EAST COAST CLIMATE CHANGE SCENARIO PLANNING

Mid-Atlantic Fishery Management Council Update
April 5, 2022
Initiative Update

1. Summarize work undertaken since December 2021 update to Council

2. Discuss activities for the next phase of the initiative: Scenario Creation
Initiative Objectives

1. Explore how East Coast fishery governance and management issues will be affected by climate driven change in fisheries, particularly changing stock availability and distributions.

2. Advance a set of tools and processes that provide flexible and robust fishery management strategies, which continue to promote fishery conservation and resilient fishing communities, and address uncertainty in an era of climate change.
East Coast Scenario Planning Initiative Timeline

Steps in this Multi-Year Initiative

**Orientation:**
establish draft objectives, expected outcomes and project focus

**Scoping:**
reach out to stakeholders to gather input on forces of change that could affect fisheries over the next 20 years

**Exploration:**
analyze forces driving change in greater detail

**Creation:**
conduct workshop sessions to construct and discuss scenarios

**Application:**
use scenarios to identify actions and recommendations

**Monitoring:**
identify key indicators to monitor change and outline next steps

- **Fall 2020 – Summer 2021**
- **Summer – Fall 2021**
- **Winter 2022**
- **Summer 2022**
- **Fall 2022-Winter 2023**
Scoping activities:

- Introductory materials (website, brochures, videos)
- 3 introductory webinars (over 250 attendees)
- Online questionnaire (383 responses)

Identified range of oceanographic, biological, social & economic **drivers of change** over next 20 years

Final scoping summary available at [https://www.mafmc.org/climate-change-scenario-planning](https://www.mafmc.org/climate-change-scenario-planning)
## Exploration Phase: Drivers of Change Webinars

<table>
<thead>
<tr>
<th>Oceanographic Drivers of Change</th>
<th>Biological Drivers of Change</th>
<th>Social &amp; Economic Drivers of Change</th>
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<tbody>
<tr>
<td>February 14, 2022</td>
<td>February 23, 2022</td>
<td>March 2, 2022</td>
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1. Ocean temperature
2. Currents
3. Long term cycles
4. Cold pool
5. Water chemistry
6. Primary production
7. Extreme weather
8. Sea level rise

7. Distribution changes
8. Productivity changes
9. Seasonal timing
10. Habitat vulnerability
11. Disease & Harmful Algal Blooms

12. Population growth & demographics
13. External cost factors
14. Infrastructure and working waterfronts
15. Consumer demand and market dynamics
16. Technological change
17. Competing ocean uses
18. Social vulnerability & environmental justice
# Exploration Phase: Drivers of Change Webinars

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
<th>Participants</th>
<th>Speakers</th>
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<tbody>
<tr>
<td>Oceanographic Drivers of Change</td>
<td>February 14, 2022</td>
<td>269 attendees</td>
<td>Dr. Charlie Stock, NOAA GFDL, Zack Klyver, Blue Planet, Dr. Sang-Ki Lee, NOAA AOML, Dr. Shannon Mesek, NEFSC, Dr. Vince Saba, NESFC, Capt. Chris Roebuck (unable to attend)</td>
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<tr>
<td>Biological Drivers of Change</td>
<td>February 23, 2022</td>
<td>215 attendees</td>
<td>Dr. Janet Nye, UNC, Dr. Mandy Karnauskas, SEFSC, Capt. Ira Laks, Jupiter, FL, Dr. John Manderson, Consultant, Dr. Malin Pinsky, Rutgers</td>
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<tr>
<td>Social &amp; Economic Drivers of Change</td>
<td>March 2, 2022</td>
<td>176 attendees</td>
<td>Dr. Doug Lipton, NOAA, Dr. Matt Cutler, NEFSC, Dr. Kathy Mills, GMRI, Rick Robins, RWE, Capt. Tom Roller, Beaufort NC, Dr. Matt McPherson, SEFSC</td>
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Exploration phase summary now posted to:  
https://www.mafmc.org/climate-change-scenario-planning

1. Introduction

The East Coast Climate Change Scenario Planning initiative is being conducted to explore governance and management issues related to climate change and fishery stock distributions.

The Exploration Phase of the initiative looks in detail at the future - at the drivers of change that are likely to shape conditions facing East Coast fisheries over the next 20 years. These factors will provide the building blocks for the construction of a set of scenarios in the next phase of the process.

