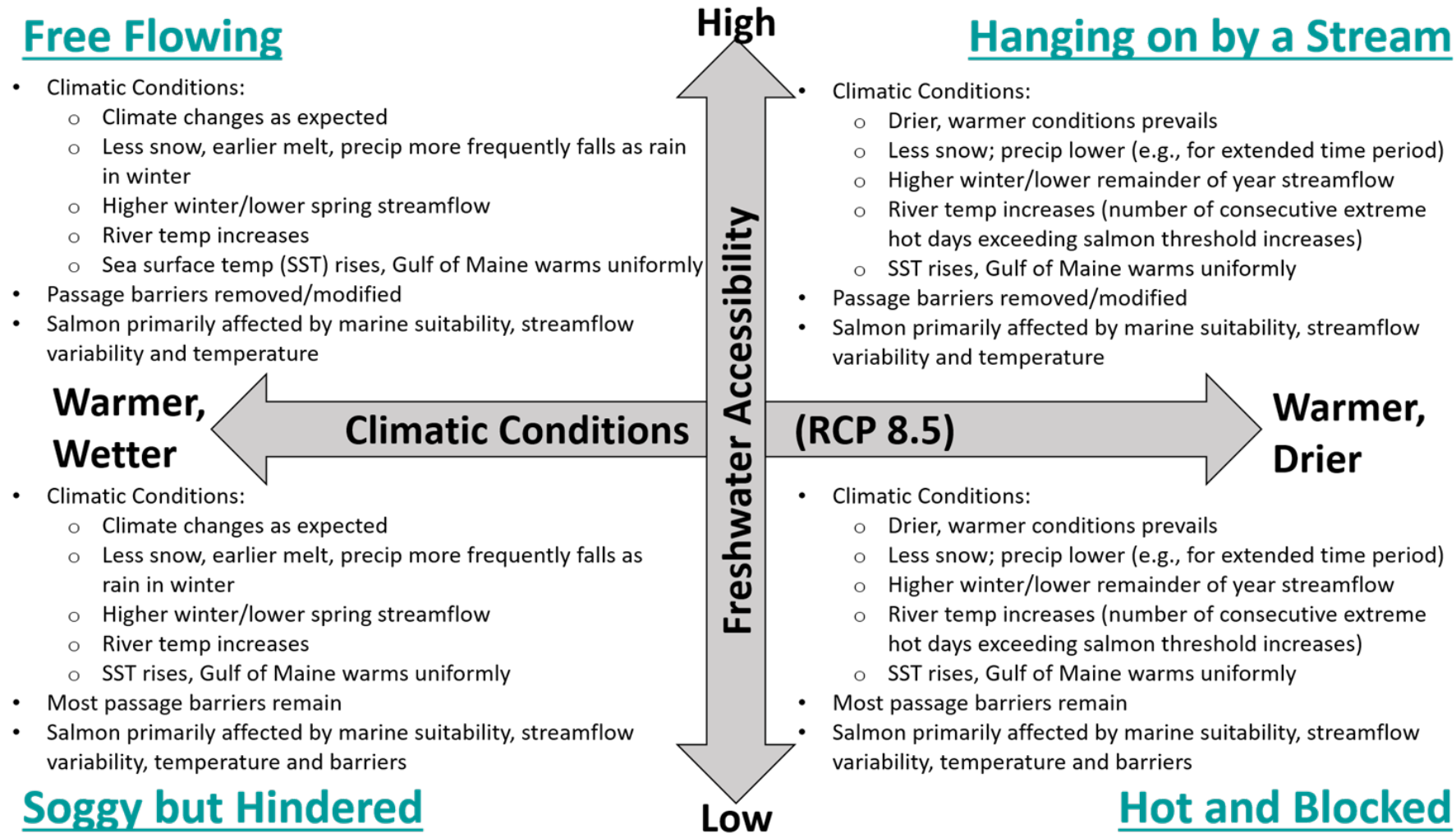
Biological, social, political, economic, technological	Projected change (if applicable)	Source and context	Comments
Freshwater habitat availability	Very uncertain	http://ice.ecosheds.org/; http://db.ecosheds.org/viewerhttp://db.ecosheds.org/viewer; Dan Kircheis' powerpoint; Atlantic salmon designated critical habitat. http://www.nmfs.noaa.gov/pr/pdfs/criticalhabitat/atlant	This variable incorporates many ro dam removal; incidental take; and e current habitat availability and hist
Marine habitat availability			
Societal awaren concern for issu			
Species climate vulnerability			
Rate and magnit greenhouse emis			
Leadership (loc national, interna			

Data Type/Description	Source
Northeast Ocean Data	http://www.northeastoceandata.org/
State of Rivers and Dams in Maine	https://wiki.colby.edu/display/stateofmaine2009/State+of+Rivers+and+Dams+i
Maine GIS Data	http://www.maine.gov/megis/catalog/
NE Coastal Acidification	http://necan.org/
National Climate Change Viewer (USGS)	https://www2.usgs.gov/climate_landuse/clu_rd/nccv.asp

Source: Borggaard, Dick et al. 2019

Scenario Matrix Evolution (early examples)





Source: Borggaard, Dick et al. 2019

Free Flowing

High

Hanging on by a Stream

Warmer, Wetter

Climatic

Freshwater Accessibility

Conditions (RCP 8.5)

Warmer, Drier

Soggy but Hindered

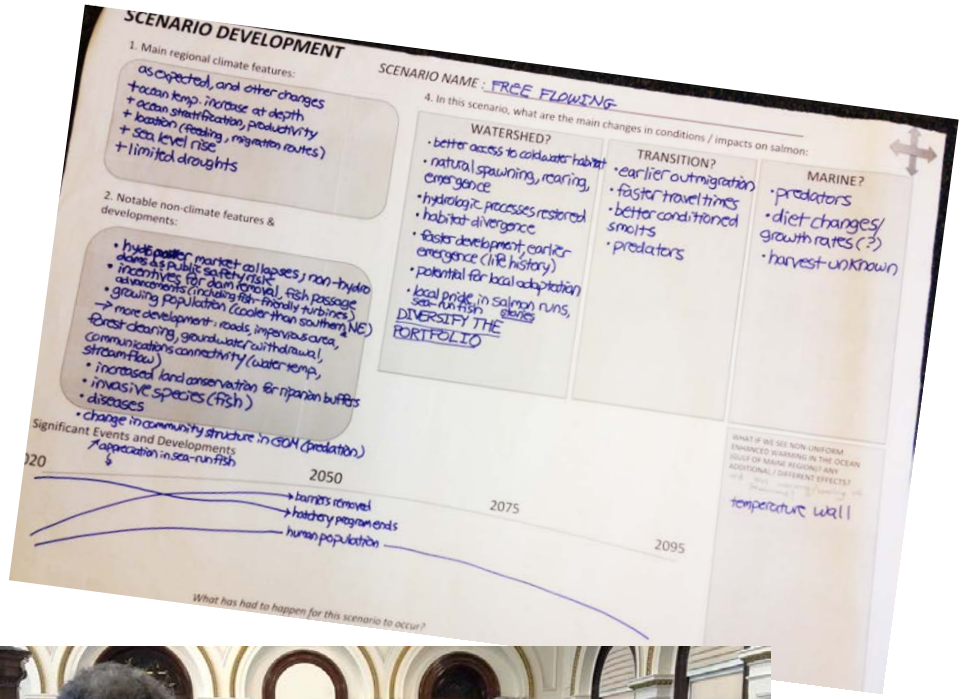
Hot and Blocked

Low

NOAA FISHERIES

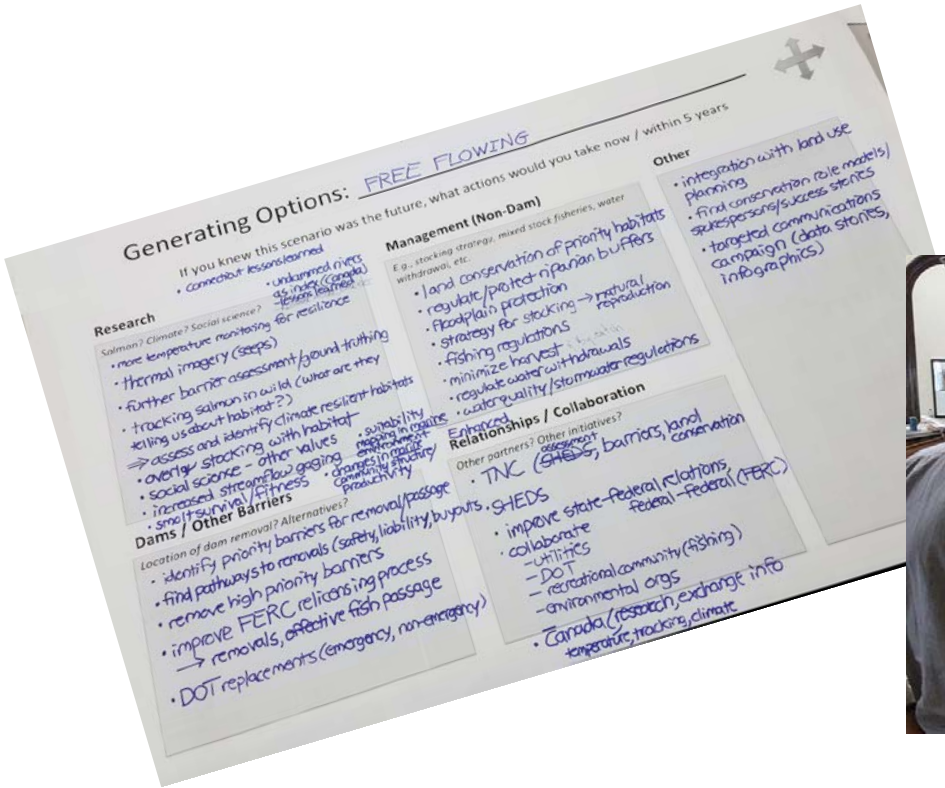
Source: Borggaard, Dick et al. 2019

Scenario Development



Source: Borggaard, Dick et al. 2019

Generating Options



Source: Borggaard, Dick et al. 2019

Outcomes

- Conduct range-wide habitat analysis (e.g., map existing cold water refugia for DPS watersheds)*
- Evaluate migration behavior and survival assessment
- Conduct tagging/tracking studies in marine environment to understand how changing climate might affect survival

* = funded post-pilot workshop

Source: Borggaard, Dick et al. 2019

F3.0	**Identify, maintain, protect and restore priority freshwater habitats for Atlantic salmon**								
F3.1	Establish and implement a water temperature monitoring protocol in all SHRUs to support efforts to identify climate vulnerable and climate resilient habitats	A	1	1	Baseline	—	—	—	USFWS, Maine DMR, NMFS, NGO's
F3.2	Inventory and prioritize freshwater habitats that provide the best opportunity for salmon recovery, including climate resilient habitats, in all SHRUs	A	1	1	Baseline	—	—	—	Maine DMR, USFWS
F3.3	Protect and maintain freshwater and riparian habitats according to prioritization in all SHRUs	A	1	2	Calculated	$ 5,000,000.00	$ 25,000,000.00	Estimate's assumes $5 million annual investment of roughly 45,000 acres/year that would provide some conservation benefit to salmon. This figure is estimated based on land acquisition efforts for the purpose of conservation made by the Lands for Maine's future program. This figure does not directly factor in restoration of freshwater	Lands For Maine's Future, Maine DMR, USFWS, NMFS, NGOs,

Source: USFWS and NMFS, 2019

North Atlantic Right Whale

Purpose

To explore future conditions for right whales throughout their range and develop possible options to address those conditions to improve recovery.

Focal Question

What will affect/influence the recovery of right whales throughout their range over the next 60 years?

Source: NMFS, in prep.

Assessing Scenarios and Options

WORKSHEET Scenario Deepening _____
Scenario Name Here

1. Main regional climate features

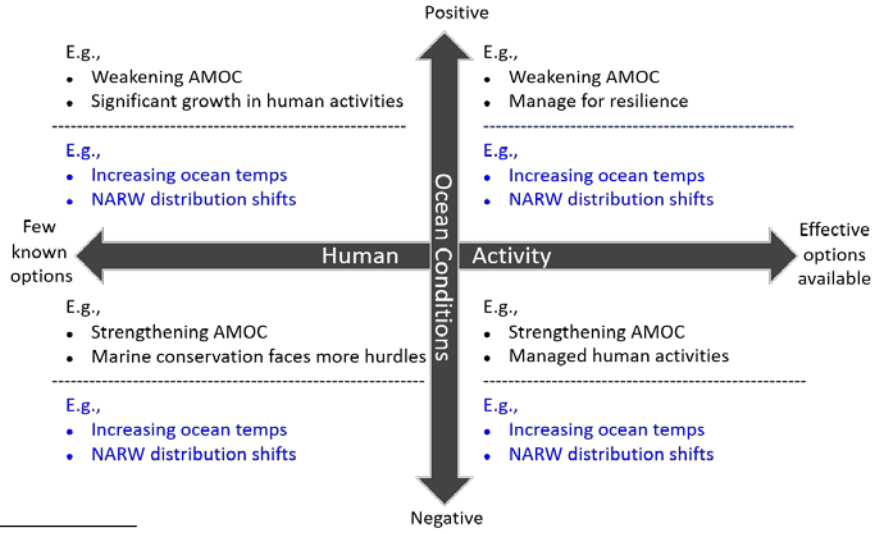
2. Notable non-climate features & developments

3. Significant Events and Developments

2020 2030 2050 2075

4. In this scenario, what are the main changes in conditions / impacts on right whales?

REGION 1	REGION 2	REGION 3



WORKSHEET Generating Options _____
Scenario Name Here

What ha
What indicators would you look at to

If you knew this scenario was the future, what actions would you take now / within 5 years to prepare for / achieve / avoid this?

SCIENCE / RESEARCH	MANAGEMENT - VESSELS	RELATIONSHIPS / COLLABORATION

MANAGEMENT - OTHER (e.g., AQUACULTURE, WIND ENERGY, NOISE)	OTHER


NEFSC NOAA permit 775-1875

Source: NMFS, in prep.

Atlantic Salmon & Right Whale Highlights

Source: Borggaard, Dick et al. 2019; NMFS, in prep.

Thanks to:

Salmon Pilot: Federal Experts from NOAA (NMFS and ESRL), USFWS, USGS, USFS including:

Dan Kircheis
Mike Alexander
Matt Bernier
Matt Collins
Julie Crocker
Kim Damon-Randall
Rob Dudley
Jon Hare
Sean Hayes
Mike Johnson
John Kocik
Wendy Morrison

Right Whale Exercise: Federal Experts from NOAA (NMFS and ESRL), MMC, NOS including:

Mike Asaro
Diane Borggaard
Colleen Coogan
David Morin
Peter Burns
Kevin Madley
Julie Crocker
Sean Hayes
Peter Corkeron/Allison Henry
Henry Milliken
Harvey Walsh
Vince Saba
Lance Garrison
John Quinlan
Laura Engleby/Jessica Powell
Barb Zoodsma
Shannon Bettridge
Teri Rowles
Jacqueline Pearson-Meyer
Donna Wieting
Lynne Barre
Dave Wiley/Ben Haskell
Becky Shortland
Mike Alexander
Quay Dortch
Frances M.D. Gulland
Peter Thomas
Michael Runge
Michelle Staudinger

Facilitator and Trainer: Jonathan Star (Scenario Insight)

Support from: Offices of Protected Resources and Science and Technology

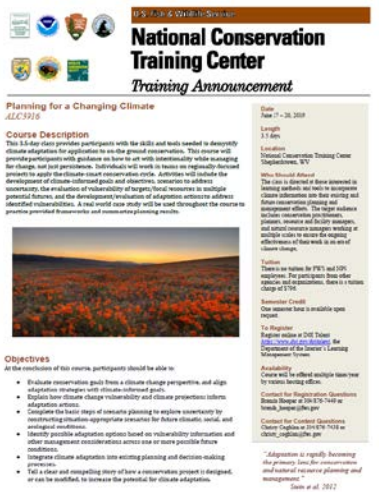
NMFS Scenario Planning Trainings

GARFO Training (2018)

- Overview of principles and hands-on exercises

Planning for a Changing Climate (2019-2023)

- Target: protected resource managers and scientists, others engaged in endangered species and marine resource conservation planning
- Climate smart principles, driver identification, vulnerability assessments, scenario planning
- Offered at U.S. FWS National Conservation Training Center and in a region annually


National Conservation Training Center

Training Announcement

Planning for a Changing Climate

ALC5916

Course Description

Objectives

Scenario Planning White Paper

- Office of Sustainable Fisheries is working on a white paper that introduces scenario planning and summarizes 5-6 examples
- Coming ~Spring 2020

Presentation Overview

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- North Atlantic Right Whale
- Training Opportunities
- Scenario Planning White Paper


https://nature.ca/notebooks/english/atsalmon_p2.htm

- Pacific Fisheries Management Council
- Rhode Island


Photo: NOAA

PFMC Climate & Communities Initiative

- PFMC is initiating a scenario planning exercise on the topic of shifting stock availability.

- Expected outcome = "the definition of tools, products, and processes necessary to react to potential future ecosystem states."

https://www.pcouncil.org/ecosystem-based-management/fishery-ecosystem-plan-initiatives/climate-and-communities-initiative/

Slide: Courtesy of Wendy Morrison, NMFS F/SF
Project Contact: Christopher Kit Dahl, PFMC

PFMC Climate & Communities Initiative- General Timeline

Timeframe	Activity
Early 2018	Science & management background documents & webinars
Late 2018	Council adds scenario planning to initiative
Summer 2019	Interview ~15 expert stakeholders
September 2019	Report to Council on plans
January 2020	Workshop to create scenarios
March 2020	Report to Council on progress
Spring 2020	Refine scenario descriptions
Fall 2020	Investigate management implications; assess whether management changes are needed

https://www.pcouncil.org/ecosystem-based-management/fishery-ecosystem-plan-initiatives/climate-and-communities-initiative/

Slide: Courtesy of Wendy Morrison, NMFS F/SF
Project Contact: Christopher Kit Dahl, PFMC

Resilient Fisheries Rhode Island

- SK funded project
- Aimed to create conversation among commercial fishing community about climate change
- Process included interviews with fishermen, webinars on climate issues and workshop to plan for the future

http://resilientfisheriesri.org/

Resilient Fisheries Rhode Island

- Based on concerns heard in interviews, facilitators created four future scenarios with environmental and socio-political details.
- During the workshop fishermen were divided into four groups (1 group for each scenario) to:
  - Discuss how fishing would change under their scenario
  - Brainstorm proposed strategies
  - Rate proposed strategies from other groups as to how well it would work in their scenario
  - Identify win-win strategies

http://resilientfisheriesri.org/

Resilient Fisheries Rhode Island

Results: 7 Goals and 32 tactics under the following strategy areas:

- Public relations (4)
- Civic engagement (4)
- The next generation (6)
- Innovative seafood marketing (4)
- Working waters and coastlines (4)
- Healthy habitats (4)
- Adaptive science & management (6)

http://resilientfisheriesri.org/

Questions?

Contact Info:

Diane Borggaard: diane.borggaard@noaa.gov

Dori Dick: dori.dick@noaa.gov

MID-ATLANTIC
FISHERY MANAGEMENT COUNCIL

Climate Change Scenario Planning: Potential East Coast Initiative

April 7, 2020

Overview

- Additional details on Pacific Council's process & next steps
- Possible approaches and considerations for an East Coast climate change scenario planning process

Pacific Council Process

- Initiated in 2018 as part of Council's Climate and Communities Initiative (under Fishery Ecosystem Plan)
- Early 2019: established "core team" to lead process along with contracted facilitator
- **Focal question:**
  - How will West Coast fishing communities be affected by climate-related shifting stock availability and other developments between now and 2040?

