

EAST COAST CLIMATE CHANGE SCENARIO PLANNING UPDATE

Update to Council Coordination Committee
October 18, 2022



New England
Fishery Management Council

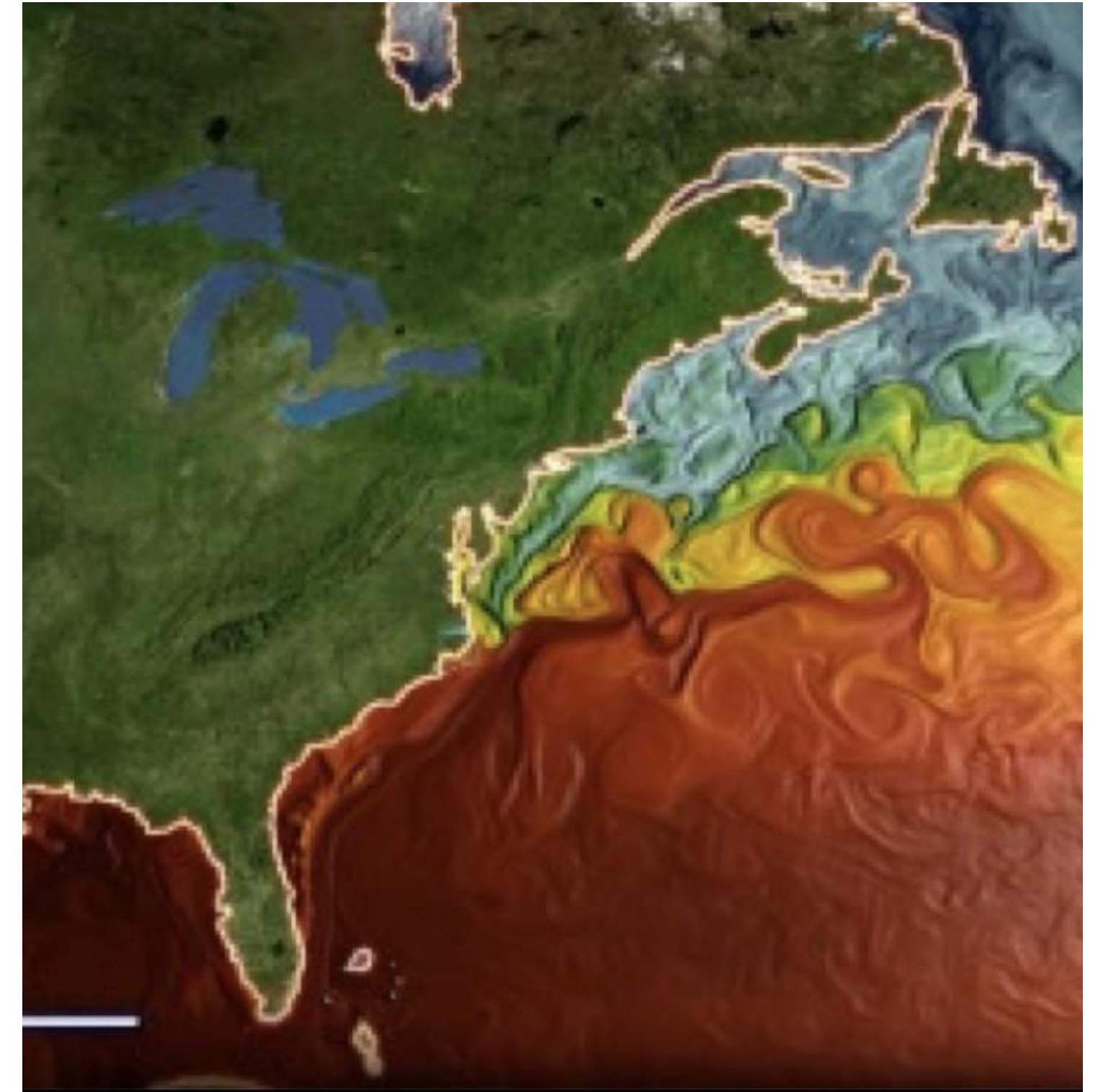


MID-ATLANTIC FISHERY
MANAGEMENT COUNCIL



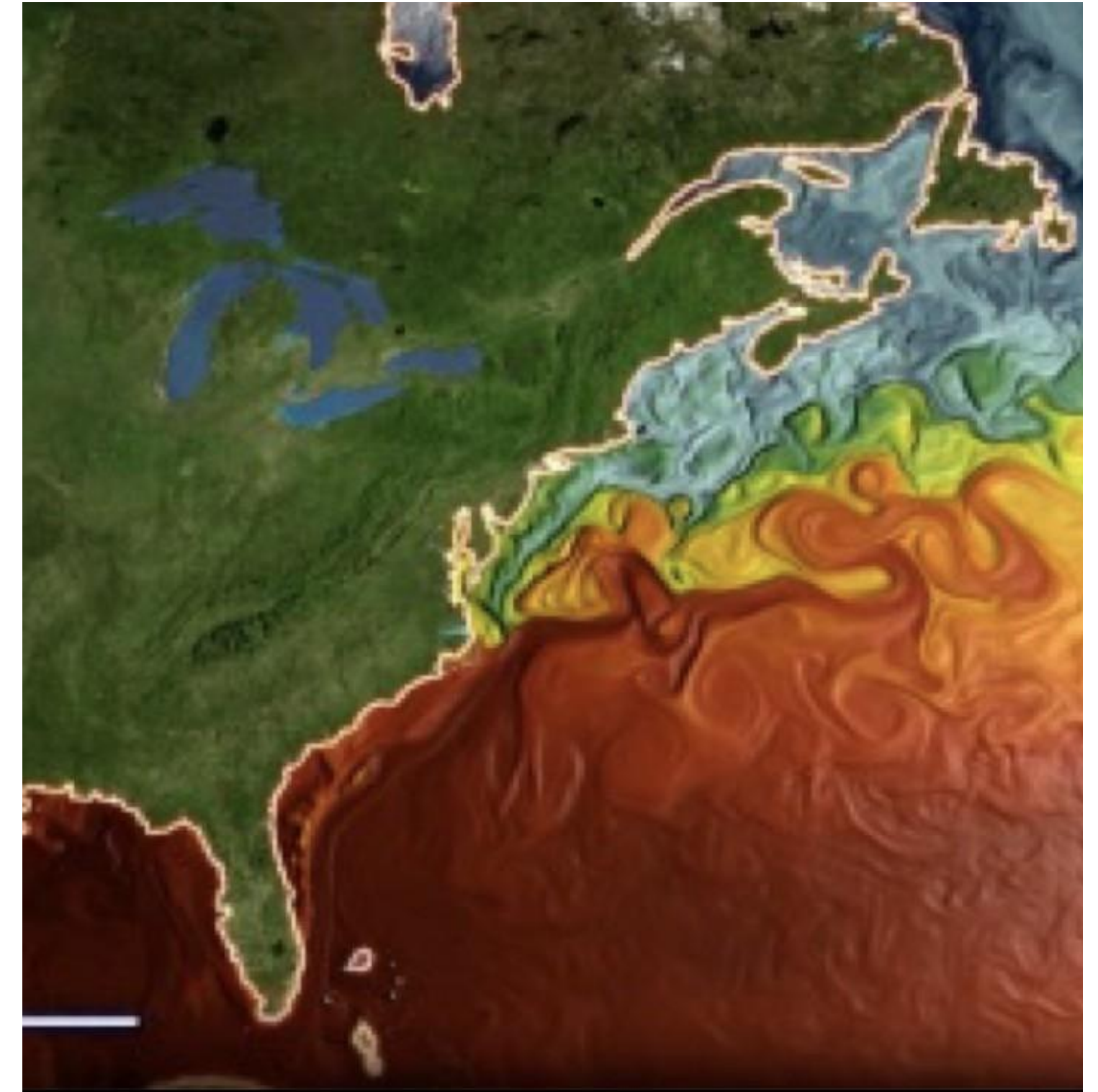
Today's Objectives

1. Update on scenario development since last CCC meeting
 - “Scenario deepening” process; overview of the 4 scenarios
2. Recent manager brainstorming sessions
3. Next Steps



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.



