

EAST COAST CLIMATE CHANGE SCENARIO PLANNING

Mid-Atlantic Fishery Management Council Scenario Review and Option Generation

December 14, 2022



Scenario Planning: Imagining 2042



Defining Scenarios and Scenario Planning

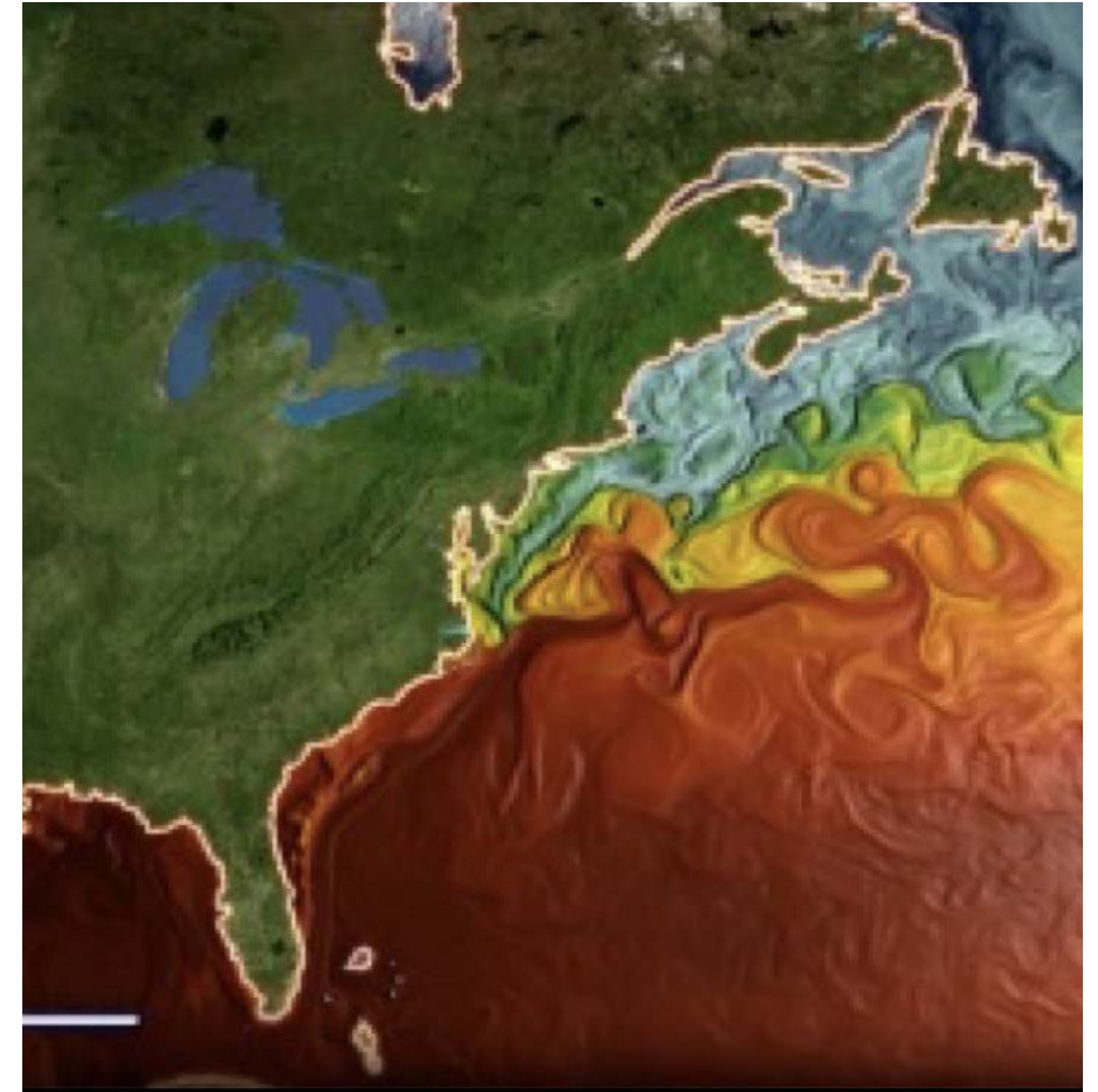
“Scenarios are stories about the ways that the world might turn out tomorrow...”