Pacific Council Process

ESTABLISH	RESEARCH	CREATE	VALIDATE	APPLY
Council decides to undertake a scenario exercise	*Review existing materials on forces driving change*	*Synthesize ideas to create initial 'building blocks' for scenarios*	*Construct first draft scenarios*	*Use refined scenarios to inform a series of 'implications conversations' with various stakeholders (April-June 2020)*
Determine the focus and goals of the investigation	*Interview a selection of stakeholders / experts*	*Design and prepare for a scenario creation workshop*	*Present to Council (March 2020)*	*Create final report for Council (September 2020):* • ***Scenarios**: what futures should we prepare for?* • ***Insights**: what do these futures mean for us, other stakeholders?* • ***Process tools**: (how) should we use this approach more regularly?*
Train a core team in the essentials of scenario planning	*Discussions with Advisory Bodies and Council to gather additional views*	*Conduct workshop (January 2020)*	*Edit and enhance scenarios as required (March 2020)*	

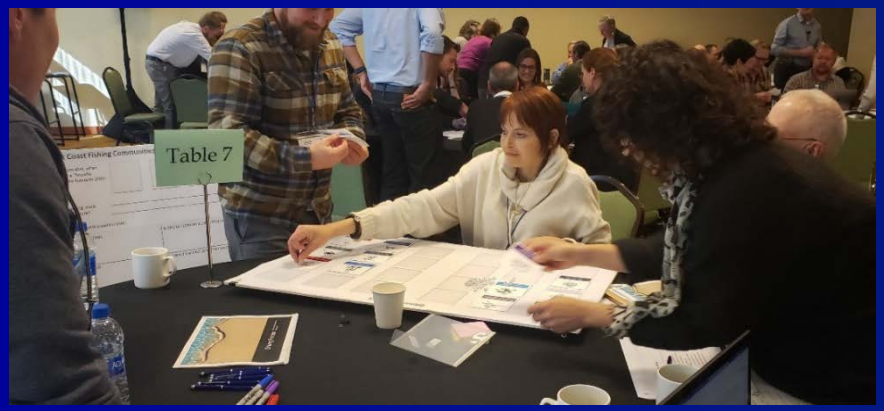
Source: PFMC March 2020 meeting presentation, https://www.pcouncil.org/march-2020-briefing-book/.

Pacific Council "Driving Forces"

Factors Shaping West Coast Fishing Communities to 2040

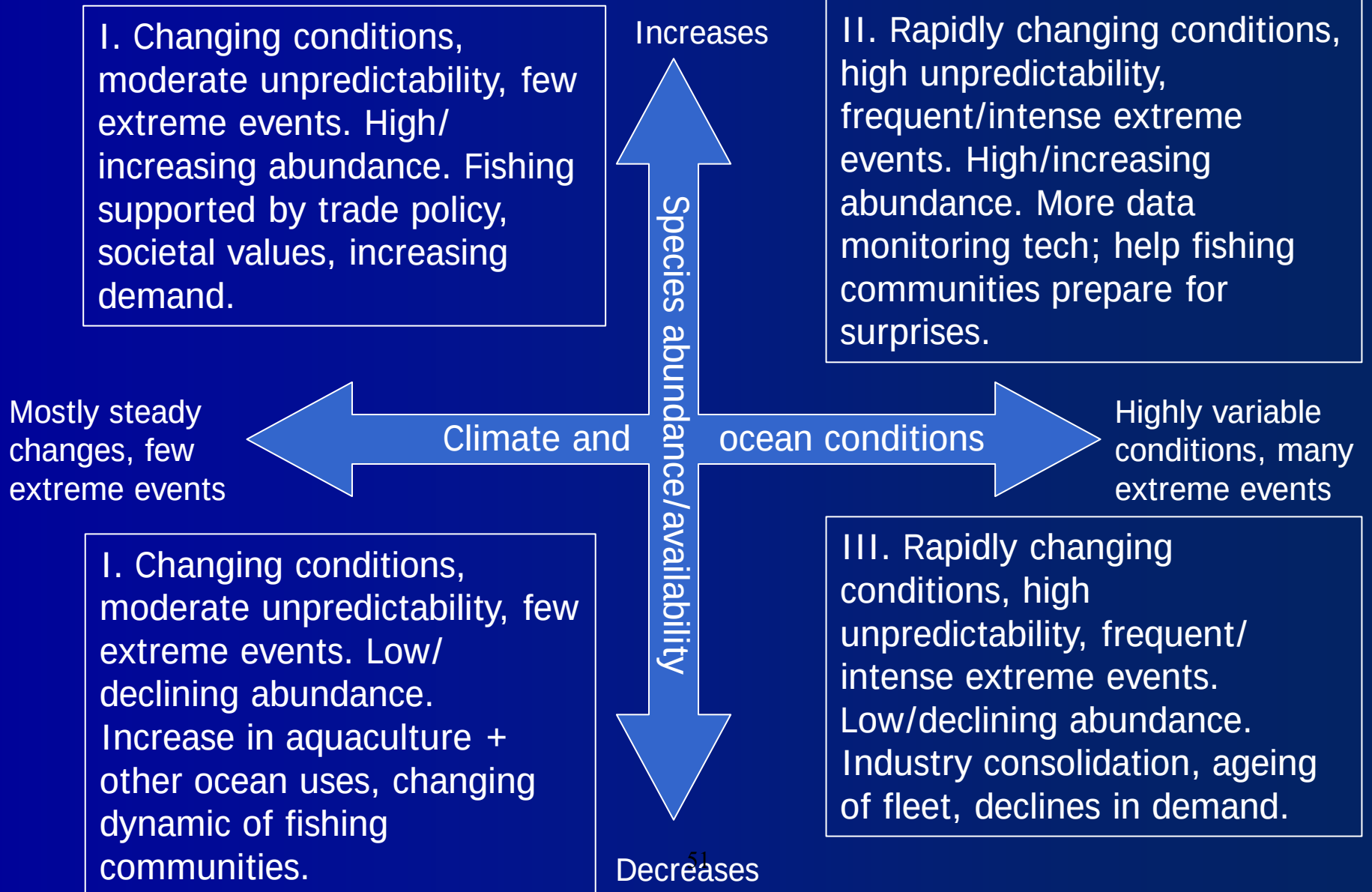
1. Ocean warming
2. Ocean acidification
3. Seal-level Rise
4. Hypoxia / HABs
5. Range shifts and productivity
6. Ecological surprises
7. Terrestrial climate impacts
8. Marine pollution
9. Alternative ocean uses
10. Aquaculture
11. Societal values
12. Consumer demand
13. Global trade / industry policy
14. Regulation and environmental policy
15. Protected species status
16. Food technology
17. Data and monitoring technology
18. Fishing industry structure
19. Aging of fleet and expertise
20. Coastal community development
21. Range shifts and productivity

Pacific Council Scenarios Workshop Jan 22-23, 2020



- Approximately 80 participants from diverse fisheries and management perspectives
- **Day 1:** Background presentations & panel discussions on driving forces; breakout groups develop "sketch" scenarios using combinations of driving forces
- **Day 2:** More focused scenario development, identified top critical uncertainties, drafted four scenarios for further discussion in FMP/species breakout groups

Resulting Draft Scenarios



Pacific Council Next Steps

- Scenario “deepening”: sub-group to enhance scenario descriptions
- Advisory Panel feedback
- Present enhanced scenarios to Council in June
- Public and stakeholder engagement process (plan uncertain given covid-19)
  - Focal groups to explore implications of scenarios among fisheries, communities, regions

POTENTIAL EAST COAST SCENARIO PLANNING PROCESS

2020 MAFMC Implementation Plan

- Under Ecosystem and Ocean Planning/Habitat:
  - "Initiate climate change and distribution shift scenario planning"

NRCC Discussions

- November 2019 Northeast Regional Coordinating Committee: agreed to move forward with East Coast scenario planning initiative to explore governance issues related to shifting stocks
- Agreed to form working group to explore & plan, with reps from MAFMC, NEFMC, ASMFC, GARFO, NEFSC
  - Has not yet met

Project Scope & Participants

- Additional discussions needed about how to coordinate this effort, who would participate, roles of each organization
  - One coordinated effort? Separate but coordinated processes?
- Experienced facilitator needed?

Project Scope & Participants

- Considerations:
  - Distribution shifts and governance issues impact all partners; beneficial to coordinate efforts among all interested groups
  - But, broader participation has implications for focusing goals, participation, and applications
  - Regardless of approach, close coordination needed; minimize duplicative efforts

Near-Term Planning Questions

- **How should this process be coordinated?**
  - Hire a facilitator?
  - One coordinated East Coast process? Which partner organizations?
- **Who should participate on a core team?**
  - NRCC working group?
  - Core team would work with facilitator (if applicable) to focus the questions, plan workshop(s), research background information, produce workshop products, plan application phase

Questions to be Addressed Early in Process

- **How should we determine the goals and refine the focal question?**
  - Goals, question, and expected outcomes should be clearly defined relatively early in process
- **Who should participate in workshops and other parts of the process (e.g., interviews)?**
  - Broad range of perspectives & creative thinkers are beneficial
- **What future time frame should be considered?**
  - Long enough to consider long-term uncertainties; short enough to be relevant to planning & adapting

Intersection with other EAFM Initiatives

- Largely independent, but could draw on past/ongoing initiatives
  - EAFM framework can help frame goals & question
  - Insight from risk assessment could be used to identify and refine driving forces
  - Conceptual model could be adapted to link climate/ ecological factors and sociopolitical factors
  - Overall, intended to advance and support Council's EAFM framework without duplicating efforts

Tentative Timeline

- VERY tentative timeline given current uncertainties:

Spring/early summer 2020	Form core team. Core team learns scenario planning, develops draft project plan. Find a facilitator?
Late summer/early fall 2020	Stakeholder and advisory body input to inform driving forces and focal question
Late 2020/early 2021	Scenario building workshop prep/ workshop
Winter/Spring 2021	Workshop follow up, scenario validation, possible second workshop or other process to inform application

Scenario Planning for Climate Change
Mid-Atlantic Fishery Management Council Discussion Document, April 2020

During their April 2020 meeting, the Mid-Atlantic Fishery Management Council will discuss initiating a climate change scenario planning process, which is included in the Council's 2020 implementation plan.[1] This discussion document provides introductory information about scenario planning (section 1.0), relevant examples of scenario planning for marine resource management (section 2.0), and a discussion of approaches the Council could consider for such a project in coordination with management partners (section 3.0).

1.0 Introduction to Scenario Planning

1.1 What is Scenario Planning and How is it Used?

Much of the following background information is taken from the National Parks Service (NPS) handbook on climate change scenario planning released in July 2013: "Using Scenarios to Explore Climate Change: A Handbook for Practitioners." As defined in the NPS handbook, scenarios are "a tool that managers can use to test decisions or develop strategy in a context of uncontrollable and uncertain environmental, social, political, economic, or technical factors."

While scenario planning can be used for a wide range of applications, it is well-suited to natural resources management applications in the face of climate change. It provides a structured process for managers to explore and describe multiple plausible futures and to consider how to best adapt and respond to them. It is not a tool for predicting future conditions; rather, scenarios are essentially stories about plausible combinations of future conditions that allow for explicit consideration of uncertainty in future conditions. Scenarios are created in response to a focal question developed based on a major strategic challenge faced by an organization.

Managers can use the resulting scenarios to strategize and prioritize for the future, including by identifying near-term actions that are likely to be beneficial under a range of future conditions and by planning to avoid actions that may reduce flexibility or increase the difficulty of adapting to future conditions. It can also provide insights into data gaps and monitoring needs for changing conditions.

Scenario planning uses "outside in" thinking, which considers broader forces in the world such as societal change, climate and environmental change, and changes in the policy and legal environment, and considers how these drivers that are outside of the organization's control may affect organizational priorities. Scenario planning forces participants to explore their underlying assumptions and perceptions about the range of possible future conditions. It reduces the tendency for managers to become overconfident in their expectations of future conditions, too focused on a limited view of the future, or paralyzed by uncertainty. Scenario thinking provides a way to organize complex information about changing conditions and stimulates creative and innovative thinking about how to prepare for change.

Within NOAA Fisheries' six-step process toward a climate-ready approach to fisheries management (Karp et. al 2018; 2019), structured scenario planning is identified as a planning strategy to manage fisheries under changing conditions. This would follow other steps such as

[1] http://www.mafmc.org/s/Final-MAFMC-2020-Implementation-Plan_2020-02-11.pdf

understating the drivers of change and conducting climate vulnerability and risk assessments. Thus, scenario planning would be a logical follow up to the Northeast region climate vulnerability assessment (Hare et al. 2016) and the Mid-Atlantic Ecosystem Approach to Fisheries Management (EAFM) risk assessment (Gaichas et al. 2018) and its updates.

1.2 Scenario Planning Process

The NPS handbook for scenario planning outlines a five-step process involving one or more workshops organized by a core group of individuals and attended by key stakeholders. In advance of the workshop(s), core team members interview workshop participants and stakeholders to understand the assumptions, perspectives, and important management challenges associated with climate change. The participants and core team then identify specific questions or issues to explore using scenarios. The phases of this process are summarized below. Additional details are described in the NPS handbook (National Park Service 2013).

Timelines of these processes can vary widely depending on the details, but a guideline from the NPS handbook of possible lengths for each stage of the process in a one-workshop and two-workshop processes are shown in Figure 1.

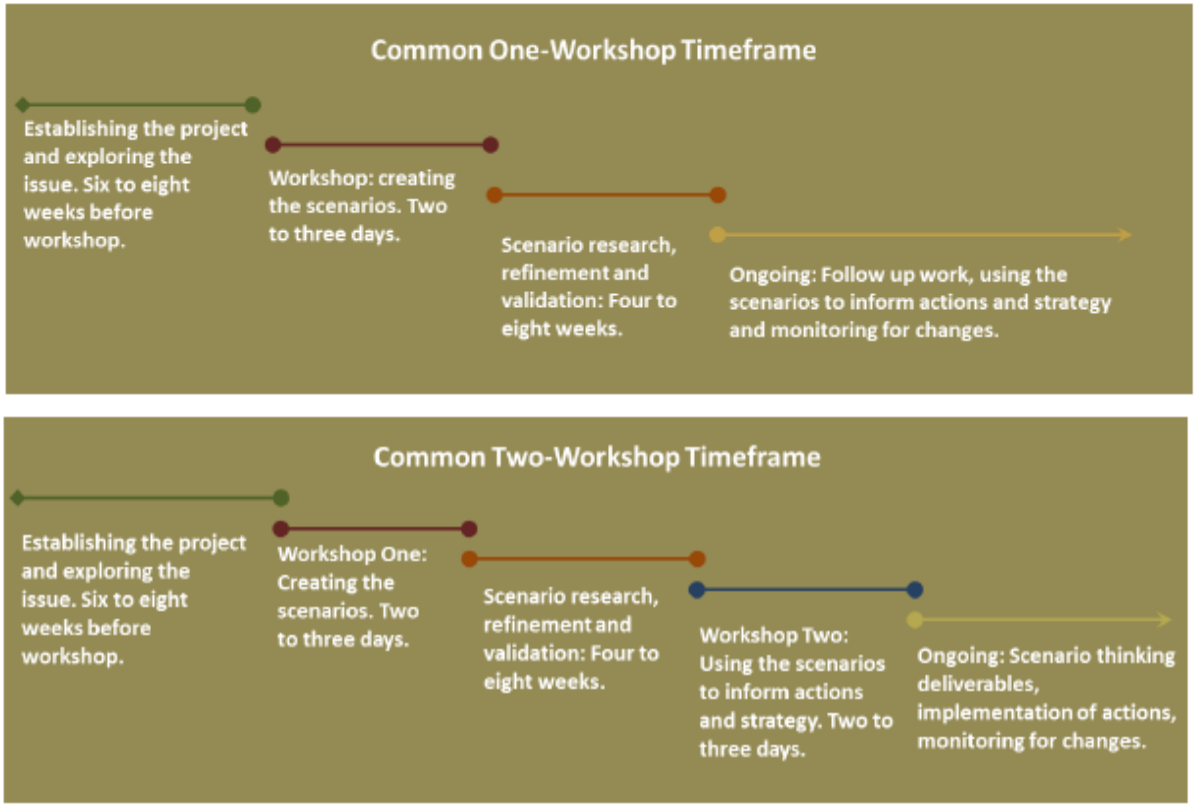


Figure 1: Common timeframes for one and two workshop processes. Source: National Parks Service, 2013 (Appendix III).

1.2.1 Phase 1: Orientation

During the orientation phase, the organization learns about scenario planning and establishes the purpose of the project, including identifying the issue or question to be explored using scenarios. Desired outcomes and goals should be identified, and a core team should be established to steer the project work. Bringing in an experienced facilitator to guide the process would be beneficial at this stage.

In many cases this phase includes stakeholder interviews to inform development of a focal question or issue. The goal of these interviews is to obtain perspectives from a wide range of stakeholders on major factors causing uncertainty in the fisheries, such as their underlying assumptions and beliefs about these drivers. This phase also involves planning and developing a schedule for the rest of the process and identifying likely participants.

1.2.2 Phase 2: Exploration

During this phase, the core team and subject matter experts (from academia, agencies, or the private sector) prepare research to inform scenario building, including identification of external "driving forces" and uncertainties that may affect the focal question. Driving forces tend to be those social, economic, political, or environmental factors that are important to the focal question, and that the organization cannot control. In climate change scenarios, this often includes a mixture of climate variables (e.g., ocean temperatures, pH, storm frequency) and sociopolitical factors (policy, legal framework, funding, market forces and trends, etc.).

Materials and background information should be provided to workshop participants to inform discussions at the workshop(s). Ideally, some time is spent prior to the workshop (via webinars or other means) orienting workshop participants to scenario planning and the driving forces, so that workshop time can be spent mostly on the scenario development process.

1.2.3 Phase 3: Synthesis (Scenario Creation)

The goal of the synthesis phase is to produce a small number of plausible, relevant, and challenging scenarios using the critical forces and impacts identified during the exploration phase. This phase usually begins with a workshop, where the core team and participants build scenarios using driving forces and select three to five final scenarios.

This phase would likely include a discussion of the degree of uncertainty around each driving force, i.e., which driving forces are the most uncertain, and which have the potential to change quickly or dramatically. The idea behind this discussion is to identify assumptions being made by participants and create a shared understanding of which elements are more vs. less certain.

There are several methods for building scenarios, but a typical and relatively simple method is using a 2x2 matrix process. This method considers two driving forces (ideally separate categories of drivers such as one social/political and one ecological) that present a spectrum of uncertainty. Overlapping these two spectrums of uncertainty produces a matrix with four quadrants with four possible scenarios, as shown below.

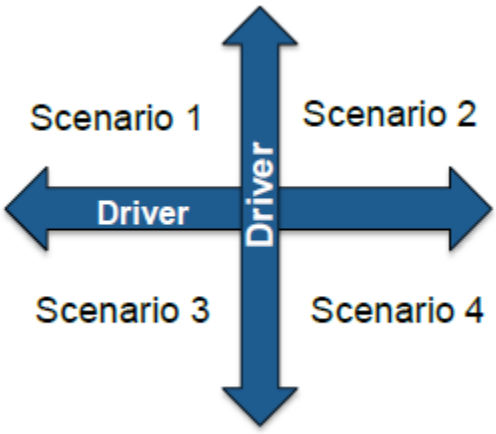


Figure 2: A common structure for scenario development where a 2x2 matrix is developed using two different driving forces, resulting in four scenarios to consider for further development.