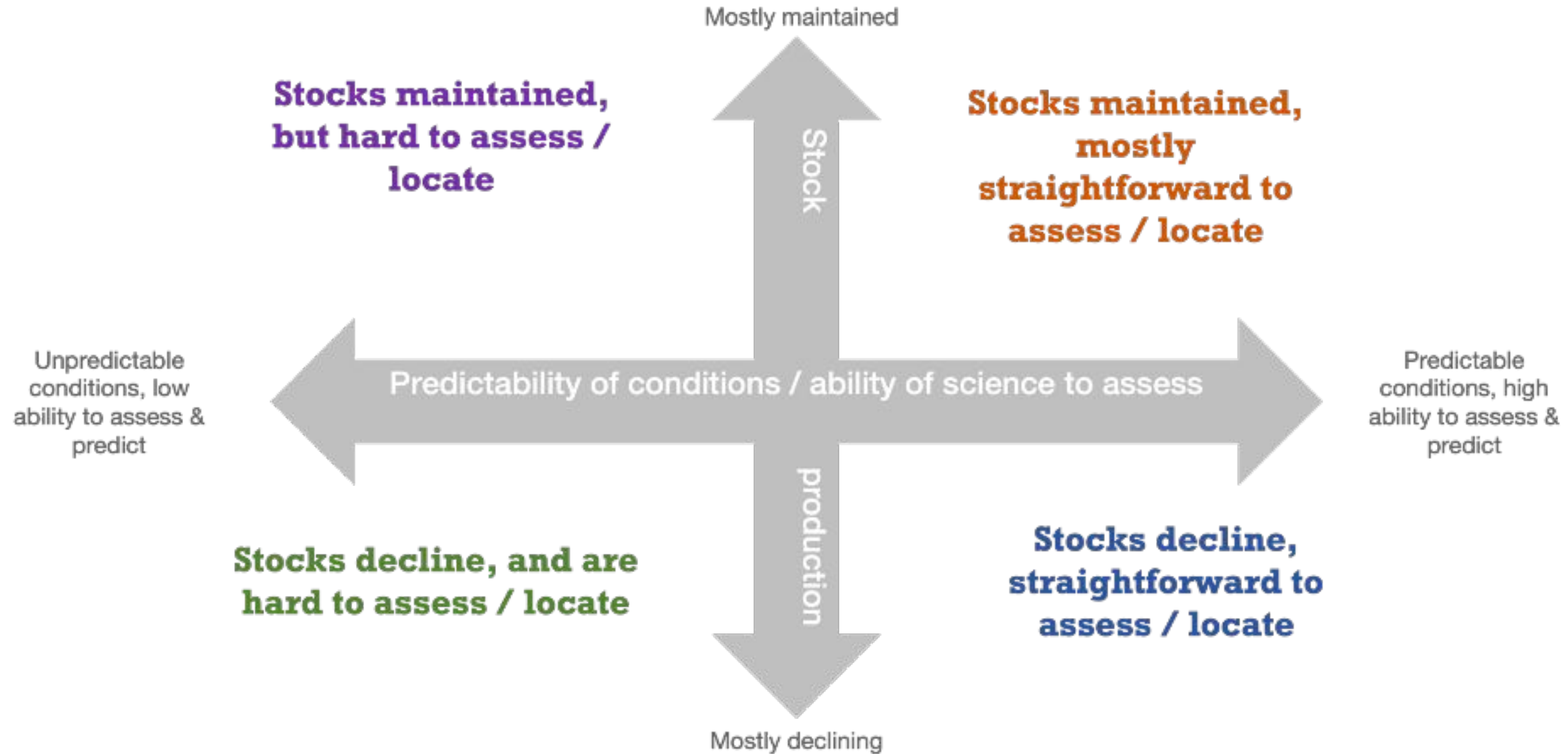
Phases: Scenario Creation, Applications, Monitoring

Steps in this Multi-Year Initiative



Scenario Framework Construction

Combining the uncertainties results in a matrix that creates four different stories of the future



Divergent scenarios, with several common features

1. Ocean temperature continue to warm, affecting marine species biology and distribution
2. Regions exhibit differences in seasonal temperature changes
3. Primary production changes differently in different regions
4. Sea levels rise
5. Changing ocean uses create more competition for fisheries
6. Coastal population grows

Adaptability matters...