“Scenario planning uses provocative stories about the future to change the minds and actions of a group of people”



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



Application Phase

Managers'
Meetings

September 19
September 20
October 3

Generate ideas

Council &
Commission
Meetings

ASMFC: Nov 8
SAFMC: Dec 5
NEFMC: Dec 7
MAMFC: Dec 14

Review & generate ideas

Summit Meeting

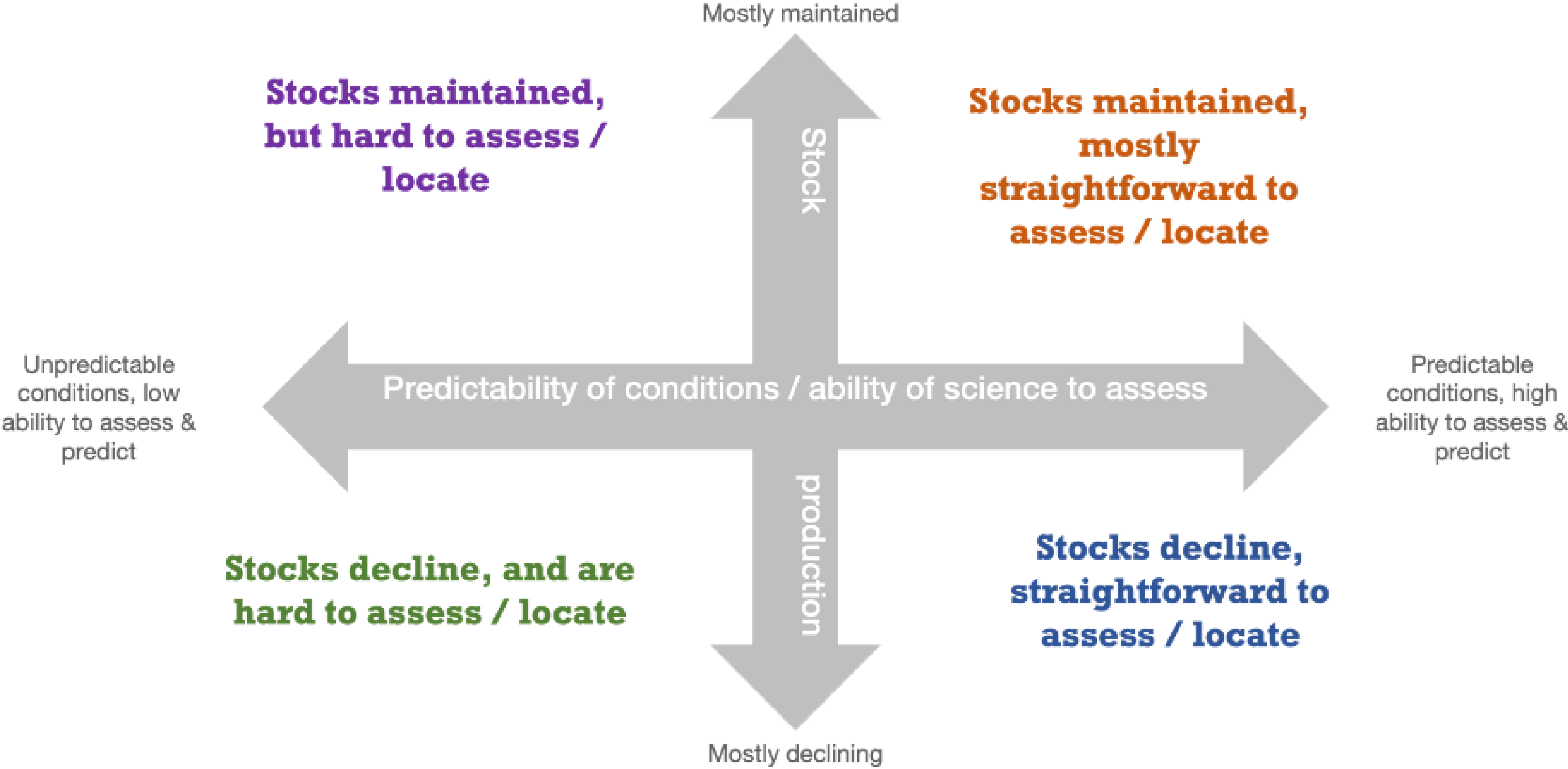
February 2023

Review & prioritize
possible actions

Session Objectives

- Review scenarios that paint 4 different pictures of what 2042 might be like
- Comment on the challenges, opportunities and potential actions generated by a selection of fishery managers
- Identify and discuss the most important issues for the Council to prepare for as climate change continues
- Identify the specifics of the discussions that should be on the agenda at the February Summit Meeting