After working through several of these quadrants with different uncertain drivers, the group would select their top plausible and relevant scenarios for further exploration and discussion. Once scenarios are identified, the group should work through and document potential impacts or effects that could occur within each scenario.

The impacts identified here will be incorporated into scenario "narratives" that will be used to drive further conversations about how to consider these scenarios in planning and prioritizing activities. Additional follow up work after the workshop includes reviewing scenarios with experts for plausibility and consistency.

1.2.4 Phase 4: Application

During the application phase, participants explore the scenario narratives developed in phase 3 to develop actions and strategies in response to the implications of the scenarios. Participants discuss the implications of each scenario to determine commonalities or patterns among scenarios, or if implications differ significantly between the scenarios.

At this stage, the organization can identify actions that it could take to prepare for and adapt to various scenarios, including actions that could be taken now to better adapt to future conditions, or actions to avoid to make future adaptation more successful. This stage could also identify process or structural changes that could better position the organization for operating under future conditions. Essentially, at this stage, the organization asks the questions, "If we knew this would be the future, what actions would we take now?" and "What actions would we avoid?" The scenario process can be used to inform the development of longer-term strategies beyond the scenarios, to identify which strategies are robust against various future conditions and to highlight areas of risk.

1.2.5 Phase 5: Monitoring

The final phase involves monitoring various indicators of the scenarios over time, collecting new information on uncertainties, and adjusting strategies as conditions evolve. The scenario planning process can be revisited if needed based on how conditions change.

Products of the process can include sets of indicators and warning signals for continued research and monitoring, as well as workshop deliverables describing the scenarios, implications, actions, indicators to monitor, and monitoring strategies.

2.0 Examples of Marine Resource Scenario Planning Initiatives

2.1 Atlantic Salmon

NOAA Fisheries undertook a scenario planning exercise for Atlantic salmon, which are highly vulnerable to climate change in the Northeast Atlantic. The project objectives were:

1) Better understand challenges of managing Atlantic salmon in a changing climate
2) Identify and discuss potential management actions and research activities that can be undertaken to increase understanding of drivers of Atlantic salmon productivity and resilience
3) Increase collaborations and coordination related to species recovery
4) Explore how scenario planning can be used to support decisions.

The focal question was: **"How can the effects of climate change impact the Atlantic Salmon Gulf of Maine Distinct Population Segment over the next 75 years?"** The 75-year time frame was selected to align with the Atlantic Salmon Recovery Plan.

Participants included experts in Atlantic salmon science or management, climate, watersheds, and fish physiology. Webinars and several small group discussions via phone were conducted in the summer of 2017 followed by a two-day face to face workshop in Portland, Maine to build the scenario narratives and discuss their management implications (Figure 3).

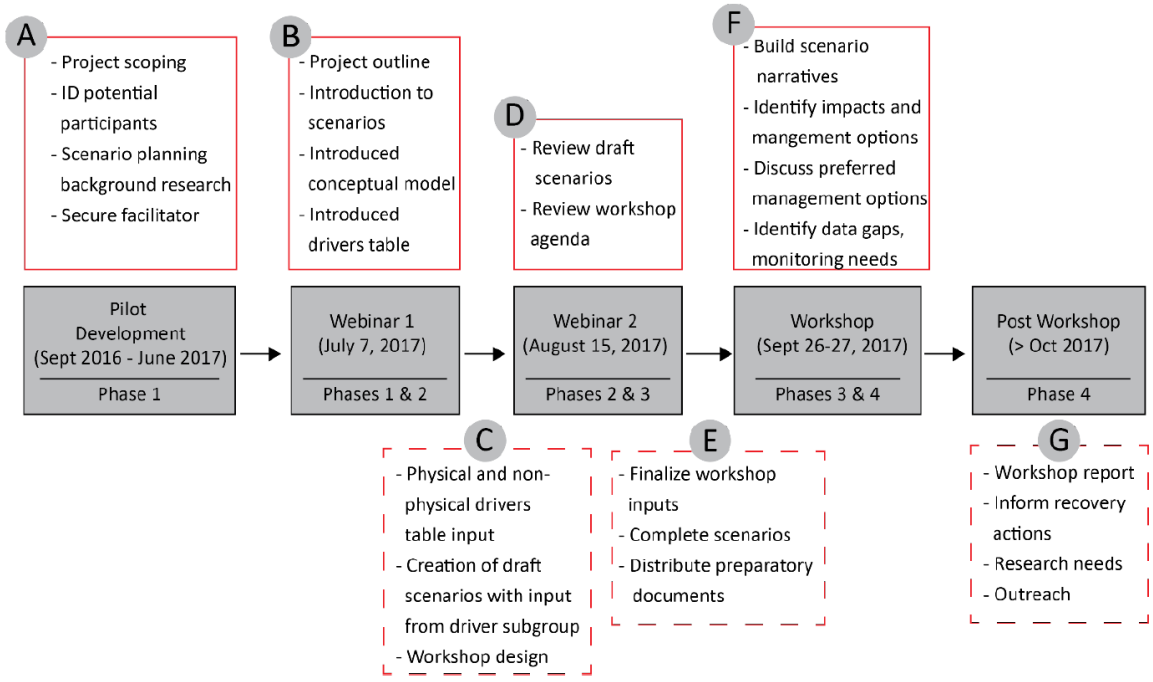


Figure 3: Process outline for Atlantic salmon scenario planning exercise. Source: Borggaard et al. 2019.

Scenarios were developed for Atlantic salmon following the 2x2 matrix method, considering 1) a warmer future that was either wetter or drier based on the uncertainty around future changes in precipitation and seasonality impacts on stream flow and 2) higher or lower freshwater accessibility based on future changes to fish passage and stream access. This matrix resulted in the four scenarios shown in Figure 4.

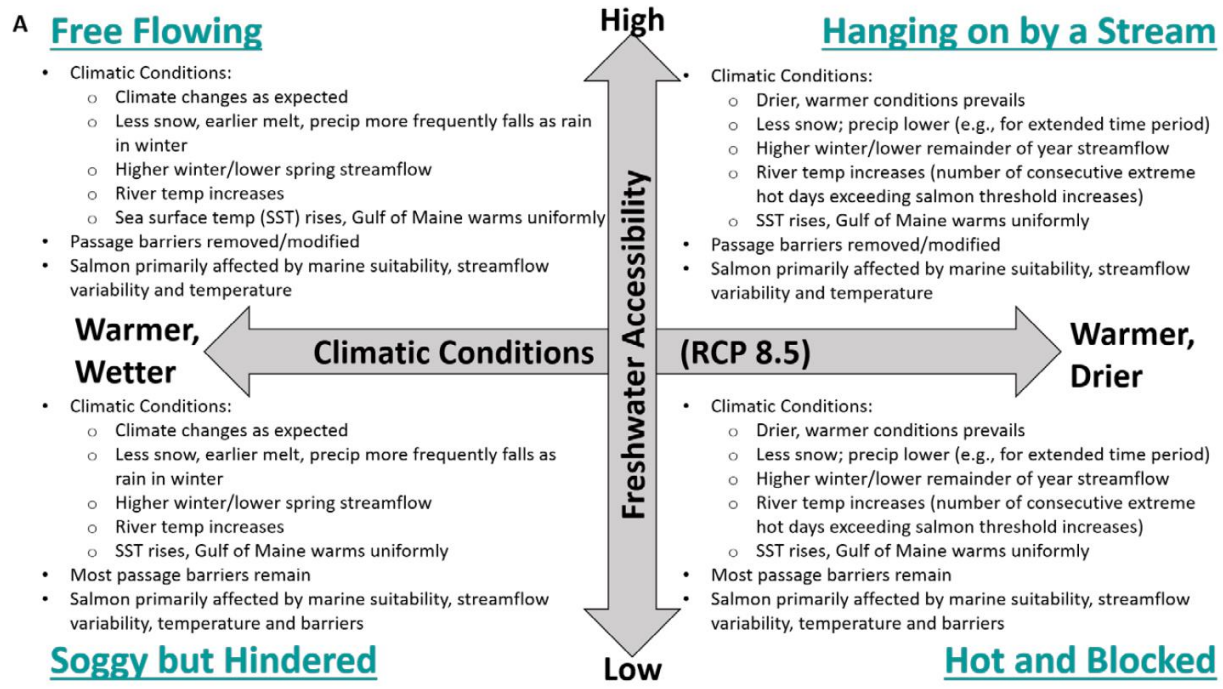


Figure 4: Atlantic salmon scenarios developed in 2017 process. Source: Borggaard et al. 2019.

At the workshop, conversations extended beyond scenario building and into the application stage, where participants discussed what actions NOAA Fisheries and others could take to prepare for each of these four futures. The outcome of this process was the identification of high priority research and management actions to further collaborations and efforts to recover this species. Several identified action items are now completed or underway such as the incorporation of high priority climate -related items into the revised Atlantic Salmon Recovery Plan (USFWS and NMFS 2019) and NOAA funded projects to 1) conduct a range-wide habitat analysis/mapping of key attributes of the physical environment important to Atlantic salmon and synthesis of life stage specific quantitative thresholds; and 2) to map Gulf of Maine Distinct Population Segment Atlantic salmon cold water refugia under a changing climate. Additional detail on these recommendations can be found in Borggaard et al. 2019.

2.2 Resilient Fisheries Rhode Island Project

In 2015, a group of Rhode Island fishermen received a NOAA Saltonstall-Kennedy grant to design environmental change adaptation strategies for Rhode Island's commercial fishing industry, known as the Resilient Fisheries Rhode Island Project. This project culminated in the publication of the "Rhode Island Commercial Fisheries Blueprint for Resilience" (Resilient Fisheries RI 2018).

Part of this project involved a scenario planning process, conducted via a full-day workshop in February 2017, facilitated by the consulting firm Futures Strategy Group. This workshop was attended by forty-five fishermen from Rhode Island ports, representing a variety of fisheries and gear types. Participants were split into breakout groups and given four scenarios characterized by different combinations of environmental and sociopolitical conditions. The scenarios in this case had been created ahead of time by the project coordinators and the consulting firm, based on feedback received in interviews and workshops during earlier stages of the project. Each group's mandate was to develop strategies that the Rhode Island fishing industry can start advocating for in the present to help the industry thrive in 2025-2030, if their scenario were to play out in the real world. The four scenarios considered by the breakout groups were the following:

- ***High climate variability ("Global Weirding") and a "Do It Yourself" Governance Structure:*** Chaotic climate trends, with greatly variable water temperatures, salinity, dissolved oxygen, and pH, with no apparent trends. Small government from a new third party, with policies influenced by the Silicon Valley high-tech industry. Higher business investment with higher competitive pressure.
- ***Global Cooling & Eutrophication, with a "Second Wind" socio-political environment:*** Natural cooling cycles counteract effects of greenhouse gas emissions. Salinity is increasing; coastal areas are experiencing increasing eutrophication and more anoxic events. The U.S. economy is growing with a new wave of technological innovation, with much closer relations between government and industry.
- ***Anthropogenic Warming with a "Long Plateau" economy:*** Higher water temperatures primarily driven by manmade greenhouse gas emissions. Lower salinity due to the melting of glaciers and polar ice caps. Lower dissolved oxygen and more frequent anoxic events. Ocean acidification (lower pH) is also occurring. The U.S. economy is sluggish and opportunities are limited, with fewer affluent households. Tough protectionism and government programs are keeping a lid on frustration.
- ***Natural Warming and a "Next Big Thing" new economy:*** Water temperatures have continued to rise due to natural cycles like the North Atlantic Oscillation Lower salinity due to the melting of glaciers and polar ice caps. Lower dissolved oxygen and more frequent anoxic events. Ocean pH has remained relatively constant. A new economy is developing based on cheap renewable energy but is causing many economic uncertainties.

After discussing the implications of these scenarios, participants proposed a series of strategies for fishing communities to adapt to the potential futures described in the scenarios. These strategies represent a spectrum ranging from those that the fishing industry can implement on its own to those that require varying degrees of action by other parties. Strategies identified include "low hanging fruit" that the fishing industry can begin to implement on its own in the short term, as well as strategies for collective industry organizing, local and niche marketing, public relations, workforce development, and methods to promote adaptive science and management. Additional detail on the outcomes of this process can be found in Schumann et al. 2017.

2.3 North Atlantic Right Whale

NMFS conducted a scenario planning exercise for North Atlantic Right Whale recovery. The purpose of this scenario planning exercise was to explore future conditions for right whales throughout their range and develop possible options to address those conditions to improve recovery. The focal question was "**What will affect/influence the recovery of right whales**

throughout their range over the next 60 years?" Participants include federal experts from NMFS, the Marine Mammal Commission, and the National Ocean Service. The summary of this scenario planning exercise is still in progress, but during the April Council meeting, NMFS will provide a general summary and some highlights of this effort.

2.4 Pacific Council Scenario Planning Exercise

As part of their ongoing Climate and Communities Initiative pursuant to their Fishery Ecosystem Plan, the Pacific Fishery Management Council initiated a scenario planning process in late 2018. In March 2019, the Council adopted shifting stock availability (including shifting distribution) across species, fishery management plans, and communities across the West Coast as the topic for a climate change scenario planning exercise. This exercise was intended to help the Council define the tools, products, and processes necessary to plan for potential future ecosystem states resulting from climate variability and climate change. The Council formed an Ad Hoc Climate and Communities Core Team ("Core Team") to drive the project and hired Jonathan Star of Scenario Insight to facilitate the process.

Core team members participated in a workshop in May 2019 to learn scenario planning principles and plan the project. Interviews were then conducted with stakeholders and Council advisory bodies, asking open ended questions encouraging respondents to think about the future. The focal question developed for this process was identified as **"How will West Coast fishing communities be affected by climate-related shifting stock availability and other developments between now and 2040?"** A preliminary list of driving forces was then developed by the Core Team with input from the Council's SSC, Committees, and Advisory Subpanels. A list of 21 driving forces[2] shaping West Coast fishing communities to 2040 was finalized prior to a January 2020 scenario building workshop in Garden Grove, CA. This workshop brought together more than 80 participants from different components of the fisheries and fisheries management.

The two-day workshop began with background presentations on the driving forces, followed by breakout group discussions attempting to build "sketch" scenarios from combinations of important driving forces, to familiarize participants with the driving forces and the process of scenario building. The second day involved more focused scenario development, where participants identified two critical uncertainties of interest as 1) climate variability (more vs. less frequent dramatic climate variability) and 2) species abundance and availability (greater or lesser availability of Council managed species to the fisheries). This framework led to the development of four scenarios for further discussion (Figure 5). Participants broke into four groups to discuss how these scenarios might play out for species and fisheries managed under the Council's four FMPs, and also considered how market and other socioeconomic and political forces may interact with future conditions.

The outcomes of the workshop included the four draft scenarios described below, to be further refined and validated in the next steps of the process.

[2] The summary of driving forces is available at: https://www.pcouncil.org/documents/2020/02/cci-workshop-driving-forces-summary.pdf/.

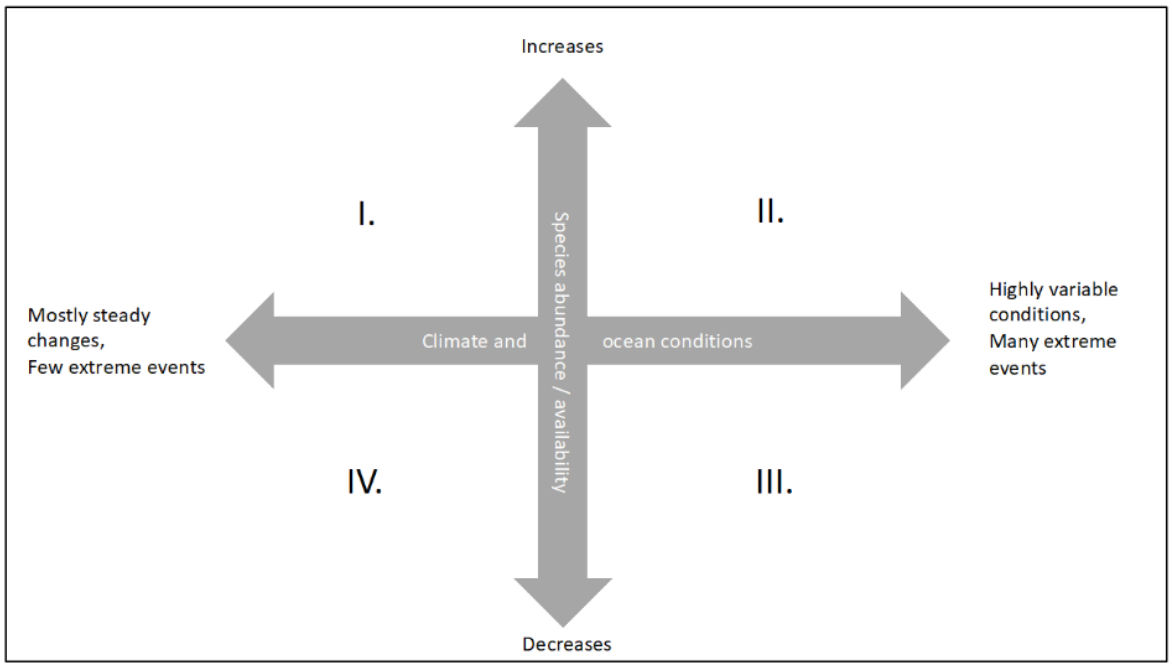


Figure 5: Framework for scenarios developed at January 2020 Pacific Council scenario building workshop. Source: PFMC, 2020.

I. Changing ocean conditions, moderate unpredictability, relatively few extreme events, coupled with high and/or increasing stock abundance. West coast fishing is supported through trade policies, a shift in societal values, and increasing consumer demand for wild caught fish.

II. Rapidly changing ocean conditions, high unpredictability, and frequent and intense extreme events coupled with high and/or increasing stock abundance for some species. Greater investment in, and use of, data monitoring technologies, helping fishing communities prepare for surprises.

III. Rapidly changing ocean conditions, high unpredictability, and low/declining stock abundance. Difficult circumstances compounded by market conditions (consolidation, ageing of the fleet, and declines in demand) leading to a hollowing out of the fishing industry.

IV. Changing ocean conditions, moderate unpredictability, relatively few extreme events, coupled with low/declining stock abundance. Aquaculture and other commercial ocean uses become more popular, changing the dynamic and make-up of fishing communities.

The workshop concluded with a discussion of next steps. Additional work is needed to validate the above scenarios as well as "deepen" the narrative surrounding each scenario to help make them as useful as possible. The planned next steps for the Pacific Council include using scenarios to generate ideas about how to effectively plan and prepare for the future. A "focal group" process is proposed to solicit ideas from a series of conversations with a range of stakeholders.

Mid-Atlantic Council staff is following the developments of the Pacific Council's process and plans to coordinate with them on lessons learned. Additional information about their Climate and Communities Initiative and their scenario planning exercise can be found at: https://www.pcouncil.org/actions/climate-and-communities-initiative/.

3.0 Potential East Coast Scenario Planning Exercise

In November 2019, the Northeast Regional Coordinating Committee (NRCC) discussed a potential climate change scenario planning process for the East Coast. Diane Borggaard of GARFO's Protected Resources Division presented an overview of scenario planning and NMFS scenario planning efforts. The NRCC generally agreed to move forward with a region-wide scenario planning initiative as a way to explore jurisdictional and governance issues related to shifting stocks. The NRCC also agreed to form a planning team/working group to explore East Coast scenario planning. This group would include representatives from all NRCC partners (Mid-Atlantic and New England Councils, ASMFC, GARFO, and NEFSC) as well as representatives from NMFS Headquarters, the Southeast Regional Office, the Southeast Fisheries Science Center, and the South Atlantic Fishery Management Council. The NRCC discussed that at a future meeting, this group would put together a proposal for the NRCC to review and decide how to move forward.