Resulting Scenarios: East Coast Fisheries in 2040

Ocean Pioneers:

A 'wild west' of new ocean users, risk-taking fishery operators taking advantage of confusing, unpredictable but ultimately positive conditions.

Unpredictable changes & conditions, low ability to assess

Compound Stress Fractures:

A world with multiple sources of stress face operators and managers, where the industry fractures between some who play it smart, and others who lose out.

Mostly maintained

Checks & Balance:

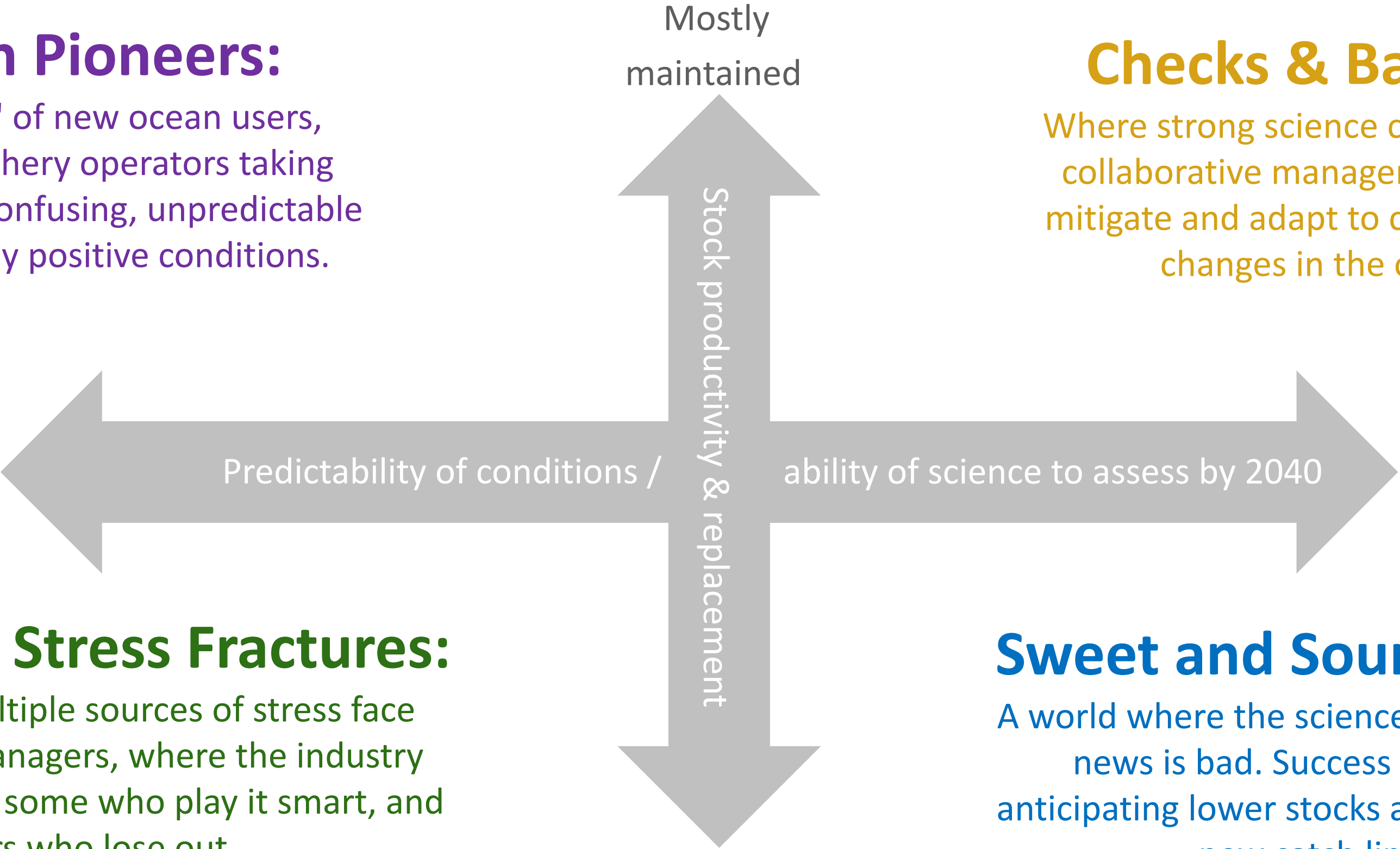
Where strong science combines with collaborative management to help mitigate and adapt to climate-driven changes in the ocean.