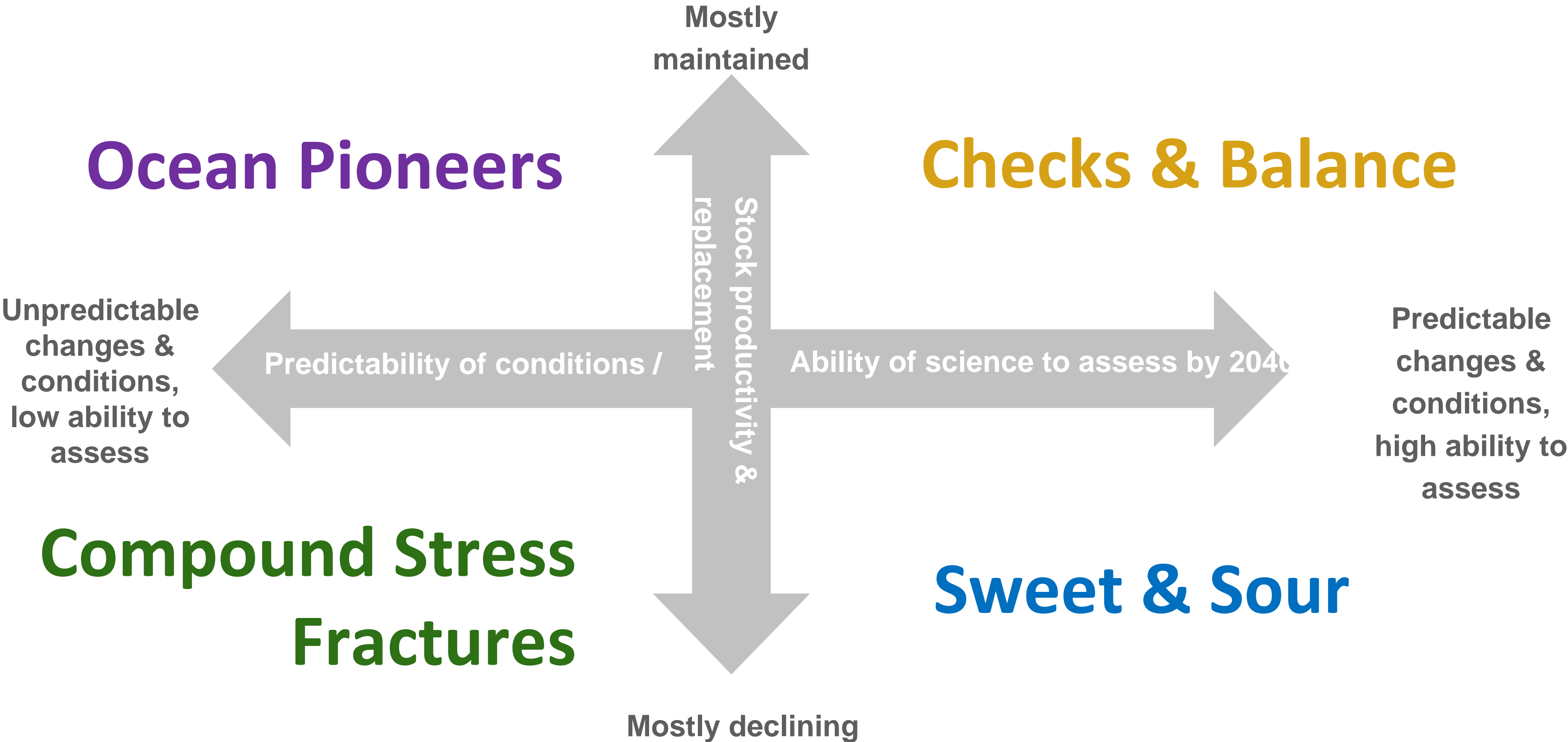
Scenario Framework: East Coast Fisheries in 2040



What can we be sure of in 2042?