Additional NRCC and Council discussions are needed regarding the Council role in this process, in particular whether the Council would prefer to undertake a Council-focused scenario planning effort in parallel to a broader East Coast effort, if the Council would lead a broader East Coast effort, or if the NRCC working group would take the lead on an East Coast effort. There are tradeoffs associated with these approaches. Given that climate change and related species distribution changes will impact all management partners, and that adaptation will require strong coordination, it would be beneficial to involve all major partner organizations on the East Coast in some manner. However, the expected outcomes of this process, including broader planning strategies and specific management actions may be easier to identify and prioritize within one or two organizations as opposed to many organizations. Regardless of the approach selected, close coordination and continued communication between the Council, the NRCC and other management partners will be needed. Efforts should be made to minimize duplicative efforts, attempt to align expected outcomes, and consider resources available to each partner organization.

Below are some questions for the Council to consider regarding a potential path forward:

- **Who should lead the organizations through the process?** Given the nature of scenario planning and the limited expertise and experience among staff and partners, it may be beneficial to contract with a facilitator with experience in scenario planning for climate change and natural resources management.
- **Who should participate on a core team?** Depending on the approach taken, the core team could be the NRCC working group, or could be another group of individuals representing managers, staff, and technical experts from various partner organizations. In general, the core team would be responsible for: 1) developing the strategic challenge and focal question to be addressed, with input from the participating organizations and other stakeholders, 2) gathering stakeholder input prior to a scenario building workshop, 3) identifying and recruiting workshop participants, 4) planning workshop logistics and workshop sessions, and 5) producing meeting materials.
- **Who should participate in the broader process (i.e., interviews and workshops)?** Scenario planning should engage stakeholders who provide diverse perspectives and expertise. A broader range of perspectives can help challenge assumptions and illuminate blind spots. This phase would involve identifying fishery participants, decision makers, experts, and creative thinkers to participate in addition to core team members.

- **How should we determine our goals and refine the focal question?** A successful scenario planning exercise should have a clearly identified set of goals and expected outcomes developed toward the beginning of the process. The process is centered around a question (or questions) regarding the plausible futures we are trying to explore. As described in phase 1 of the process above, the core team should assemble stakeholder input to identify a specific strategic challenge or question that the process will seek to address. Example questions could include things like "How might climate change driven species distribution shifts influence Council and NMFS governance and management of fisheries over the next 25 years?" or "How might climate change drive ecological and socioeconomic fishery changes over the next 25 years?"
- **What time horizon should be considered?** A scenario planning process should identify how far into the future to consider in the development of scenarios. Do we want to develop scenarios that consider possible conditions in 10 years, 20 years, 30 years, or more? The time frame needs to be long enough to sufficiently consider longer term uncertainties and changes in conditions but should be short enough that near-term actions and strategies would still be relevant to influencing responses to future conditions.
- **What is the intersection with other ecosystem and climate initiatives?** While this scenario building process would be largely independent of other Mid-Atlantic Council EAFM initiatives, a scenario planning exercise could draw on past, current, and planned EAFM efforts, as well as other climate related initiatives in the Greater Atlantic and South Atlantic (if applicable) regions. For example, insight from the EAFM risk assessment could be used to identify and refine driving forces that may be appropriate to consider in a scenario planning exercise. In addition, similar to the way that a conceptual model was developed to identify priority management questions and objectives for a Management Strategy Evaluation for summer flounder, a simplified conceptual model framework could be used to synthesize the links between climate, other environmental factors, and species response (this type of conceptual model was used during development of the Atlantic salmon scenario planning exercise). This scenario planning exercise would be intended to advance and support the Council's EAFM framework without duplicating the efforts of other climate and ecosystem related efforts.

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

Overview

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

Roles and Responsibilities

Northeast Region Coordinating Council

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

Assessment Oversight Panel

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

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

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

Northeast Fisheries Science Center

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

Atlantic States Marine Fisheries Commission

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

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

Peer Review Panels

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

Scheduling Process

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

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

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

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

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

Management Track Process

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

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

the science and update a previously accepted assessment when issues arise or new data become available.

Management Track and Peer Review Levels

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

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

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

Data Updates

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

During the, hopefully short, timeframe while NEFSC develops the automated data update system, any data update requests will need to be negotiated through the NRCC.

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

Level 1: Direct delivery

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

- Model that has been updated with revised data, with minor changes (such as small adjustments to data weights, fixing parameters estimated at bounds, correcting minor errors in previous model)
- Incorporation of updated data from recent years in the estimation of biological information (growth, maturity, length-weight relationship)
- Evaluating effects of delayed seasonal surveys or missing strata on fishery-independent measures of abundance
- If adding or revising data reveals problems in model performance, analyst should identify concerns that may need further analyses and/or review
- Standard QA/QC procedures employed by the NEFSC

Level 2: Expedited review

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

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

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

  Technically, when either the rho-adjusted SSB or F (point estimate / (1 + Mohn's rho)) falls outside the 90% confidence interval of the terminal year estimate, the retrospective adjustment is applied for both status determination and to the starting population for projections.
- Adjustment of method for estimating biological information (growth, maturation, sex ratio, changes to length-weight relationships, etc.), when based on methods developed with sufficient peer review or justification for its use
- Calculate new values for the existing BRPs

Level 3: Enhanced review

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

Level 3 assessments will be reviewed by a small panel of SSC members from the relevant Council(s) as well as additional external experts as needed; any external reviewers outside of the SSCs will be nominated by the Council or Commission and confirmed by the NRCC Deputies. Given the enhanced

peer review, changes to most assessment elements, with the exception of stock structure, would be permitted in level 3 assessments; however, cumulative impacts should be considered when making a determination between the changes permissible within the "enhanced review" level and changes that would require switching to the research track process. Changes permitted in level 3 assessments include those noted in levels 1 and 2, and:

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

Management Track Assessment Terms of Reference

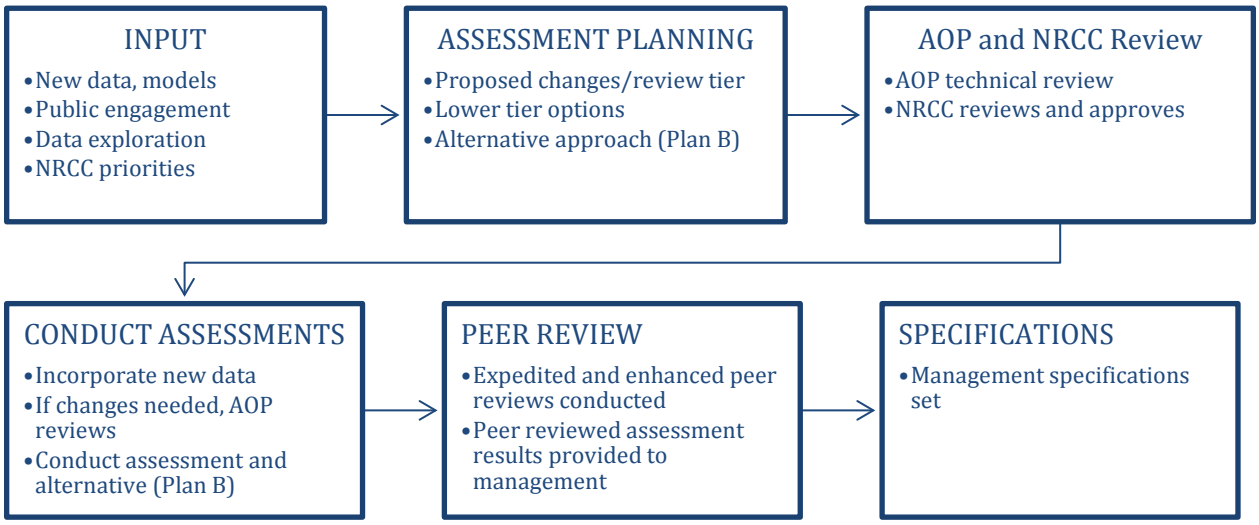
Generic Terms of Reference (TORs) for assessment updates that will be used directly for management (Management Track assessments) are provided below. They include the TORs necessary for updating the necessary input data (catch and survey), assessment model, biological reference points and short-term projections but do not include the research-oriented TORs that are included in Research Track assessments.

1. Estimate catch from all sources including landings and discards.
2. Evaluate indices used in the assessment (e.g., indices of relative or absolute abundance, recruitment, state surveys, age-length data, etc.).

3. Estimate annual fishing mortality, recruitment and stock biomass (both total and spawning stock) as possible (depending on the assessment method) for the time series using the approved assessment method and estimate their uncertainty. Include retrospective analyses if possible (both historical and within-model) to allow a comparison with previous assessment results and projections, and to examine model fit.
    a. Include bridge runs to sequentially document each change from the previously accepted model to the updated model proposed for this peer review.
    b. Prepare a "Plan B" assessment that would serve as an alternate approach to providing scientific advice to management if the analytical assessment were to not pass review
4. Re-estimate or update the BRP's as defined by the management track level and recommend stock status.
5. Conduct short-term stock projections when appropriate.
6. Respond to any review panel comments or SSC concerns from the most recent prior research or management track assessment.

Management Track Process and Logistics

Management Track Process Flow Chart



Step 1: Input

Throughout the year data come in and new ideas are generated. As part of the new management track assessment process, the NEFSC and ASMFC will work with NRCC partners and others to engage with stakeholders, academic and state partners to solicit new data and ideas. This engagement strategy will involve ongoing, regular two-way communications with stakeholders and partners using a variety of approaches, which could include, but not be limited to, social media and web interactions as well as face-to-face stakeholder engagement meetings convened by NRCC members or hosted by stakeholder groups. The engagement strategy will adapt as needed to improve two-way communications, but at a

minimum will involve biannual engagement efforts to provide updates on the most recent management and research track assessments and to seek input on upcoming assessments. This engagement will solicit input on all levels and types of assessments, but will particularly focus on research track assessments where there are not only more opportunities for change and improvement but also opportunities for joint research planning and direct collaborative research efforts with stakeholders and partners, which the NRCC is particularly interested in fostering. All input received will be provided to the assessment leads to support development of their assessment plan. Six months or more in advance of a scheduled management track assessment, the NEFSC or ASMFC assessment lead for the stock compiles available input and does initial exploratory work to determine how complex the next management track assessment should be in terms of new data streams or model changes incorporated.

Step 2: Assessment planning

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

Step 3: AOP and NRCC review

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

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

Step 4: Assessment conducted

This step may include several phases. First, each assessment lead evaluates any new data that have arrived since they developed the original proposal for assessment complexity and level (see step 2). If any changes to the approved assessment plan are needed in response to new data, the assessment lead proposes those revisions. If those proposed revisions could result in changes in the peer review level,

then the AOP provides technical review and applies the management track peer review guidelines to determine the appropriate level of peer review, likely via conference call or virtual meeting. In unusual cases where such changes could result in substantive changes to the overall suite of planned peer reviews, the NRCC would be consulted with respect to priorities. The assessment leads then carry out the management track assessment within the scope of the approved assessment plan for each stock.

Step 5: Peer review

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

General Timing of Management Track Process

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

Level 1 management track assessments will be delivered directly to the appropriate Council or Commission technical body and are not evaluated as part of the two peer reviews. If desirable, some level 1 assessments can be prepared and delivered throughout the year according to the Councils' and Commission's current delivery schedules. If, upon incorporating the most recent year of data, a level 1

assessment needs to be upgraded to a higher level that requires peer review, delivery of the assessment will be delayed until the next peer review, typically resulting in a delay of weeks to a few months. In such situations, the relevant Council or Commission would be consulted to discuss the needed changes and the resulting delay. In some situations, changes may be required to provide valid scientific advice to management. In others, the changes may be needed to provide improvements to the quality of the advice, in which cases the relevant Council or Commission may prefer to maintain the original delivery timeline while sacrificing the improvement. Furthermore, as the management track schedule comes into effect and workloads, timing, and demands shift, one way to enhance the efficiency of the process may be to simplify the delivery system to have most or all level 1 assessments coincide with the timing of the peer reviews, eliminating the need for some additional consultation and sacrifices.

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

Species or FMP	Beginning of Fishing Year	Management track peer review
Tilefish	November 1	End of June
Northern Shrimp	December 1	End of June
Bluefish	January 1	End of June
Mackerel/Squid/Butterfish	January 1	End of June
Fluke/Scup/Black sea bass	January 1	End of June
Surf clam / Ocean quahog	January 1	End of June
Atlantic herring	January 1	End of June
Striped bass	January 1	End of June
River herring / Shad	January 1	End of June
Red crab	March 1	End of June
Scallop	April 1	Beginning of September
Spiny dogfish	May 1	Beginning of September
Monkfish	May 1	Beginning of September
Groundfish (NE multispecies)	May 1	Beginning of September
Hakes (Small mesh multispecies)	May 1	Beginning of September
Skates	May 1	Beginning of September
American Lobster	July 1	Beginning of September

Research Track Process

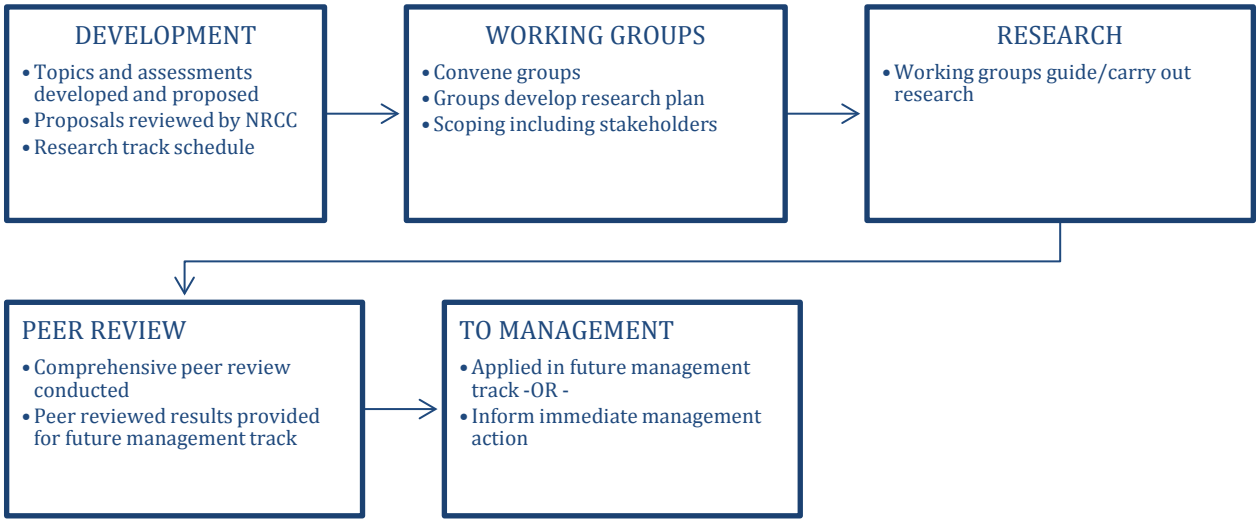
Research Track Assessments and Topics

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

other things, (a) direct examination and development of an assessment or (b) tackling analytical, data, or other issues facing multiple assessments.

Research Track Process and Logistics

Research Track Process Flow Chart



Step 1: Research Topic and Assessment Development

Initial research track topics and assessments are developed and proposed to the NRCC via individual NRCC members. These proposals can derive from ideas or recommendations proposed to or developed by Councils or Commission, through ideas or proposals developed by NEFSC or ASMFC scientists, or through ideas or proposals submitted through the NEFSC or GARFO. NRCC member organizations will work together to develop effective stakeholder engagement processes to solicit ideas (see Management Track – Step 1 above for more on input), which in turn could develop into research assessment or topics that would be proposed by one or more NRCC members. These proposals are then evaluated through the scheduling process described above.

Step 2: Working group(s)

Once a research track assessment or topic is scheduled, NEFSC and/or ASMFC assessment lead(s) are assigned and reach out to stakeholders, academics, and NRCC and management partners, etc., and consult existing sets of research recommendations (e.g., from past assessments or Council or Commission research priorities) to identify research needs to inform a given research track effort. This outreach effort could include formation of a working group or steering committee to carry out the outreach, or that working group or steering committee could be formed after the initial outreach and focus primarily on developing the plan for the research track effort.

Given the potential long-term nature of research track efforts, in some cases a steering committee to guide work may be established initially. The purpose of such a steering committee would be to identify research needs and provide guidance for the research that is undertaken, to ensure that the eventual

research outputs are useful and able to be considered within the eventual research track assessment or topic. Given that purpose, members of a steering committee should be recognized experts in fields of study relevant to the priority research needs for a given research track assessment or topic; this could include federal, state, and academic scientists as well as industry or non-governmental experts engaged in developing or guiding cooperative research studies. Membership of a steering committee could be somewhat dynamic and change through time for longer term research track efforts, as research progresses and different expertise is needed to provide research guidance. Steering committee members would be nominated by NRCC members as well as solicited through public outreach; steering committee membership would be reviewed and confirmed by the NRCC Deputies, with a focus on ensuring that all members have significant, relevant expertise. Care should be taken to avoid any perceived or real conflicts of interest, for example if steering committee members advocate for research that would be conducted by their host institution. A steering committee chair would be nominated and approved by the NRCC Deputies from the suite of steering committee members, and that chair would guide the overall work of the steering committee and seek to avoid conflicts of interest.

For stock-specific research track assessments, a formal stock assessment working group will likely be convened in addition to, or instead of, a broader steering committee. Those working groups would be formed following the process established for past Stock Assessment Workshop working group protocols.

Research track working groups, both topical and stock-specific, will be tasked with developing and implementing the research plan and terms of reference based on scoping. The research plan should indicate which outputs will be applied, and how, to future management track assessments and/or management actions. This is most critical for research topics, where the terms of reference at the start should clearly indicate what outputs will inform future management track assessments, and how they would do so. For stock specific research track assessments, consideration should generally be given to development of alternative approaches to providing management advice if a research track or future management track assessment should be deemed unsuitable for use in management, i.e., development of “plan B” assessment advice approaches. In most, if not all cases, such “plan B” approaches would be evaluated by the peer review panel after the panel completed its review of the research track assessment; “plan B” approaches should be considered as backup plans for any future problems with an assessment, not an alternative to the developed research track assessment, unless of course that assessment is rejected for use in management advice. In situations where a “plan B” approach has been developed and approved through a research track peer review, the expectations are that approach would be applied in future management track assessments as a backup, and the AOP would not need to repeat the review and approval of that “plan B” approach.

Step 3: Research

Once the research plan and terms of reference are established, the steering committee and/or working group guides and/or carries out the necessary research and compiles the results to inform the research track effort, incorporating public planning, data, and analytical meetings as appropriate. In some cases, funding, staff, or other resources may limit research efforts, and, in those cases, the steering committee or working group should set priorities and ensure the most critical research is accomplished. When

resources are limiting, the steering committee or working group should also inform the NRCC, whose members may be able to seek out additional resources to support the required work.

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

Step 4: Comprehensive peer review

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

Outputs of research track peer reviews are provided as expeditiously as possible to the NEFSC and/or ASMFC Assessment Science Committee for use in future management track assessments. These outputs will be provided in the form of an assessment summary report, a peer review report, and a comprehensive assessment document that covers the full suite of work carried out. The peer review report could either be one panel report, or a compilation of individual peer review reports along with a summary panel report. Working group papers, associated data, and background materials will be accessible if needed. If immediate management action is required based on the outcomes of a research track assessment, the outputs also will be provided to the appropriate Council or Commission technical bodies and then to the Councils and/or Commission to inform management action.