Exploring the future of East Coast fisheries in an era of climate change is a complex task, with many drivers of change. These drivers were clustered into three broad categories:

1. Oceanographic Drivers of Change (Monday, February 14, 3-4:30pm)
2. Biological Drivers of Change (Wednesday, February 23, 3-4:30pm)
3. Social and Economic Drivers of Change (Wednesday, March 2, 3-4:30pm)

For each of these categories, we created a set of briefing materials that described component drivers of change - those briefing materials are contained in the appendices to this document.

We also organized a series of three webinars involving speakers and panelists discussing their views on the drivers of change that they felt were most meaningful. Each webinar was attended by over 175 participants. This document provides a summary of each of the three webinars. Recordings of each webinar are available at: https://www.mafmc.org/climate-change-scenario-planning

The themes and ideas raised in the briefing materials and during the webinar conversations will be used to shape the scenarios in the next phase of the initiative.
Next Phases: Scenario Creation, Applications, Monitoring

Steps in this Multi-Year Initiative

- **Orientation**: establish draft objectives, expected outcomes and project focus
  - Fall 2020 – Summer 2021

- **Scoping**: reach out to stakeholders to gather input on forces of change that could affect fisheries over the next 20 years
  - Summer – Fall 2021

- **Exploration**: analyze forces driving change in greater detail
  - Winter 2022

- **Creation**: conduct workshop sessions to construct and discuss scenarios
  - Summer 2022

- **Application**: use scenarios to identify actions and recommendations
  - Fall 2022-Winter 2023

- **Monitoring**: identify key indicators to monitor change and outline next steps
  - Fall 2022-Winter 2023
Create 3-5 different scenarios to consider how climate change might affect East Coast fisheries in the next 20 years

- Different possible combinations of oceanographic, biological, and socioeconomic conditions

- Plausible, challenging, relevant, memorable stories that describe what we **might** face over the next 20 years
2.5 day in person workshop
Approximately 75 participants to be selected based on responses to online application – now available at https://www.mafmc.org/climate-change-scenario-planning
Strive for balance across stakeholder groups, regions, involvement in current process & new voices
Partial webinar streaming (plenary discussions only)
Following the Workshop: Scenario “Deepening”: Late Summer 2022

- A series of ‘scenario deepening’ webinars: seek comment on scenarios created at the workshop, adding details so that the storylines are fleshed out and as relevant as possible

- Opportunity for involvement for those unable to attend the workshop
Use scenarios as a **platform** to discuss future fishery governance and management issues:

- How well would our current systems work if these new scenario conditions were to occur?
- What would need to change to better prepare for these scenario possibilities?
- What are the tools and processes that need to be advanced **now** to ensure that fisheries are governed and managed effectively in an era of climate change?
Application Phase: Fall 2022-Winter 2023

- Working sessions to be held in a variety of locations and formats, including as part of Council/Commission meetings as appropriate
- **Involvement of managers key at this stage**
- Summit meeting held in late Fall, bringing together representatives from each working session. Task to review ideas and suggestions and decide upon adaptations and new tools that are suitable and feasible to implement
Project Outputs

- **A set of scenarios** a few stories that describe — in qualitative terms — different ways in which a changing climate might affect the future of East Coast fisheries

- **A better understanding** of the challenges and opportunities facing fishery management in the future

- **A set of near-term and long-term management priorities** that help achieve fishery management objectives under a range of different future conditions

- **Policy recommendations** for broader governance changes that improve our ability to adapt to future scenarios

- **A list of** data gaps, research needs, and monitoring needs for changing conditions

- **A framework** for ongoing conversation and idea generation for all stakeholders to use
- https://www.mafmc.org/climate-change-scenario-planning

- Core Team:

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<thead>
<tr>
<th>Organization</th>
<th>Representative</th>
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<tbody>
<tr>
<td>MAFMC</td>
<td>Kiley Dancy</td>
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<tr>
<td>ASMFC</td>
<td>Toni Kerns</td>
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<td>NMFS GARFO</td>
<td>Travis Ford</td>
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<tr>
<td>NEFMC</td>
<td>Deirdre Boelke</td>
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<td>NMFS NEFSC</td>
<td>Sean Lucey</td>
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<td>SAFMC</td>
<td>Roger Pugliese</td>
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<td>NMFS SERO</td>
<td>Karla Gore</td>
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<tr>
<td>NMFS HQ</td>
<td>Wendy Morrison</td>
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<tr>
<td>Process Facilitator</td>
<td>Jonathan Star, Scenario Insight</td>
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