1. Ocean temperatures 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

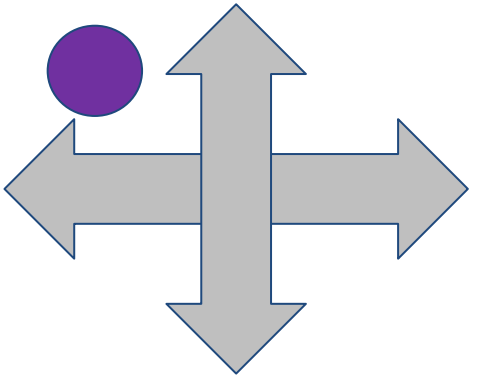
Scenario Framework: East Coast Fisheries in 2042



Scenario Descriptions

Ocean Pioneers

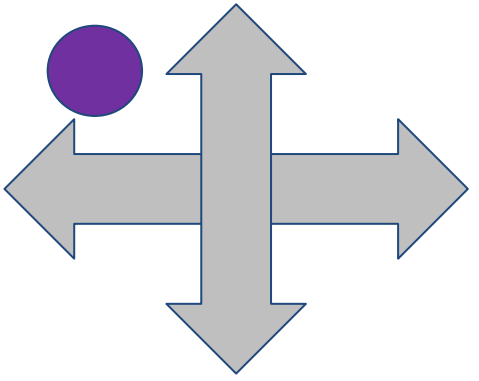
- Crazy ocean conditions & weird weather
- Ocean stocks are resilient, with no damaging climate tipping points
- Seasons and locations of traditional fisheries change unpredictably
- Traditional stock assessments are less reliable
- Real-time data from vessels and other users is more valuable
- Ocean activity (fishing, aquaculture and offshore wind) dominated by entrepreneurs, technology, pioneers
- Winners typically have deep pockets, sharp elbows, new technology and a willingness to take risks
- Uncertainty about how long “abundant” stocks can keep delivering



Ocean Pioneers: Challenges, Opportunities, Potential Actions

- As climate change creates governance ‘turf wars’, consider if/how organizations might compromise on jurisdictional control
- Without accurate information, consider how to adapt if decisions are made on a more qualitative basis
- Current stock assessment process unlikely to work, and could prompt moves towards simpler harvest control rules
- Vessels and new ocean users offer opportunities for fish & environmental data collection

- ***Do you agree with / recognize the challenges, opportunities and possible actions for this scenario?***
- ***What else is important about this scenario that is not yet covered? What would you add?***
- ***See additional responses in the Manager’s Summary document***



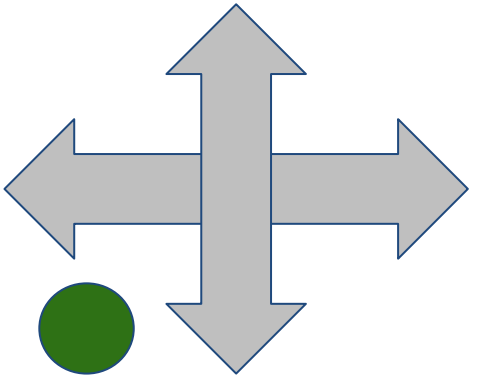
Compound Stress Fractures

- Unpredictable conditions create negative impacts to marine species
- More pollution affecting estuaries, nearshore habitat
- Diseases are prevalent – several marine heatwaves lead to die-offs

- Costs rise and harvest opportunities fall due to low abundance of traditional stocks
- Operators shift effort to lower trophic level species

- Science unable to help; stock assessments rely on insufficient data
- Low levels of trust between different stakeholder groups

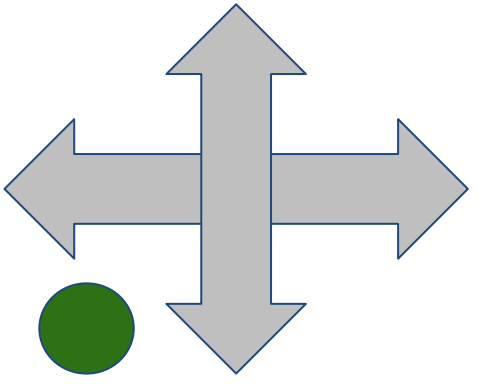
- Government steps in to save a few domestic fisheries
- Fishing no longer the dominant activity in the ocean, competing with other industries for space and attention