Step 5: Translate to Management

In many cases, research track outputs will be incorporated into future management track assessments, as indicated in the relevant initial research plan. In some cases, research track outputs may also be used to directly inform immediate management actions. This would typically occur when research track

outcomes indicate important or urgent changes in stock status that require immediate attention; otherwise, the expectation is that it usually will be more appropriate to take the research track outcomes and apply those with updated data in the next scheduled management track assessment to inform future management action.

Dr. Simpkins also reviewed the SASWG ideas on the management track process and discussed thoughts on the role of the Assessment Oversight Panel (AOP). The AOP would decide on the appropriate level of peer review for management track assessments, but Dr. Simpkins noted that the roles and membership of the AOP under this new process still need to be further developed. The AOP's peer-review process decisions would include guidance on changes allowed for each review tier, guidance on target number of reviews at each level per year, and implementation logistics and timing. Dr. Simpkins noted that the SASWG has already heard concerns from NRCC members regarding AOP composition and responsibility, logistics and timing of the process to ensure all steps are completed in time for specifications setting, and how to form the research track working groups.

To address these concerns, the SASWG recommended forming technical working group to develop guidance for changes allowed under each management track tier, building on existing guidance, and possibly expanding the membership of the AOP. To address the timing concerns, the SASWG recommends forming a mixed working group to develop management track timing and consider whether to develop a relatively fixed review schedule each year, or decide on timing each year.

In terms of forming research track working groups, the SASWG considered convening research steering committees first and transitioning to a formal Stock Assessment Workshop (SAW)-style working group when moving towards the actual assessment. The NRCC still needs to consider how it wants to be in engaged in the early stages of research track assessments.

The NRCC discussed how to prioritize research within the research track. Dr. Jon Hare noted that these details still need to be fleshed out, including how the research track working group will be formed. Mr. Tom Nies noted uncertainty in how Council-identified priorities are used by NMFS, but noted that this will be discussed more at the next Council Coordination Committee (CCC). Ms. Toni Kerns suggested the SASWG consider an integrative peer review process for the research track, similar to what has been adopted by the ASMFC.

The NRCC discussed how the level of management track assessment work would correlate with the level of peer review. Assessments that are more complicated would likely take more time to review and it would be up to the AOP to determine the level (i.e. tier) of peer review for each assessment. Advanced planning in identifying likely peer review levels will help ensure that the appropriate analyses occurs in time for management needs. Some NRCC members noted one benefit of having a 5-year management track schedule would be that stock assessment scientists know what is coming and can plan ahead.

The NRCC recognized that the MAFMC and NEFMC have been working differently in terms of data updates, assessment updates, operational assessments, and benchmark assessments. Mr. Bob Beal noted that the ASMFC has not had much input on the assessment schedule in recent years and is concerned this new process may further remove ASMFC research needs. Dr. Simpkins agreed that operating on a 1 to 2-year time horizon has been difficult, but that a longer

5-year horizon would provide an opportunity to get the ASMFC on the assessment schedule horizon.

Dr. Hare noted that the AOP should mirror the NRCC representation. Value of the AOP would be to have people from various organizations who are knowledgeable about stock assessments to continuously work together. There were other discussions about how the AOP would interact with the NRCC and questions about how AOP decisions would come back to the NRCC, or a subset of the NRCC. Members also noted that the role of the AOP might not need to be substantial if strong guidelines are developed. It was emphasized that the role of the AOP may differ depending on whether an assessment working group does the assessment work, or if it is only a single stock assessment scientist, as has been the case with the operational assessments to date. Dr. Hare noted that stock assessment scientists will make the initial determination of the level of peer review and the AOP will review this decision early on and determine if changes to that decision is necessary later as the assessment continues.

The NRCC discussed the need for more guidance on the role of the AOP and tasked the SASWG to develop criteria for how peer review tiers will be determined and how the AOP will interact with the NRCC for the next NRCC meeting

Topical Research Track: List of Priorities
The SASWG suggested that the research track would focus efforts on either (a) assessments of individual stocks with comprehensive evaluation of new data streams and model changes or (b) research topics/issues that apply to assessments of several stocks. As for topical research track efforts, the NRCC complied an initial list of topics that could be considered:

- Northeast Trawl Advisory Panel (NTAP) actions/results;
- Combine Eastern Georges Bank Research Track with other cod stocks;
- Marine Recreational Information Program (MRIP) incorporation;
- Control Rule for Index-based stocks
- Instances of low fishing mortality, but still no evidence of rebuilding;
- Applying space state models;
- Ecosystem factors;
- Retrospective patterns; and
- Survey approaches

This list may be expanded upon by the SASWG and reviewed at an August 2018 NRCC intercessional call.

Review and Discussion of Draft Strawman Schedules
Dr. Simpkins reviewed past efforts on the assessment scheduling process and reviewed the SASWG's scoring factors and how these scores were used in drafting a prioritized 5-year schedule for the management and research tracks. Following this review, Dr. Simpkins provided an overview of the draft SASWG schedules for NRCC consideration. For the research track strawman schedule, Dr. Simpkins noted that the SASWG is already aware that members of the

Mr. Chris Kellogg noted that the NEFMC's SSC meeting will likely be pushed back to mid to late October, but that should not impact the current timeline for decision-making on Framework 57 to the Northeast Multispecies FMP.

There was a brief discussion about ACCSP data availability and timing of the data necessary for the groundfish operational assessments. Mr. Robert Beal noted that the ACCSP data was available for use well before the May 1 deadline, but Dr. Simpkins noted there was an internal delay with the NEFSC due to staff availability. Dr. Jon Hare commented that communication can be improved and the NEFSC can layout specific timelines in the future that include its internal review timeline.

The NRCC then discussed Plan B specifically in the context of the 20 operational assessments. Dr. Hare reiterated the earlier points made regarding the plan to have assessment scientists prepare a "Plan B" assessment, but whether or not that plan will be reviewed will be a decision for the peer review panel.

The discussion then moved towards consideration of what type of changes could be made in an operational assessment (e.g., incorporate improved catchability estimates). The NRCC agreed it would be beneficial to create a list of allowable adjustments for consideration by the assessment scientists and assessment overview panel, building from a list of parameters developed a few years ago by Dr. Paul Rago and approved by the NRCC. The NEFSC and NEFMC, as well as both Councils' SSCs, will work on developing guidelines for a list of rules for changes allowed to operational assessments (Action Item #2).

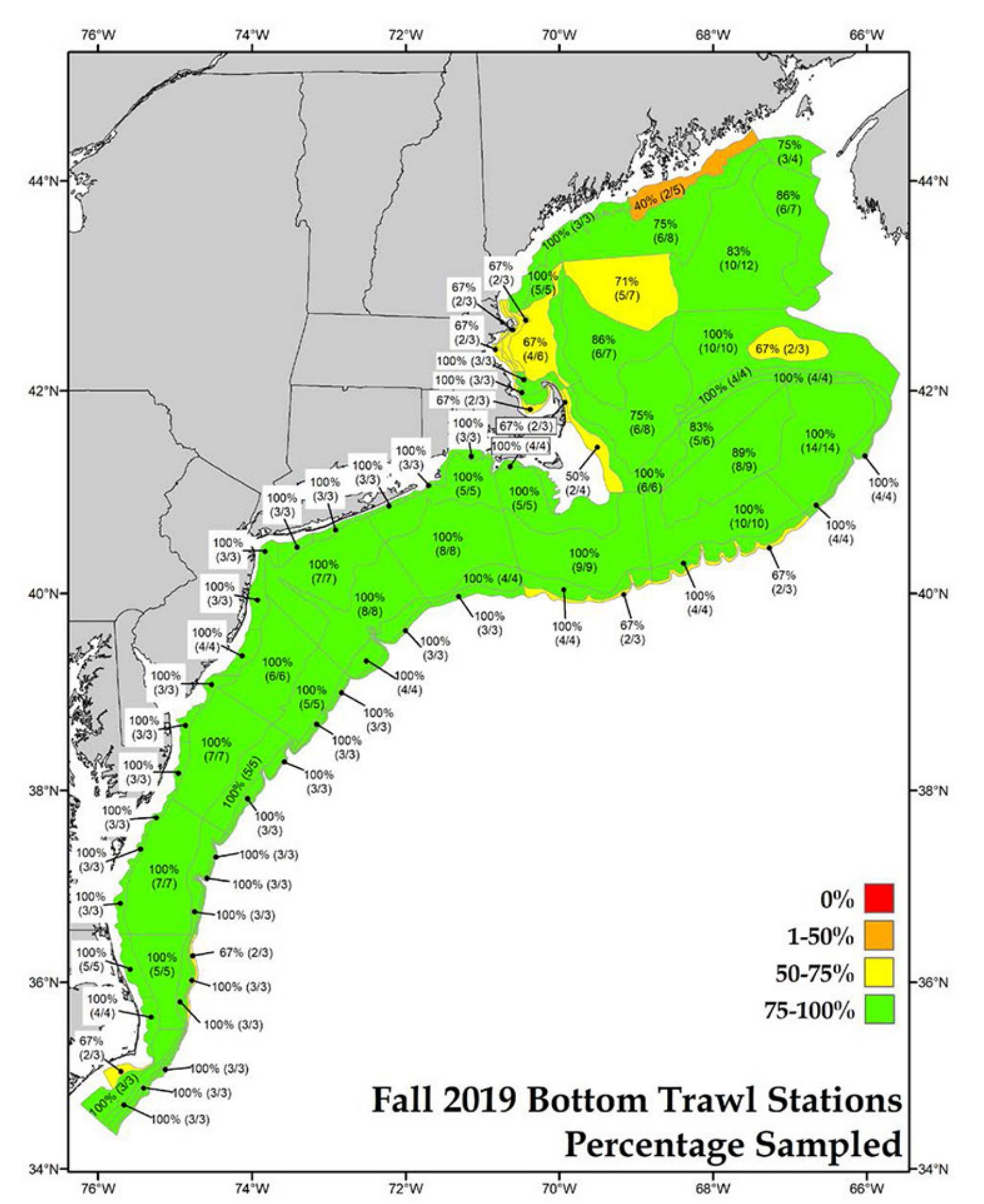
2018 and 2019 Assessment Scheduling

NRCC participants reviewed and discussed the 2018 assessment schedule, provided some clarifications and revisions to the schedule, including the addition of a summer flounder benchmark assessment for the second half of the year. There is some uncertainty surrounding the second half of 2018 due to the MRIP transition and availability of updated MRIP data.

Similarly, the NRCC did not draft the 2019 schedule due to uncertainty surrounding MRIP data updates, as well as the potential for adopting the new assessment two-track process. The working group will be putting together a draft schedule for what the management and research tracks would look like for 2019 and the NRCC will review at its Fall 2017 meeting.

4. River Herring Topics

Ms. Toni Kerns provided a brief update on the Atlantic sturgeon and river herring stock assessments. The new benchmark stock assessment for Atlantic sturgeon will be peer reviewed in late summer and presented to the ASMFC fishery management board in October. The assessment describes trends on both a coastwide and individual distinct population segment basis. The sturgeon assessment is data poor, describing relative trends in abundance and mortality, and will not produce stock status determinations.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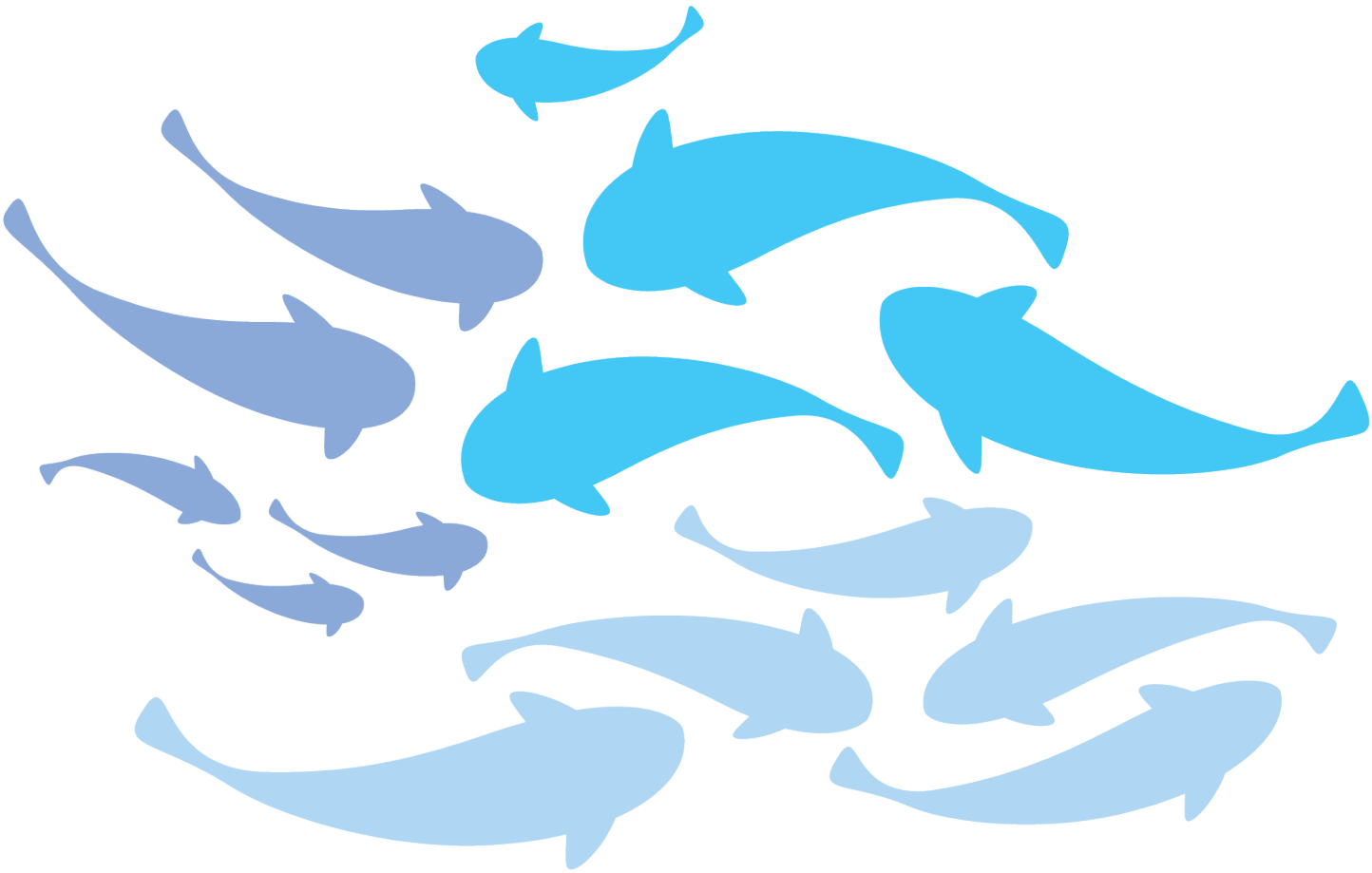
75-100%
Fall 2019 Bottom Trawl Stations
Percentage Sampled

Greater Atlantic Regional Fisheries Office

2020 Annual Implementation Plan



Introduction

The Greater Atlantic Regional Fisheries Office (GARFO) and the Northeast Fisheries Science Center (NEFSC) have developed a joint geographic strategic plan for 2020-2023. Our region is made up of diverse and complex ecosystems that support some of the most valuable fisheries and oldest fishing communities in the nation. They also support iconic species such as the North Atlantic right whale, Atlantic salmon, and Atlantic cod.

Our plan recognizes our need to work together to develop and conduct sound science that support the conservation and management of our trust resources and the habitats upon which they depend, and provides joint strategies for achieving these goals. Specifically, our plan identifies strategies for modernizing our fishery dependent data systems, rebuilding fish stocks through improved understanding, monitoring, and enforcement, focusing recovery efforts on high priority protected species, implementing ecosystem-based fisheries management in the region, incorporating considerations of our trust resources and fisheries in offshore wind energy development processes, and improving international coordination to ensure the sustainability of fisheries and the recovery of endangered and protected species.

In addition to strategies to protect and conserve our trust resources, we have established joint strategies towards ensuring that we operate as effective and efficient organizations with the agility necessary to adapt and evolve to meet new challenges. These strategies recognize the importance of our people and infrastructure towards fulfilling our mission. Through our plan, we commit towards establishing a diverse workforce and developing innovative technologies that will enhance our ability to serve the public and achieve our strategic goals. We also commit to working with our partners to strengthen our collaborative science and management activities and reduce unnecessary regulatory burden on our fishing industry and other stakeholders to maximize economic growth.

There are three strategic goals that our plan pursues, based on the vision of the Department of Commerce and NOAA as an agency:

Goal 1: Amplify the economic value of sustainable commercial and recreational fisheries.

Goal 2: Conserve and recover protected species while supporting responsible fishing and resource development.

Goal 3: Improve organizational excellence and regulatory efficiency.

The GARFO Implementation Plan

Accompanying our joint geographic strategic plan is a GARFO-specific Annual Implementation Plan, which outlines the procedures for obtaining organizational excellence through strategic resource allocation, informed decision-making, organizational collaboration, and transparent and effective communication to accomplish core activities.

Together, our strategic plan and Implementation Process documents provide guidance for decision making within GARFO and the NEFSC with the goal of increasing the transparency of these decisions. These documents help position our region to meet our future challenges by clearly stating our core and desired research, providing focus, and enabling a concentration of resources to accomplish these goals.

Strategic Framework

This plan is structured around the aforementioned research and support themes. The full portfolio of GARFO's activities are further characterized by particular areas which describe the accomplishments we expect to achieve within the theme.

Greater Atlantic Region Strategic Plan Goals and Strategies

1. Amplify the economic value of sustainable commercial and recreational fisheries
    - 1.1. Manage stocks for optimum yield
    - 1.2. Increase U.S. marine aquaculture production
    - 1.3. Promote ecosystem-based fisheries management
    - 1.4. Adequately assess all prioritizes stocks and maintain information for currently assessed stocks
    - 1.5. Modernize fishery information collection, management, and dissemination systems, and enhance cooperative data collection and sharing
2. Conserve and recover protected species while supporting responsible fishing and resource development
    - 2.1. Stabilize highest priority protected species
    - 2.2. Review and streamline permitting and authorization processes for energy development and national defense, while maximizing fishing opportunities and conservation outcomes
    - 2.3. Minimize bycatch and entanglement of protected species while supporting fisheries
    - 2.4. Improved international cooperation and coordination
3. Improve organizational excellence and regulatory efficiency
    - 3.1. Match a diverse workforce to mission needs
    - 3.2. Recapitalize infrastructure and facilities
    - 3.3. Institutionalize prioritization and performance management practices
    - 3.4. Review agency regulations and remove or modify rules that unnecessarily burden businesses and economic growth
    - 3.5. Institutionalize the use of innovative technologies
    - 3.6. Expand regional collaborations
    - 3.7. Enhance stakeholder communication

Implementing Our Strategies

Goal 1: Amplify the economic value of sustainable commercial and recreational fisheries

We expect to amplify the economic value of regional seafood production by optimizing commercial harvest, ensuring recreational opportunities, promoting marine aquaculture, and restoring habitat. Effective science-based management is essential to reaching optimum yield while preventing overfishing. Annual commercial landings revenues total nearly $2 billion, and recreational fisheries result in over $5.8 billion in trip expenditures, while a number of notable species are under harvested. We intend to continue our close collaboration with the Mid-Atlantic and New England Fishery Management Councils, Atlantic States Marine Fisheries Commission, state and fishing industry partners, the Northwest Atlantic Fisheries Organization, and local organizations and stakeholders.