Predictable changes & conditions, high ability to assess

Sweet and Sour Seafood:

A world where the science is good, but the news is bad. Success comes from anticipating lower stocks and preparing for new catch limits.

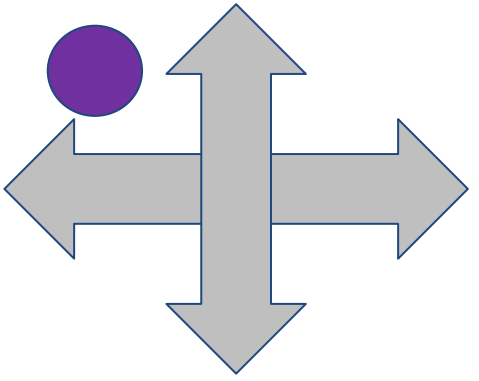
Mostly declining



Features of Each Scenario: East Coast Fisheries in 2040

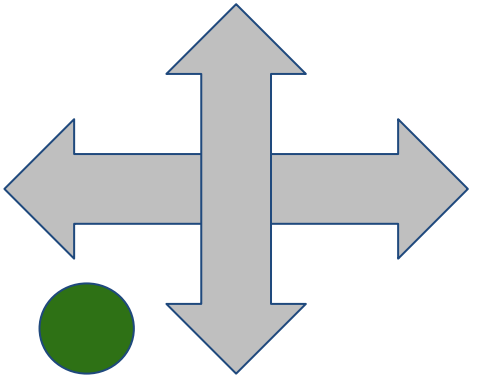
Ocean Pioneers: stocks maintained, but hard to assess / predict

- Weird weather and crazy conditions
- Life on the ocean is remarkably different compared to 20 years ago
- Climate change has prompted more investment in alternative energy and aquaculture
- Seasons and locations of fisheries change unpredictably, and traditional science is unable to make accurate assessments
- Despite this, fishermen report they are encountering plenty of seemingly healthy stocks
- Ocean pioneers thrive in these turbulent conditions. Success doesn't come easy - it requires taking risks (such as investments in new data-gathering technology), deep pockets and an ability to ride out the storms of uncertainty



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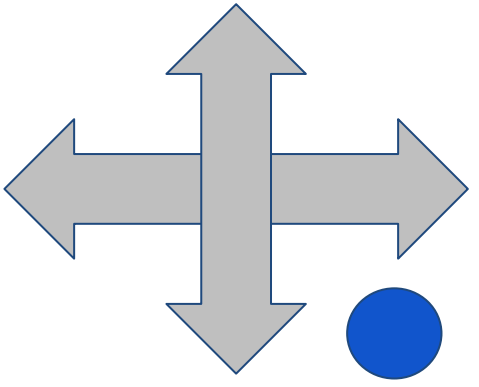
Compound Stress Fractures: stocks declining, and hard to assess / predict



- Several sources of stress have led East Coast fisheries to breaking point by 2040
- Shifts in ocean currents and extreme weather events have tipped ecosystems out of balance
- Major storms lead to more pollution and degraded habitats. Healthy stocks are scarce
- Low abundance leads to reduced harvests and protected species regulations close several fishing grounds
- Science is unable to help, as stock assessments data cannot cope with such a changeable and volatile ecosystem
- Trust between stakeholders is in short supply, illustrated by fractious debates over the siting of offshore wind installations
- Operators are forced to shift to lower trophic level species, and government support is needed to save a few selected fisheries