1.1 Manage stocks for optimum yield

Rebuild overfished stocks, prevent overfishing with improved quota monitoring and fisheries enforcement, and find ways to increase the use of legally caught fish. Support the Mid-Atlantic and New England Fishery Management Councils in addressing regulatory amendments to achieve optimum yield. Explore opportunities for alternative management strategies for recreational fisheries. Protect essential fish habitat and restore damaged habitats for managed species and their prey to help maintain productive fisheries.

Support catch share management for the Northeast multispecies fishery
Coordinate with sector managers throughout the year to reconcile data and ensure that final year-end data fully account for all catches by sectors.

Monitor annual catch limits
Monitor the fisheries throughout the year to assure that ACLs are not exceeded. For each managed stock, a year-end catch evaluation is made to determine if accountability measures are required.

Monitor catch share programs
Independently monitor the region's catch share programs using data provided to both the Regional Office and Science Center

Conduct consultation activities for high priority actions under the Essential Fish Habitat provisions of the MSA and FWCA
Conduct EFH and FWCA consultations with Federal and State agencies from Maine through Virginia. Provide conservation recommendations to avoid, minimize or mitigate impacts to living marine resources and their habitats. Consultations will focus on high priority development activities including: transportation and port development, infrastructure and energy development. Consult on all internal fishery management actions. Develop programmatic consultations to increase efficiency of consultations program.

Lead U.S. efforts to work with Canada on the joint management of shared, transboundary resources as part of the U.S./Canada Transboundary Understanding process
Staff from GARFO and regional Canadian officials meet to discuss mutual interests in the conservation and management of transboundary living marine resources.

Initiate development of a Management Plan for the Northeast Canyons and Seamounts Marine National Monument
Initiate development of Management Plan for the Northeast Canyons and Seamounts Marine National Monument (NCSMNM) in coordination with the New England and Mid-Atlantic Fishery Management

Councils, U.S. Fish and Wildlife Service, and other agency partners. Work with the Northwest Atlantic Fisheries Organization (NAFO) to determine potential for extending the management of NCSMNM in international waters. Activities for the year will involve initial GARFO staffing assignments, determining needed budget, and public outreach.

Assist with Revisions to NEPA Regulations Found in NAO 216-6
Work with HQ NEPA Staff and General Counsel on revisions to NOAA's NEPA regulations - NAO 216-6. Based on revised NAO 216-6 regulations, update Regional Office NEPA procedures outlined in GARFO's NEPA Quality Assurance Plan.

Coordinate with USFWS on issues related to the Northeast Canyons and Seamounts Marine National Monument, including research and management plan development
Work with our partners at USFWS to monitor activities proposed or occurring in the NE National Monument. This includes plans to permit the installation of cables through the Monument, along with research proposals and the development of Monument Management Plan.

Monitor GARFO and NEFSC fishery management actions to ensure compliance with CEQ and NOAA NEPA requirements
Provide general guidance on the preparation of NEPA documents relating to fisheries management, including fisheries habitat, ensure that NEPA analyses fully supports the science-based decisions made as part of the management process. Develop and recommend policy, procedures, consistency measures, technical administration and NEPA training. Recommend methods for improving NERO and Science Center Compliance with NEPA.

Complete review and update as necessary the GARFO Recreational Fishing Plan
This milestone requires that we review and, as necessary, update the GARFO recreational fishing action plan in 2020, as well as complete or make progress towards action items included in the plan (i.e., continued engagement and outreach events, explorations of new ways to manage recreational fisheries, etc.)

Sustainable management of fisheries
Work with the Councils and ASMFC on the sustainable management of fisheries by setting annual catch limits for 45 stocks as well as other conservation and management measures (e.g., review of rebuilding progress, review of commercial and recreational allocations in light of recalibrated MRIP data, and continued progress on deregulatory actions).

Collaborate with the NEFMC, MAFMC, and ASMFC to identify measures for increasing fishing opportunities, particularly for abundant and healthy fish stocks
This milestone involves working with the Councils and Commission to increase fishing opportunities, particularly for healthy and abundant fish stocks. This includes measures to increase quotas, when possible, but also to increase possession limits and other measures to provide increased flexibility and additional fishing opportunities to improve the likelihood of achieving optimum yield.

Progress towards Ecosystem-Based Fishery Management
GARFO will continue to work with the MAFMC, NEFMC, and ASMFC to make progress towards implementing ecosystem-based management.

Provide support for the development of Fishery Management Council NEPA documents.

NEPA staff will attend Council PDT and FMAT meetings as necessary throughout the year and advise Council and GARFO staff on ways to maintain and improve GARFO NEPA compliance for Council-driven actions developed in support of fishery management regulations.

1.2 Increase U.S. marine aquaculture production

Lead the Federal Government in coordinating authorizations for growth of marine aquaculture. Provide advanced marine aquaculture science and technology for ready adoption in the U.S. aquaculture industry, and provide industry incentives.

Provide and manage external grant activities that foster marine aquaculture development
In FY18, one new aquaculture project was funded regionally under the NMFS SK grant program. Aquaculture is a funding priority for Agency.

Initiate development of a GARFO Regional Aquaculture Plan
In conjunction with the new NOAA/GARFO/NEFSC Joint Geographic Strategic Plan, GARFO will start the development of a region-wide aquaculture implementation plan that will look into expanding the capacity of the agency to deliver collaborative aquaculture extension, education, and outreach services throughout the whole region. This includes the development of a regional aquaculture communications plan, consistent with the NMFS Office of Aquaculture Communications Strategic Plan.

Compile legal authorizations required for EEZ aquaculture operations in the GAR
Initiate the compilation of legal authorities, permit requirements, and permit application review protocols by various federal, interstate, state, or local agencies for approval of EEZ aquaculture operations in the Greater Atlantic region, including authorizations to farm/harvest likely proposed species.

1.3 Promote ecosystem-based fisheries management

Develop approaches to support ecosystem-based fisheries management and stock assessments and incorporate ecosystem considerations into management advice. Encourage and collaborate with the Councils to develop ecosystem-based approaches to fisheries management and address changing climate conditions.

Initiate development of a Management Plan for the Northeast Canyons and Seamounts Marine National Monument (1.1, 3.6)[1]*

Coordinate with USFWS on issues related to the Northeast Canyons and Seamounts Marine National Monument, including research and management plan development (1.1, 3.6)

Progress towards Ecosystem-Based Fishery Management (1.1, 3.6)

1.4 Adequately assess all prioritized stocks and maintain information for currently assessed stocks

Establish target stock assessment levels and strive to meet targets for priority stocks without compromising sustainable management of other stocks. Develop incentives for industry-based (commercial and recreational) data collection and reporting.

Manage and conduct vessel reporting programs

* Items in grey italics font are already detailed in other sections of the plan, the numbers following are section numbers.

Federally-permitted vessels are required to submit detailed trip reports through various systems, depending upon the fishery. We review vessel trip reports, conduct data entry and data quality programs, and carry out compliance checks to ensure that reports are timely, complete and accurate.

Provide permit services to constituents, including fishing allocation transfers
Issue fishery permits and authorizations to eligible applicants within regulatory timeframes. In addition to vessel, dealer and operator permits, this includes the transfer of limited access vessel permits, fishing histories, fishing allocations and managing the regional cost recovery program. In FY 20 APSD will be developing and implementing an online permit application process that will converting paper applications to electronic applications.

Manage fisheries dealer reports
Federally-permitted seafood dealers are required to submit detailed reports of all purchases. We review dealer reports and conduct data quality programs and compliance checks to ensure that reports are timely, complete and accurate.

Support NEFSC's stock assessments through collection of biological samples in ports
OSED will work with the NEFSC to reduce variability in stock assessments by improving the collection of samples.

Support catch share management for the Northeast multispecies fishery (1.1, 1.5)

Monitor annual catch limits (1.1, 1.5)

Monitor catch share programs (1.1, 1.5)

Complete review and update as necessary the GARFO Recreational Fishing Plan (1.1, 3.7)

Sustainable management of fisheries (1.1, 3.4, 3.6)

Collaborate with the NEFMC, MAFMC, and ASMFC to identify measures for increasing fishing opportunities, particularly for abundant and healthy fish stocks (1.1, 3.4, 3.6)

1.5 Modernize fishery information collection, management, and dissemination systems, and enhance cooperative data collection and sharing

Support and coordinate with states to advance user-centered fishery information networks and data platforms, with greater efficiency and lower cost, to improve the ability to effectively manage stocks for optimum yield and recreational opportunities. Collaborate with industry through the Fishery Dependent Data Initiative to integrate and modernize fisheries dependent data systems to simplify fisheries reporting, improve data quality, and enhance monitoring and analysis to better support management decisions, advance scientific understanding, and facilitate the elimination of redundant reporting burdens.

Improve accessibility of fisheries information
Expand the number of non-confidential information summaries available to the public that describe fishery participation and activity (e.g., permit information, landings, catch, fishing activity)

Expand use of electronic vessel trip reports to all commercial and for-hire fisheries in the Greater Atlantic Region

Work with the NEFMC and MAFMC to convert vessel trip reports from paper to electronic submission. For-hire eVTRs became mandatory in some fisheries in the Mid-Atlantic in 2018. This milestone is intended to expand eVTR usage to all commercial and for-hire fisheries in the Greater Atlantic Region. Enhancements to mobile, tablet, and desktop applications to be used by industry to submit electronic vessel trip reports is included in this milestone.

Improve use of fishery dependent data through the development of the GARFO/NEFSC Fishery Dependent Data Initiative (FDDI)

Work with the NEFSC, SERO, HQ (for HMS species) and other offices and agencies as appropriate to develop consistent approaches for use of state and federal fishery dependent data, including quality assurance and quality control processes. For the FDDI to succeed clearly defined and well understood roles, responsibilities, authorities, and decision making process must be developed and agreed to by GARFO/NEFSC and its collaborating partners.

FDDI coordination with ACCSP

Establish ACCSP as a Data Repository of Greater Atlantic Fisheries Dependent Data. Working with ACCSP and NEFSC to prepare data, scripts, migration process, and data systems to ensure a smooth transition and to ensure ACCSP systems are compliant and compatible with existing data. Ensure NOAA Fisheries data security protocols and data confidentiality requirements are satisfied.

Collaborate in the review of cooperative research programs

This milestone entails SFD staff working with others in OSED and the NEFSC to coordinate and collaborate in the review of cooperative research programs such as the NEFSC's research set-aside programs and the S-K grant program.

Expansion of mobile app and fish tank application suite capabilities

Work on an online vessel permit renewal system. Expand our electronic reporting infrastructure to improve speed and reliability, allow for haul-by-haul reporting, and provide a single electronic submission point (the API) for existing or future approved electronic reporting software systems. Provide ongoing support and improvement for GARFO's existing electronic reporting mobile app. It works on iphones now, with future plans to work on other mobile platforms). Continue data modernization efforts, in accord with agency-wide efforts. In the coming year, this will include infrastructure improvements to our existing sector information management tool through a secure web tool for sectors to manage their fishing activity. These changes will support future groundfish regulatory changes, and lay the groundwork for larger data modernization.

Support this years overall objectives of the Fishery Dependent Data Visioning (FDDV) from a security, data structure and web development perspective

Develop any new and modify any existing applications and data structures in support of FDDV in regards to ACCSP becoming the data warehouse. Assist ACCSP through a FISMA security audit and implementing security controls.

Manage and conduct vessel reporting programs (1.4)

Support catch share management for the Northeast multispecies fishery (1.1, 1.4, 1.5)

Monitor annual catch limits (1.1, 1.4)

Monitor catch share programs (1.1, 1.4)

Provide permit services to constituents, including fishing allocation transfers (1.4)

Manage fisheries dealer reports (1.4)

Support NEFSC's stock assessments through collection of biological samples in ports (1.4)

Goal 2: Conserve and recover protected species while supporting responsible fishing and resource development

We are responsible for recovering threatened or endangered marine species, and conserving and protecting marine mammals. Many of these species are key components of their ecosystems and have particular social and cultural importance. The focus is on recovery while using our understanding of limiting factors and threats to minimize conflict with infrastructure projects or other forms of economic growth. We will continue to improve the timeliness of our regulatory decisions and conservation outcomes when fishing and resource development projects interact with protected resources. Recovery of protected species would relieve restraints on development or other economically important projects.

2.1 Stabilize highest priority protected species

Focus science and recovery actions, and recruit partners to collaborate on actions to stabilize declining populations such as North Atlantic right whales and Atlantic salmon. Protect and restore habitat where it limits species recovery. Understand effect of changing climate on protected species and their habitats.

Complete the ESA five year review for Atlantic salmon
Under the ESA, we are required to conduct reviews every five years to determine if there has been a change in the status of and/or threats to ESA listed species. We will work with the NEFSC Atlantic salmon program to complete a five year review for Atlantic salmon in Q1 FY20 and will coordinate with USFWS.

Complete a 5-year review for the three DPSs of Atlantic sturgeon that occur in GAR
Under the ESA, we are required to conduct reviews every five years to determine if there has been a change in the status of and/or threats to ESA listed species. We will work with SERO to draft a five year review for the five distinct population segments of Atlantic sturgeon and anticipate coordinating with ASMFC for review of the draft. We anticipate completing the draft of the three GAR DPSs in Q1 and finalizing the document in Q3.

Conduct consultation activities for high priority actions under the Essential Fish Habitat provisions of the MSA and FWCA
HCD will conduct EFH and FWCA consultations with Federal and State agencies from Maine through Virginia. HCD will provide conservation recommendations to avoid, minimize or mitigate impacts to living marine resources and their habitats. Consultations will focus on high priority development activities including: transportation and port development, infrastructure and energy development. HCD will also consult on all internal fishery management actions. Develop programmatic consultations to increase efficiency of consultations program.

Implement Atlantic and shortnose sturgeon outreach and education, including the SCUTES program, to enhance public awareness of ESA listed sturgeon
Increase awareness of the status of Atlantic and shortnose sturgeon throughout the GAR through an outreach program designed for elementary, middle, and high school students. This includes increasing the number of educational kits that are at existing learning centers for lending out to states from ME to VA. Also, it includes hosting the annual teacher workshop to supply teachers with the information necessary to use the kits effectively.

Participate in Bilateral US/Canada Right Whale Working Group Meetings
We will continue to host regular meetings of the US/Canada Bilateral Right Whale Working Group to build a collaborative relationship with our counterparts in Canada on both right whale science and management. Through this working group, we have shared management lessons learned, standardized information

sharing on recovered entangling gear, planned joint aerial and passive acoustic surveillance, and collaborated on right whale prey modeling methods.

Develop revised Batch Fisheries Biological Opinion, including American Lobster, and coordinate with SFD, PRD and NEFSC partners

Due to a significant change in North Atlantic right whale abundance and the re-initiation triggers being met for both the Batched Fisheries and Lobster Biological Opinions, we will work with the Sustainable Fisheries Division and Northeast Fisheries Science Center to develop a new biological opinion that is based on the best available scientific information and collaborate closely with the Take Reduction Team, Atlantic States Marine Fisheries Commission and Fishery Management Councils to develop new right whale protective measures.

Lead U.S. participation in the international efforts for management of Atlantic Salmon

The GARFO DRA is the US Commissioner to the North Atlantic Salmon Conservation Organization (NASCO). Completion of this milestone will require coordinating the development of the US position to provide for the protection of Atlantic salmon of U.S. origin and negotiating for positions that support critical efforts to prevent the extinction of our stocks.

Implement the Species in the Spotlight Action Plan for Atlantic salmon

We will continue to implement the recovery actions identified in the Species in the Spotlight Action plan. As resources allow, we will fund our partners to also undertake the work identified in the action plan, and we will continue to encourage that our partners seek out other funding opportunities as well. We will explore creating a federal funding opportunity for our partners to pursue projects that will implement the action plan. We will also ensure that the actions undertaken under the SiS action plan are linked to the overall salmon recovery program and plan.

Coordination with Canada on programs and activities to address anthropogenic threats to protected resources

Exchange information with Canada on programs and activities to address threats to marine mammals, sea turtles, and protected fish species from commercial fishing, shipping and other threats. Attend meetings of the Species at Risk Working Group.

Implement the recommendations of the Atlantic Large Whale Take Reduction Team in a rulemaking with supporting analyses (NEPA, etc.) to reduce serious injury and mortality of Atlantic large whales, North Atlantic right whales in particular

Based on the near-consensus agreement of the ALWTRT at its meeting in April 2019, we will modify the Atlantic Large Whale Take Reduction Plan to reduce the risk of entanglement mortality to North Atlantic right whales. This will include the preparation of a proposed rule and draft Environmental Impact Statement.

Monitor GARFO protected species actions to ensure compliance with Council on Environmental Quality and NOAA NEPA requirements

Provide general guidance on the preparation of NEPA documents relating to protected resources management and ensure that the analysis prepared in support of these actions uses sound science aimed at the recovery and conservation of protected species. Develop and recommend policy, procedures, consistency measures, technical administration and NEPA training.

Coordinate the focal year for education and outreach for the International Year of the Salmon, with partners, to promote domestic and international efforts to advance science, understand and manage threats and recover salmon

We will be undertaking efforts to coordinate with our partners on the West Coast and with the North Atlantic Salmon Conservation Organization and North Pacific Anadromous Fish Commission on a large scale outreach and science effort to promote efforts to recover salmon throughout the North Atlantic and North Pacific. We will host a launch event in October 2018 in Boston in cooperation with partners including the New England Aquarium and will hold a number of partner events in 2019 aimed at increasing awareness and action towards the recovery of wild Atlantic salmon.

Work with BOEM to evaluate the effects of offshore wind projects in the Northeast and Mid Atlantic on ESA listed species and critical habitats

Coordinate with BOEM and other federal agencies permitting offshore wind projects to evaluate the effects of these actions on ESA listed species and critical habitat. We will coordinate with OPR on the issuance of any MMPA authorizations. We will adhere to the requirements of FAST-41, EO 18307/One Federal Decision to streamline consultations and carry out efficient consultation processes.

Convene webinars for Atlantic Large Whale and Harbor Porpoise Take Reduction Teams to review new abundance and bycatch estimates; and monitor compliance and effectiveness of the respective TRPs to ensure goals and objectives of MMPA are met

We will host annual monitoring webinars for both the Atlantic Large Whale Take Reduction Team and Harbor Porpoise Take Reduction Team. The purpose of these webinars is to review, according to our monitoring plans, the most recent population abundance, mortality, and PBR estimates from the annual marine mammal Stock Assessment Reports. We also update the teams on recent law enforcement efforts, new relevant scientific research, and public outreach efforts.

Work with BOEM to evaluate the effects of offshore wind projects in the Northeast and Mid Atlantic on ESA listed species and critical habitats

Coordinate with BOEM and other federal agencies permitting offshore wind projects to evaluate the effects of these actions on ESA listed species and critical habitat. We will coordinate with OPR on the issuance of any MMPA authorizations. We will adhere to the requirements of FAST-41, EO 18307/One Federal Decision to streamline consultations and carry out efficient consultation processes.

Work with our partners to implement recovery actions through the Atlantic Salmon Framework and Recovery Plan

We will work with the USFWS, Maine Department of Marine Resources, Maine Tribes, and other partners and stakeholders to implement the 2019 Recovery Plan for the Gulf of Maine DPS of Atlantic salmon. We will develop prioritized work plans for each of the three Salmon Habitat Recovery Units. We will lead the implementation of the new collaborative recovery framework and will hold at least one SHRU team meeting in each SHRU, hold quarterly interagency meetings, and hold an annual meeting to review and discuss progress towards meeting recovery goals (April 2020).

Implement the mandates of the ESA and MMPA

Implement the ESA and MMPA from Maine through Virginia including providing technical assistance, issuing marine mammal authorization permits, developing recovery plans, and working cooperatively with states, industries and interested parties.

Monitor GARFO and NEFSC fishery management actions to ensure compliance with CEQ and NOAA NEPA requirements (1.1, 3.4)

Lead U.S. efforts to work with Canada on the joint management of shared, transboundary resources as part of the U.S./Canada Transboundary Understanding process (1.1, 2.4, 3.6)

Provide support for the development of Fishery Management Council NEPA documents (1.1, 2.4)

2.2 Review and streamline permitting and authorization processes for energy development and national defense, while maximizing fishing opportunities and conservation outcomes

Promote energy independence and economic growth by creating efficiencies in our environmental review processes, including implementing guidance and policies that support conservation and effectively address major infrastructure and energy projects important to our Nation's energy independence, economy, and defense. Develop collaborative regional science and incorporate fisheries considerations in offshore development processes to ensure coexistence of fisheries, aquaculture, energy development and national defense.

Provide policy and technical guidance to MAFMC in the development of their EFH 5 year review assessment
MAFMC is undertaking a Northeast Regional Habitat Assessment as part of their 5 year review of EFH information to determine the need to revise EFH and HAPC designations and provide management measures to minimize impacts of fishing on EFH. HCD will participate in working groups, Steering Committee, provide assistance and guidance to MAFMC on their analysis, EFH designation methodologies, characterization of HAPCs for various species, and fishing gear effects analysis.

Complete BOEM Wind Energy project concurrence points for NEPA Cooperating Agency requirements of the One Federal Decision (OFD) executive order
Complete BOEM Wind Energy project concurrence points for NEPA Cooperating Agency requirements of the One Federal Decision (OFD) executive order.

Provide support for the review of GARFO/NEFSC grant proposals to determine appropriate level of NEPA compliance and ensure adequate NEPA document preparation.
Assist with the review and assessment of grant proposals. Based on CEQ and NOAA NEPA requirements, and taking into consideration impacts to fisheries resources, habitat and protected resources, make a determination regarding the required level of NEPA compliance that must be met prior to making the financial award.

Conduct consultation activities for high priority actions under the Essential Fish Habitat provisions of the MSA and FWCA (1.1, 2.1)

Work with BOEM to evaluate the effects of offshore wind projects in the Northeast and Mid Atlantic on ESA listed species and critical habitats (2.1)

Assist with Revisions to NEPA Regulations Found in NAO 216-6 (1.1, 3.4)

2.3 Minimize bycatch and entanglement of protected species while supporting fisheries

Support continued fishing opportunities and aquaculture by understanding and minimizing protected species interactions and mortality. Work with fishing industry, scientists, environmental organizations, academia, law

enforcement agencies, and other stakeholders to develop and enforce bycatch and entanglement prevention measures domestically and internationally.

Implement Atlantic and shortnose sturgeon outreach and education, including the SCUTES program, to enhance public awareness of ESA listed sturgeon (2.1, 3.6, 3.7)

Participate in Bilateral US/Canada Right Whale Working Group Meetings (2.1, 2.4, 3.6)

Develop revised Batch Fisheries Biological Opinion, including American Lobster, and coordinate with SFD, PRD and NEFSC partners (2.1)

Lead U.S. participation in the international efforts for management of Atlantic Salmon (2.1, 2.4)

Implement the Species in the Spotlight Action Plan for Atlantic salmon (2.1, 2.4, 3.7)

Coordination with Canada on programs and activities to address anthropogenic threats to protected resources (2.1, 2.4)

Implement the recommendations of the Atlantic Large Whale Take Reduction Team in a rulemaking with supporting analyses (NEPA, etc.) to reduce serious injury and mortality of Atlantic large whales, North Atlantic right whales in particular Develop revised Batch Fisheries Biological Opinion, including American Lobster, and coordinate with SFD, PRD and NEFSC partners (2.1)

Monitor GARFO protected species actions to ensure compliance with Council on Environmental Quality and NOAA NEPA requirements (2.1)

Coordinate the focal year for education and outreach for the International Year of the Salmon, with partners, to promote domestic and international efforts to advance science, understand and manage threats and recover salmon (2.1, 2.4, 3.7)

Convene webinars for Atlantic Large Whale and Harbor Porpoise Take Reduction Teams to review new abundance and bycatch estimates; and monitor compliance and effectiveness of the respective TRPs to ensure goals and objectives of MMPA are met (2.1, 3.6, 3.7)

Work with our partners to implement recovery actions through the Atlantic Salmon Framework and Recovery Plan (2.1, 3.6, 3.7)

Implement the mandates of the ESA and MMPA (2.1, 3.6, 3.7)

Provide support for the development of Fishery Management Council NEPA documents (1.1, 2.1)

2.4 Improved international cooperation and coordination

Continue to develop and improve cooperation, and collaboration with other countries and international organizations as it pertains to the recovery of endangered species, such as Atlantic salmon and the North Atlantic right whale, and other protected resources.

Participate in Bilateral US/Canada Right Whale Working Group Meetings (2.1, 2.3, 3.6)

Lead U.S. participation in the international efforts for management of Atlantic Salmon (2.1, 2.3)

Implement the Species in the Spotlight Action Plan for Atlantic salmon (2.1, 2.3, 3.7)

Coordination with Canada on programs and activities to address anthropogenic threats to protected resources (2.1, 2.3)

Coordinate the focal year for education and outreach for the International Year of the Salmon, with partners, to promote domestic and international efforts to advance science, understand and manage threats and recover salmon (2.1, 2.3, 3.7)

Lead U.S. efforts to work with Canada on the joint management of shared, transboundary resources as part of the U.S./Canada Transboundary Understanding process (1.1, 2.1, 3.6)

Goal 3: Improve organizational excellence and regulatory efficiency

To realize our first two strategic goals, we must have effective and efficient organizations with the agility to adapt and evolve to meet emerging challenges. Promoting organizational excellence is a continuous process to improve our ability to fulfill our mission, support our people, and support the organization. The key factors that determine organizational excellence include our people, our business and management processes, and our technology and infrastructure. Improving business processes and implementing best practices conducted in a priority-based environment, along with continuous regulatory reform, will ensure our operations best support our customers and partners.

3.1 Match a diverse workforce to mission needs

Plan and deploy workforce strategically to ensure flexibility and agility in support of evolving mission functions and continuity of operations. Emphasize prioritized workforce composition and succession planning (*i.e.*, the right people in the right place), diversity, competency-based management, and cross-collaborative approaches to promoting an inclusive and safe workplace.

Review, compile and prioritize tasks for Port Agent Team to develop a strategic plan for the Port Programs Section

Obtain views, opinions and suggestions of Port Agents and current customers of the Section and if time is available, other potential internal customers. Our current customers include all GARFO divisions, other NOAA Fisheries offices (NEFSC, SEFSC, SERO, OST, OSF, OLE/NEED) and other NOAA offices (NOS/ONMS, NWS). Priorities will be those organizations that manage fisheries within GARFO's area.

The prime focus of the Section's mission is to provide services to external stakeholders that have some NOAA Fisheries requirements predicated on their businesses and/or permits. Other GARFO divisions have a small number of staff with similar duties, these will also be considered.

Accomplished fact finding through interviews, either in-person or remotely. Other methods such as form completion could supplement personal methods, but not replace them. In order to ensure views were captured correctly this would be an iterative process where the participants would have an opportunity to review the summarized information and provide further comments. Existing documents compiled during the reorganization planning will also be provided.

Initiate development of the 2020-2025 GARFO Annual Implementation Plan

Complete draft of the Annual Implementation Plan following approval and public roll out of the Joint GARFO/NEFSC Regional Geographic Strategic Plan.

Develop and execute annual budget spending plans in coordination with NMFS HQ and NEFSC

This is accommodated, in part, through OBD-GARFO division budget consultations and development of an annual contract spending plan.

Review and revise, as needed, GARFO program and fiscal internal controls to reflect associated current/revised DOC/NOAA/NMFS policies and regulations

A GARFO FY2019 FMC Management Representation Memo was signed August 2019. It described FMC efforts to fulfill our responsibilities for our financial information in accordance with applicable laws and regulations, including OMB/DOC/NOAA/NMFS policies and procedures. The region had no adverse audit findings.

Maintain the safety and security of GAR facility and staff: Achieve the safety and security targets in the 2019 NMFS Safety & Environmental Action Plan (SEAP).
Among the major elements of the GARFO 2020 Safety & Environmental Action Plan (SEAP) is a follow up on: (1) Job Hazard Analysis (JHA) for field work, (2) anticipated NOAA Safety and Health Week, and (3) conduct of regular safety/emergency drills.

Conduct FOIA Training workshop for GARFO staff
GARFO's FOIA coordinator will work with NOAA FOIA office develop and conduct a FOIA Workshop/Training for GARFO staff that are either their respective divisions FOIA point of contact or staff that are often involved in FOIA requests.

3.2 Recapitalize infrastructure and facilities

Conduct facility condition assessments to evaluate properties, and prioritize and address critical maintenance needs. Evaluate the infrastructure needs for workspace in light of an evolving workforce, and propose strategies for recapitalization to NOAA and the Department of Commerce.

IT Infrastructure Upgrades and Improvements
Replace end of life core network switch, replace end of life firewalls, refresh IP desk phones, all by the end of Q1 FY20. Success is measured on these being put into production.

3.3 Institutionalize prioritization and performance management practices

Use priority-based methods to optimize investments for maximum economic return while meeting food security and conservation mandates. Analyze performance, risk, and opportunities to ensure the best value to the American public.

Provide support for the review of GARFO/NEFSC grant proposals to determine appropriate level of NEPA compliance and ensure adequate NEPA document preparation. (2.2, 3.4)

Review, compile and prioritize tasks for Port Agent Team to develop a strategic plan for the Port Programs Section (3.1, 3.7)

Initiate development of the 2020-2025 GARFO Annual Implementation Plan (3.1, 3.7)

Develop and execute annual budget spending plans in coordination with NMFS HQ and NEFSC (3.1)

Review and revise, as needed, GARFO program and fiscal internal controls to reflect associated current/revised DOC/NOAA/NMFS policies and regulations (3.1)

Maintain the safety and security of GAR facility and staff: Achieve the safety and security targets in the 2019 NMFS Safety & Environmental Action Plan (SEAP). (3.1)

Conduct FOIA Training workshop for GARFO staff (3.1)

3.4 Review agency regulations and remove or modify rules that unnecessarily burden businesses and economic growth

Implement Executive Order 13771 by reviewing regulations to identify and modify or repeal rules that add burden and costs without adding value. Continue to work with other NMFS and NOAA partners, as well as the Councils to remove outdated, unnecessary, and ineffective fishing regulations.

Provide support for the review of GARFO/NEFSC grant proposals to determine appropriate level of NEPA compliance and ensure adequate NEPA document preparation. (2.2, 3.3)

Assist with Revisions to NEPA Regulations Found in NAO 216-6 (1.1, 2.1)

Compile legal authorizations required for EEZ aquaculture operations in the GAR (1.2)

Monitor GARFO and NEFSC fishery management actions to ensure compliance with CEQ and NOAA NEPA requirements (1.1, 2.1)

Sustainable management of fisheries (1.1, 1.4, 3.6)

Collaborate with the NEFMC, MAFMC, and ASMFC to identify measures for increasing fishing opportunities, particularly for abundant and healthy fish stocks (1.1, 1.4, 3.6)

3.5 Institutionalize the use of innovative technologies

Support the development, leveraging, and use of powerful technologies (*e.g.*, AUV/UAS platforms, advanced sensors, fishing industry platforms, molecular genetics, digital platforms, electronic reporting/monitoring, mobile applications, cloud computing) for conducting surveys, enhancing and improving the accuracy of observing systems, and collecting and sharing data in cost effective, transparent, and real-time approaches.

Improve accessibility of fisheries information (1.5, 3.7)

IT Infrastructure Upgrades and Improvements (3.2)

FDDI coordination with ACCSP FDDI coordination with ACCSP (1.5, 3.6)

Expansion of mobile app and fish tank application suite capabilities (1.5, 3.7)

Support this year's overall objectives of the Fishery Dependent Data Visioning (FDDV) from a security, data structure and web development perspective (1.5)

3.6 Expand regional collaborations

Collaborate with the Councils, Commission, Canadian Department of Fisheries and Oceans, industry, academia, international management organizations, and other partners to progress our science and management priorities and promote innovation and sustainability. Develop and implement a regional watershed program.

Ensure effective coordination of the New England Bay Watershed Education and Training Program
Maintain grant partnerships with not-for-profit organizations that promote locally relevant, experiential learning opportunities in the field of ocean sciences, for K-12 school students. Develop and administer a

competitive grants solicitation during FY2019. Success is contingent on congressional appropriations and availability of funds with adequate lead time.

Ensure effective administration of GARFO state/federal, fishery management council, ASMFC and S-K grants

Maintain state, fishery management council, and constituent partnerships to ensure that projects supported with FY 2020 grant funding are carried out to gather information and conduct activities that support management and development of domestic/ interjurisdictional fisheries. These projects include fishery management plan development, data collection (fishery statistics), fishery research, climate change, socio-economics, and community resiliency. Associated funding priorities are identified under the Atlantic Coastal Act, the Interjurisdictional Fisheries Act, the Magnuson-Stevens Act, and the Saltonstall-Kennedy grant program. Success is contingent on congressional appropriations, and HQ allocating program funds with adequate lead times.

Convene Northeast Right Whale Recovery Implementation Team

The North Atlantic right whale recovery plan Northeast Implementation Team (NEIT) was convened in 2018 as a recommendation of the 2017 North Atlantic Right Whale 5-Year Review. The NEIT will meet next in November 2019 to prioritize and execute recovery actions. The NEIT has also formed a Population Evaluation Tool subgroup, which will meet and October 2020 and thereafter, to produce a statistical population viability analysis which has been prioritized in the past two 5-year reviews.

FDDI coordination with ACCSP (1.5, 3.5)

Implement Atlantic and shortnose sturgeon outreach and education, including the SCUTES program, to enhance public awareness of ESA listed sturgeon (2.1, 2.3, 3.7)

Participate in Bilateral US/Canada Right Whale Working Group Meetings (2.1, 2.3, 2.4)

Convene webinars for Atlantic Large Whale and Harbor Porpoise Take Reduction Teams to review new abundance and bycatch estimates; and monitor compliance and effectiveness of the respective TRPs to ensure goals and objectives of MMPA are met (2.1, 2.3, 3.7)

Work with our partners to implement recovery actions through the Atlantic Salmon Framework and Recovery Plan (2.1, 2.3, 3.7)

Implement the mandates of the ESA and MMPA (2.1, 2.3, 3.7)

Lead U.S. efforts to work with Canada on the joint management of shared, transboundary resources as part of the U.S./Canada Transboundary Understanding process (1.1, 2.1, 2.4)

Initiate development of a Management Plan for the Northeast Canyons and Seamounts Marine National Monument (1.1, 1.3)

Coordinate with USFWS on issues related to the Northeast Canyons and Seamounts Marine National Monument, including research and management plan development (1.1, 1.3)

Progress towards Ecosystem-Based Fishery Management (1.1., 1.3)

Sustainable management of fisheries (1.1, 1.4, 3.4)
Collaborate with the NEFMC, MAFMC, and ASMFC to identify measures for increasing fishing opportunities, particularly for abundant and healthy fish stocks (1.1, 1.4, 3.4)

Initiate development of a GARFO Regional Aquaculture Plan (1.2, 3.7)
Collaborate in the review of cooperative research programs (1.5)

3.7 Enhance stakeholder communication

Improve communications with stakeholders by evaluating existing tools and methods and developing flexible approaches to communicate more effectively and efficiently.

Produce 2019-2020 GAR Annual Report
The Communications Team will work with all GARFO Divisions, the Deputy Regional Administrator, and the Regional Administrator to produce the GARFO 2019-2020 Year in Review, which is the Regional Office's annual report.

Complete development of a Strategic Communications Plan for the Greater Atlantic Region
Work with all GAR divisions to look ahead for FY2020-21, and possibly beyond, to identify issues for which they will likely need strategic communications support. These may be highly controversial issues, or new or existing programs they want to draw attention to or educate our stakeholders about. The result will be a strategic communications plan that will guide our communications efforts for the next two years, but will a living document to adapt to changing needs.
Improve accessibility of fisheries information (1.5, 3.5)
Review, compile and prioritize tasks for Port Agent Team to develop a strategic plan for the Port Programs Section (3.1, 3.3)
Initiate development of the 2020-2025 GARFO Annual Implementation Plan Initiate development of the 2020-2025 GARFO Annual Implementation Plan (3.1, 3.3)

Ensure effective coordination of the New England Bay Watershed Education and Training Program (3.6)

Ensure effective administration of GARFO state/federal, fishery management council, ASMFC and S-K grants (3.6)

Implement Atlantic and shortnose sturgeon outreach and education, including the SCUTES program, to enhance public awareness of ESA listed sturgeon (2.1, 2.3, 3.6)

Implement the Species in the Spotlight Action Plan for Atlantic salmon (2.1, 2.3, 2.4)

Coordinate the focal year for education and outreach for the International Year of the Salmon, with partners, to promote domestic and international efforts to advance science, understand and manage threats and recover salmon (2.1, 2.3, 2.4)

Improve accessibility of fisheries information (1.5, 3.5)

Convene webinars for Atlantic Large Whale and Harbor Porpoise Take Reduction Teams to review new abundance and bycatch estimates; and monitor compliance and effectiveness of the respective TRPs to ensure goals and objectives of MMPA are met (2.1, 2.3, 3.6)

Work with our partners to implement recovery actions through the Atlantic Salmon Framework and Recovery Plan (2.1, 2.3, 3.6)

Implement the mandates of the ESA and MMPA (2.1, 2.3, 3.6)

Initiate development of a GARFO Regional Aquaculture Plan (1.2, 3.6)
Complete review and update as necessary the GARFO Recreational Fishing Plan (1.1, 1.4)
Expansion of mobile app and fish tank application suite capabilities (1.5, 3.5)

2019 FALL NRCC MEETING SUMMARY

The Bostonian – 26 North St., Boston, MA
November 20-21, 2019

Attendees

Atlantic States Marine Fisheries Commission (ASMFC)
Patrick Keliher, Chair
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
G. Warren Elliott, Vice-Chair
Dr. Chris Moore, Executive Director
Brandon Muffley, Staff
Dr. John Boreman, Chair, Scientific and Statistical Committee (SSC)

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

NOAA Fisheries Northeast Fisheries Science Center (NEFSC)
Dr. Jon Hare, Science and Research Director
Dr. Michael Simpkins, Chief, Resource Evaluation and Assessment Division
Dr. Jim Weinberg, Stock Assessment Workshop (SAW) Chairman

NOAA Fisheries Greater Atlantic Regional Fisheries Office (GARFO)
Mike Pentony, Regional Administrator
Sarah Heil, Assistant Regional Administrator for Sustainable Fisheries
Emily Gilbert, Sustainable Fisheries Division (NRCC staff support)
Kyle Molton, Sustainable Fisheries Division (NRCC staff support)
Dave Gouveia, Assistant Regional Administrator for Analysis and Program Support Division

Guests
Diane Borggaard, GARFO
Amanda McCarty, NEFSC Fishery Monitoring and Research Division Chief
Liz Sullivan, GARFO (new NRCC coordinator)

Public Attendees
None

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

– Day 1 –

1. NMFS Policy Directive 01-101-10 "Framework for determining that stock status determination and catch specifications are based on the best scientific information available (BSIA)"

As briefly discussed at the Spring 2019 NRCC meeting, this policy, which became effective on May 7, 2019, aims to provide clarity and increase transparency in how BSIA determinations are made and documented in the context of stock status determinations and catch specifications. The framework requires that within 3 years (i.e., by May 2022), the regions should develop their own regional BSIA framework to outline how this directive will apply to each region. At this meeting, the NRCC discussed how to develop a regional framework and decided to develop a working group consisting of one member per organization (NEFSC, ASMFC, NEFMC, MAFMC, and GARFO; **Action Item #1**). Additionally, the Councils will also select an SSC member to join the working group and assist in discussions.