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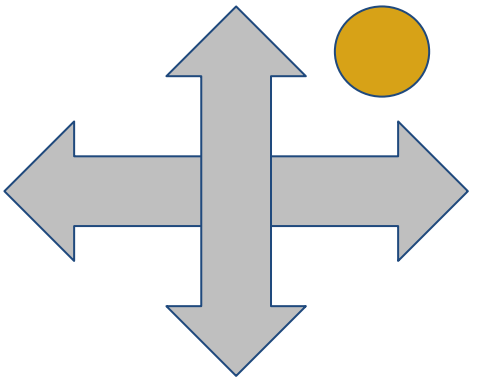
Sweet and Sour Seafood: stocks decline, but straightforward to assess / locate



- The science is good, but the news is bad
- Climate change is affecting ocean and stock conditions in ways long predicted by scientists
- Range shifts; productivity and abundance have declined for most relevant species
- Better forecasting helps fishermen prepare for marine heatwaves and localized die-offs
- Aquaculture provides a much-needed alternative as wild-caught seafood declines, and better science ensures that any pollution dangers are minimized
- There are signs of a few smart management decisions (such as limits on newly arriving species) and adaptation from fishing operators
- However, most management approaches have not adapted to the tougher conditions of today, and those on the horizon

Features of Each Scenario: East Coast Fisheries in 2040

Checks and Balance: stocks maintained, and straightforward to assess / locate



- Good science, smart collaboration, and tolerable conditions allow East Coast fisheries to cope with the challenge of climate change in 2040
- But nothing is easy: stocks shift and expand their ranges, while busier coasts and new offshore activity create accessibility challenges for commercial and recreational fishermen
- Investments in habitat protection and restoration begin to reverse decades of damage and loss
- Science capacity is boosted, delivering improved ocean monitoring, real-time catch reporting and population monitoring
- A prosperous ocean economy leads to competition (e.g., between fisheries and aquaculture) but also collaboration (e.g., as fisheries science is boosted by wind energy installations)
- Gentrification creates concerns over accessibility for the recreational sector

Application Phase: July 2022-Early 2023

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?



Current Phase: Applications

Managers' Meetings

September 19
September 20
October 3

Generate ideas

Council & Commission Meetings

ASMFC: November 7-10
NEFMC: December 5-9
SAFMC: December 5-9
MAMFC: December 12-15

Review & generate ideas

Summit Meeting

February 2023
In person, ~50 participants

Review & prioritize recommendations

1. Management and Industry Adaptability

2. Data & Science

3. Alternative Ocean Uses

4. Cross Jurisdictional Governance & Management

Challenges, Opportunities and Suggested Actions

For Each Scenario...

Adaptability

What does successful adaptability / nimbleness look like for managers? For industry?
What are the main barriers to effective adaptability?
If you knew that this scenario was going to play out, what actions would you take now so that operators, communities and managers could better adapt to cope with these conditions?

Data & Science

What are the biggest data & science challenges/opportunities facing fishery managers?
If you knew this scenario was going to play out, what actions should fisher managers take to ensure that data & science contributed to fisheries' success?

New Ocean Uses

What are the most significant challenges/opportunities for fishery managers posed by new ocean uses?
If you knew this scenario was going to play out, what would you do now to ensure that alternative ocean uses resulted in a positive or minimal impact on fisheries?

Cross-jurisdictional Governance & Management

What major stresses would be placed on existing cross-jurisdictional governance arrangements?
Would current approaches for updating management authority work well? What new ways should be considered?
What management challenges are present for species that move across jurisdictional boundaries?
What actions / changes are needed to better manage species that move across boundaries?

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**Review & prioritize
recommendations**

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

For Additional Information

- <https://www.mafmc.org/climate-change-scenario-planning>
- Core Team:

Organization	Representative
MAFMC	Kiley Dancy
ASMFC	Toni Kerns
NMFS GARFO	Moira Kelly/Travis Ford
NEFMC	Deirdre Boelke/Michelle Bachman
NMFS NEFSC	Sean Lucey
SAFMC	Roger Pugliese
NMFS SERO	Karla Gore
NMFS HQ	Wendy Morrison
Process Facilitator	Jonathan Star, Scenario Insight