Although the NRCC decided to start this process by establishing a single working group, not all members were ready to commit to one process for both Councils. The NRCC agreed that the working group can look into the feasibility of which approach is best (i.e., one regional process for both Councils, or two distinct processes).

Some NRCC members asked if there was any type of NMFS approval process once these regional frameworks are developed. Following the meeting, GARFO has learned that these frameworks do not require approval. NMFS Headquarters will ask for periodic updates on the development of these frameworks over the next 3 years and will want a final version. It is the responsibility of each region to make their documents publicly available, once finalized.

2. Data Management Update

Mr. Dave Gouveia and Ms. Amanda McCarty provided updates on electronic monitoring, electronic reporting, and Fishery Dependent Data Initiative (FDDI) topics.

Since the last FDDI update, Mr. Gouveia and Ms. McCarty solidified their FDDI Oversight Committee membership and have met to help the work of the Technical and Regulatory Teams. The Technical Team leads are Mr. Michael Palmer and Ms. Holly McBride from the NEFSC and the Regulatory Team lead is Barry Clifford from GARFO. Team membership has also been established (except a Regulatory Team representative from the NEFMC, which is pending). The Technical (mostly NEFSC staff) and Regulatory (mostly GARFO staff) Teams have met and moved forward with the following topics:

- The Regulatory Team completed an electronic Vessel Trip Report (eVTR) roadmap (strategic document) for how to move forward with converting all paper reporting to electronic reporting and are currently working with both Councils on that initiative now.
- The eVTR Roadmap outlines a 4 phased approach to eVTR advancement:
    - Phase I - convert all users to electronic reporting (now - 2020)
    - Phase II - One Stop Reporting (summer 2020)
    - Phase III - Customized logbooks (late 2020/early 2021)
    - Phase IV - FDDI integration whereby eVTR is utilized to capture vessel input data that is used to feed other systems including PTNS, VMS, IVR, Catch Reports, etc., thus consolidating industry's reporting requirements and eliminating redundant data collection.
- In support of the Councils' omnibus framework action for eVTRs, the Regulatory Team is making progress on data management from various applications, including developing instantaneous data auditing and improved eVTR Technical documentation for new and existing eVTR vendors.
- Based on lessons learned from the for-hire eVTR initiative and the implementation of electronic dealer reporting, outreach endeavors are ongoing in consultation with MAFMC staff to prepare the commercial fishery for eVTR implementation.
- The Regulatory Team has received funding to host a workshop in late January or early February with all partners, including the Highly Migratory Species Division, NMFS Headquarters, and the Southeast Region, to develop specifications to satisfy all reporting burdens that will support the One Stop Reporting initiative. The ultimate goal is for eVTRs to serve as the one application that has all of the reporting requirements.
- Progress is beginning on developing a one-stop shop for reporting (i.e., one application for all reporting requirements) and customizing streamlined logbooks that remove the requirement for additional or duplicative reports.
- The Technical Team is focused on updating the FDDI implementation plan in the face of changes to eVTRs, the one-stop shop for reporting, electronic monitoring, Amendment 23 to the Northeast Multispecies Fishery Management Plan (FMP), and dealer data transitions.
- The goal is to have the Pre-Trip Notification System (PTNS) be the avenue to integrate unique trip identifiers which would communicate with other reporting systems. For systems that do not develop unique trip identifiers, they would be created through some other platform (e.g., eVTRs) to reduce reporting burden and streamline data management.
- The Technical and Regulatory Teams are developing a roadmap for future work and this will be circulated through GARFO and the NEFSC and then distributed to the Councils and Commission.
- Tracking of early FDDI success will occur through measuring eVTR usage in commercial fisheries, measuring the degree of direct linkages between eVTRs and dealer reports using unique trip identifiers, and measuring the degree of direct linkages between eVTRs and observer reports linked through unique trip identifiers.

Dr. Chris Moore asked how this work is integrated with work at the national level and with other regions. Ms. McCarty noted that they are communicating with NOAA Fisheries Office of Science and Technology about FDDI progress. This region is unique in terms of all our

reporting and data streamlining complexities with all our various fisheries and the outcome of the FDDI initiative may help inform other regions.

Mr. Tom Nies asked if the goal is to put all fishery dependent data in one warehouse through the Atlantic Coastal Cooperative Statistics Program (ACCSP). Mr. Gouveia confirmed that the goal is for one data warehouse, hosted through ACCSP, and that data could be pulled for analysis purposes by partners.

Dr. Michael Simpkins provided a report on the status of a shared GARFO-NEFSC Catch Accounting and Monitoring System (CAMS) project. Dr. Simpkins noted that the goal of this project is to move to one shared catch accounting and monitoring system for quota monitoring and assessment needs. A working group has formed that will lay out the plan for what the requirements are for both systems and how to meet the needs for both assessments and monitoring in one system. This working group will also consider one methodology for developing discard estimates.

After a brief discussion, the NRCC requested an update on the progress of the CAMS project at the Spring 2020 meeting (**Action Item #2**).

3. Aquaculture

Mr. Mike Pentony briefly discussed the current status of the Gulf of Mexico aquaculture litigation and how that is impacting our region. In the Gulf of Mexico case, the judge found that aquaculture did not meet the definition of fishing as envisioned by the Magnuson-Stevens Fishery Conservation and Management Act (MSA) and that the MSA could not be used to manage aquaculture activities in the Economic Exclusion Zone (EEZ), at least in the Eastern District of Louisiana That decision is under appeal by the government.

At the recent Council Coordination Committee meeting, Mr. Sam Rauch clarified that fishing regulations only apply to aquaculture if it is clear that a Council intended them to. At GARFO, we are currently interpreting that aquaculture involving federally managed species would not need an exempted fishing permit to operate within the EEZ and would not be bound by any fishing regulations, unless a Council has an explicit aquaculture policy. Because the NEFMC has such a policy and implemented a framework a number of years ago that included regulations for "frameworking" aquaculture projects into an FMP, aquaculture proposals involving federally managed species would still go to the NEFMC for review and incorporation, a process outlined in the NEMFC's 1997 aquaculture policy. Because the MAFMC does not have a similar policy, Mr. Pentony noted that the species managed by the MAFMC could be cultured, assuming the aquaculture proposal was approved through the U.S. Army Corps of Engineers, the Environmental Protection Agency, and Coastal Zone Management Act processes. Consultations with those entities would still need to be obtained through GARFO (e.g., those required through the Endangered Species Act, Marine Mammal Protection Act, MSA's essential fish habitat provision, etc.), without going through the Council or requiring any special permits through GARFO's Sustainable Fisheries Division.

The NRCC briefly discussed the issue. Mr. Pentony noted that the Councils may want to wait to see how the litigation is resolved. If the Department of Commerce (DOC) wins the appeal, the Councils may want to move ahead to manage aquaculture at a Federal level through an Aquaculture FMP action. If DOC does not win the appeal and the federal government decides to apply the court decision nationally, the MAFMC may want to look at the NEFMC policy and develop its own to allow for more involvement in aquaculture initiatives of federally managed species.

It was clarified that the Councils and ASMFC would be involved in reviews of aquaculture site screening analyses that occur for proposed aquaculture operations in the EEZ and that this conversation pertains specifically to permitting aquaculture activities for federally managed species. The NRCC requested that the GARFO Regional Aquaculture Coordinators attend the next NRCC meeting to provide an overview of plans to involve the Councils and ASMFC in the aquaculture site screening process and listen to any NRCC feedback (**Action Item #3**).

4. Jurisdictional Issues and Shifting Stocks: Introduction to Scenario Planning

Ms. Diane Borggaard from GARFO's Protected Resources Division provided an overview of scenario planning, how it differs from management strategy evaluations (MSE), and NMFS scenario planning efforts.

Following the presentation, the NRCC discussed the importance of selecting the most critical and uncertain drivers related to shifting stocks and climate change and setting up an appropriate matrix. Dr. Moore noted that the MAFMC has listed scenario planning as a priority for 2020, which would be a region-wide initiative with both the Southeast and New England. The NRCC generally agreed to move forward with scenario planning as a way to determine the objectives and goals of jurisdictional issues related to shifting stocks. While the MAFMC continues to go through its scenario planning exercise, the NRCC agreed to put together a planning/scoping team to explore East Coast scenario planning (**Action Item #4**). This working group would include representatives from all NRCC partners, as well as representatives from NMFS Headquarters, the Southeast Regional Office, the Southeast Fisheries Science Center, and the South Atlantic Fishery Management Council. The goal for the next NRCC meeting would be for this group to put together a proposal that would include the scope, costs, effort, necessary meetings, and available resources. The NRCC will then review the proposal and decide how to move forward.

5. Priorities Discussions

The NEFSC, MAFMC, NEFMC, ASMFC, and GARFO presented their list of priorities to-date for 2020.

During this discussion, Mr. Nies noted a process change with how the NEFMC deals with mid-year priority adjustments: Once priorities for a given year are adopted in December, requests for changes in the middle of the year may only occur if they are adopted by two-thirds of the NEFMC and the topics have been vetted through the respective Oversight Committees.

Mr. Pentony and Dr. Jon Hare noted that many staffing resources continue to go into offshore wind energy projects. Effort in this area in 2020 is expected to increase substantially compared to 2019. GARFO is also putting many resources into right whales. Mr. Pentony noted that the regional strategic plan (currently with NMFS Headquarters for review) will be finalized during the January and February Council meetings. The current plan is for GARFO's annual implementation plan to be included as an appendix within the regional strategic plan. Mr. Pentony will present this annual implementation plan to the NRCC at the Spring 2020 meeting (**Agenda Item #5**).

Mr. Pentony also reminded the Councils of their respective lists of deregulatory items that they provided NMFS Headquarters last year. Many of those items require Council action and some may or may not make it into the 2020 priorities. Other items may fall under GARFO's MSA 305(d) authority. GARFO will continue to work with the Councils on this initiative.

6. Offshore Wind Energy

Mr. Pentony provided a brief overview of current wind activities. Over the last few months, GARFO has been internally thinking about how to make our review process with the Bureau of Ocean Energy Management (BOEM) through Executive Order 13807 (the "One Federal Decision" policy) more efficient.

Dr. Hare noted that the NEFSC is exploring survey issues with an internal working group, but progress is slow due to all members trying to keep up with their regular work duties. Both GARFO and NEFSC are capacity limited and are looking for ways to bring in additional resources into the region specific to offshore wind energy development. BOEM has asked the NEFSC what would be needed to address the survey issues and the NEFSC has responded with a proposal for surveying through wind energy projects. Specifically, the proposal outlined an observing system simulation experiment, similar to an MSE, which would look into what survey design would be needed to adapt to a new system. The hope is to link that simulation into a wider MSE to determine what that survey design change would do in terms of impacts to assessments. The NEFSC is also working on a proposal for new research designs for survey equipment and nets.

Dr. Moore asked if there are other examples where these issues have occurred and successfully been addressed. Dr. Hare noted that the NEFSC has communicated with European countries through the International Council for Exploration of the Sea (ICES). Many countries are struggling with similar issues and the NEFSC continues to invest time in those communications.

The NRCC continues to support regular updates on Offshore Wind Energy topics at future NRCC meetings.

7. Update on the Ecosystem Roadmap Implementation Plan

Dr. Simpkins provided a brief update on the Ecosystem Roadmap Implementation Plan. In addition to NEFMC and MAFMC ecosystem-based fisheries management (EBFM) initiatives, the NEFSC is working on enhancing the science to understand ecosystems. There are three groups currently involved in various science-related projects related to EBFM:

- The Working Group on the Northwest Atlantic Regional Sea (WGNARS) is one of seven ICES regional integrated ecosystem assessment working groups. NRCC-related participants include the NEFSC, MAFMC, and NEFMC.
- The Canadian-U.S. Ecosystem Science (CAUSES) is a relatively new group that is working to create research products/conversations to support Gulf of Maine ecosystem-based fisheries management. The NEFSC is currently the only NRCC-related participant.
- The Eastern Maine Coastal Current Collaborative (EM3C), which is a project between the Maine Center for Coastal Fisheries, NMFS, and the Maine Department of Marine Resources, is focused on developing a research framework that supports EBFM in the Eastern Maine Coastal Current and its associated watersheds. The NEFSC is currently the only NRCC-related participant.

The NRCC discussed current coordination of EBFM initiatives across NRCC partners. Mr. Nies asked how CAUSES and EM3C would apply to NEFMC management efforts. Although the NEFSC has requested participants from NEFMC for these efforts, staffing has been an issue for the NEFMC due to other priorities. Dr. Hare asked how the wider NRCC wants to be involved in these activities. There was no decision on that question, but the Councils agreed to present on each other's EBFM initiatives at future meetings, if there is interest.

– Day 2 –

8. Stock Assessment Schedule and Related Topics

Review of 2019 Implementation of Management Track Assessments

Lead by Dr. Simpkins, the NRCC debriefed on the trial year of the NRCC stock assessment process adopted at the Fall 2018 NRCC meeting. Topics included terms of reference, assessment oversight panels, peer reviews, report delivery, and communications throughout the process. Thoughts on what went well and what could be improved are documented in the attached debrief summary. The one action item that resulted from this discussion (**Action Item #9**) was related to the NEFSC setting up a staff-to-staff meeting with NEFMC to discuss the content of the assessment reports and data portals for the management track assessments.

An additional topic of discussion was how to incorporate a research-track topic result into a management track. Dr. Simpkins clarified that when a research track model is approved, the NEFSC would run a Level 1 management track assessment with any updated survey and fishery-dependent data that are available.

Review of 2020 Management and 2020-2025 Research Track Assessment Schedules

The NRCC reviewed the annual schedule of assessment events for 2020, which included change requests since the Spring 2019 NRCC meeting, and made no adjustments.

During review of the 2020-2025 research track assessment schedule, the NRCC made no adjustments to the schedule through 2024, but there were requests to possibly include a topic related to offshore wind energy and surveys for 2025. Additionally, Dr. Moore requested that the NEFSC provide the NRCC with information about what would be needed (i.e., data, research) in order for blueline tilefish and chub mackerel to be considered for 2025. Additional requests for 2025 included GOM/GB and SNE lobster and a topic related to retrospective patterns. The NEFSC agreed to develop short summaries or "proposals" for each proposed research topic listed in "out year priorities." These proposals will then be reviewed by the past NRCC Assessment Working Group, which will provide recommendation(s) to the NRCC regarding 2025 research track topics or species (**Action Item # 6**). The proposals and recommendations will be reviewed by the NRCC at its Spring 2020 meeting.

There was an additional discussion regarding confusion over the "Level 0" data updates. The NEFSC continues to work on a system that would automate these updates, but Dr. Simpkins confirmed this system would not be ready for 2020. In the interim, Dr. Simpkins agreed that Councils and SSCs interested in data updates can still obtain them from the NEFSC and agreed to provide some guidance on the content of "Level 0" data updates in the context of assessment related outputs (**Action Item # 7**).

Update on the Assessment Communications Framework

Mr. Bob Beal discussed the revisions to the assessment communications framework document since the last NRCC meeting, noting that the document may need further revisions to make it more simplistic or may not be needed. The NRCC agreed with Mr. Beal's suggestion of forwarding the assessment schedules approved by the NRCC to all partners' communications teams on an annual basis and allowing for those groups to coordinate and plan for outreach. The ASMFC will set up the call for coordination regarding the 2020 assessment schedule (**Action Item #10**).

Standardized Bycatch Reporting Methodology (SBRM) 3-Year Review

Dr. Hare discussed that the next SBRM 3-year review is scheduled to begin in April 2020, with a final report available in October 2020. Noting that the last review took 2.5 years to complete, Dr. Hare proposed using a more simplistic approach by compiling the results from the prior 3 annual reports review and removing the extensive analysis of bias and accuracy (i.e., an analysis on bias and accuracy would still be included with updated data, but without randomization tests). The NRCC was generally supportive of this suggestion. Dr. Moore noted that for this 3-year report, the NEFSC could chair, rather than the NEFMC and MAFMC co-chairing. The NEFMC agreed. The NEFSC will determine if they are able to chair and will lead the development of a Fishery Management Action Team for the 3-year review (**Action Item #8**).

Next Meeting

The Spring 2020 NRCC meeting is scheduled for **May 13-14, 2020**. The location will either be Baltimore or Philadelphia. MAFMC is chairing and hosting.

Attachment: Summary of Debrief on Trial Year of the NRCC Stock Assessment Process

Summary of Debrief on Trial Year of the NRCC Stock Assessment Process

Terms of Reference (TOR):

- *What went well?*
  - Consistency across management track assessments
- *What could be improved?*
  - Clarity on vetting process?
  - Difference in TORs by level should be considered

Assessment Oversight Panels (AOP):

- *What went well?*
  - Increased flexibility well received on all sides
  - AOP participants – manageable process, value
- *What could be improved?*
  - Clarity on AOP scope
  - Scheduling and communications earlier
  - Concerns re consistency in level assignments through time
  - Important to clearly capture rationale for AOP decisions – perhaps a form for that
  - Simplify reporting (e.g., form in bullet above)
  - Some concerns re level 1 decisions (including MRIP in 1)

Peer Review(s):

- *What went well?*
  - Process and flexibility well received by panel
  - Data portal and public access to data and results
  - Presentations on data portal very helpful
  - Time allotted was sufficient
- *What could be improved?*
  - Scheduling and communications earlier
  - Clarification/learning scope of changes allowed by each level
  - Consider clarifying guidelines for levels
  - Ecosystem context inclusion
  - Data portal – detail differs by assessment, not all management information available in portal (e.g., where catch data came from); consistency would be good – ADIOS connections?
  - Format of data accessibility (R or SAS input files vs. other formats)
  - More clarity on levels (e.g., stock determination criteria changes by level)
  - Consider flexibility in peer review … carefully … [also manage workload]
  - Who decides what is in or out (AOP vs Peer Review decision) – who is referee
  - Ensure consistency between plan to AOP and what done – clarify what have to go back to AOP on – maybe a check-in
  - Clarity on review of Level 1 assessments (Center QA/QC – describe it – SSC consideration on how to consider/review those … perhaps more detail in reports? – Discussion with Chairs)

Report Delivery

- *What went well?*
    - Able to provide some Level 1 reports early
    - Consistency in reporting (particularly September assessments)
- *What could be improved?*
    - Posting of final reports delayed
    - Inconsistency in reporting (especially between assessments)
    - Ensure AOP report appended
    - Staff-to-staff discussions about content of reports and data portal to ensure providing what is needed (e.g., historic performance of assessments) – [also communications with NMFS Headquarters]
    - Question regarding how much effort required for summary information up front
    - Pressure to reduce material on web [also consider in staff-to-staff discussions]

Communications:

- *What went well?*
    - Advent of new process improved stakeholder communications
- *What could be improved?*
    - Many communications were late
    - Some communications (initially) didn't reach everyone
    - Concerns about how to bring in alternative analyses – unfamiliarity with the two track process
    - Infrastructure for input – how connect with process
    - Define pathways for new information to enter assessment process