Compound Stress Fractures: Challenges, Opportunities, Potential Actions

- Consider managing spatially or by species, or both?
- Give specialized fishermen the opportunity to move up & down coast; allow fixed fishermen to move from one species to another
- Consider how to respond when previously reliable indices for managed species are no longer reliable
- Collaborate with other users for real-time monitoring

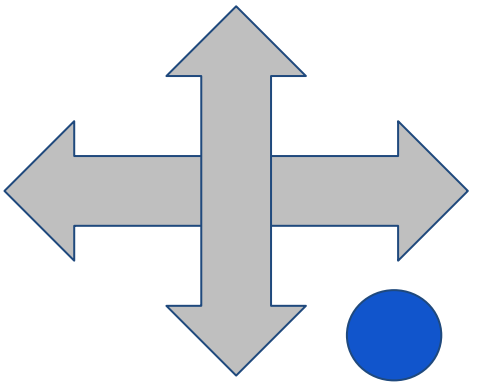
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Scenario Descriptions

Sweet & Sour

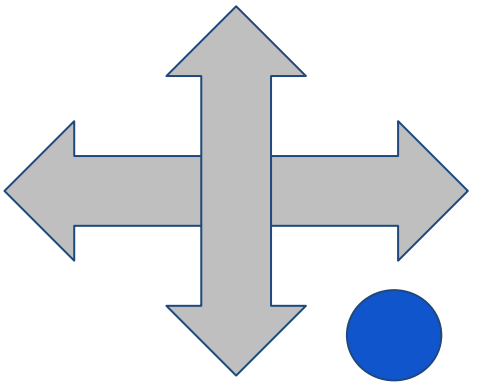
- “Science is good, but the news is bad”
- Declining productivity and abundance; smaller maximum fish size
- Range shifts as species move N and E, but not much range expansion
- In some places, marine wildlife interaction/bycatch challenges addressed through improved forecasts and fishing community innovation
- Successful small-scale fishermen adapt to reduced catch limits and new stocks, supplying limited but lucrative markets
- Some regions struggle to develop effective responses to challenges leading to fleet consolidation, loss of markets to artificially cheap imports, and permanent declines of historic fishing communities.
- Aquaculture becomes prevalent as a mass source of seafood



Sweet and Sour: Challenges, Opportunities, Potential Actions

- Informally work through solutions to determine best approaches before formalizing changes too quickly
- Deliberately make strategic choices around declining stocks
- Further develop climate-informed status reports like State of the Ecosystem / Vulnerability Assessments
- As aquaculture products increase in popularity, increase efforts to market wild-caught seafood

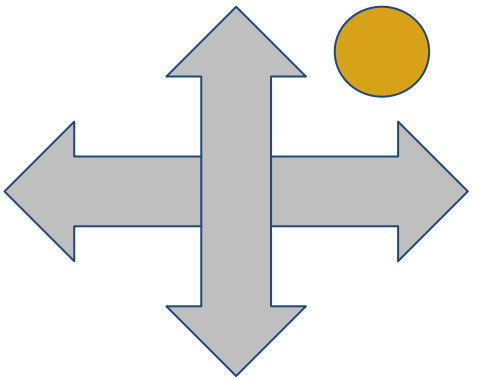
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Scenario Descriptions

Checks and Balance

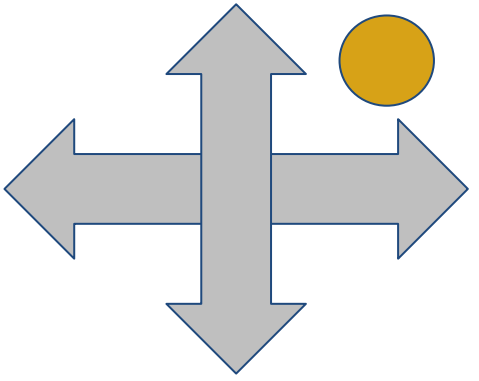
- Predictable changes and tolerable conditions
- Range expansion as stocks move predictably north & east
- Better pollution reduction, habitat protection and restoration reverse habitat damage and loss
- Science capacity booms, delivering effective ocean monitoring, real-time catch reporting, food web/population monitoring and bycatch avoidance
- Investment in other ocean/coastal uses leads to competition (e.g. aquaculture) and collaboration (e.g. fisheries science is boosted by wind energy installations)
- Recreational sector is healthy thanks to stable productivity and increased coastal wealth, but gentrification creates concerns over accessibility



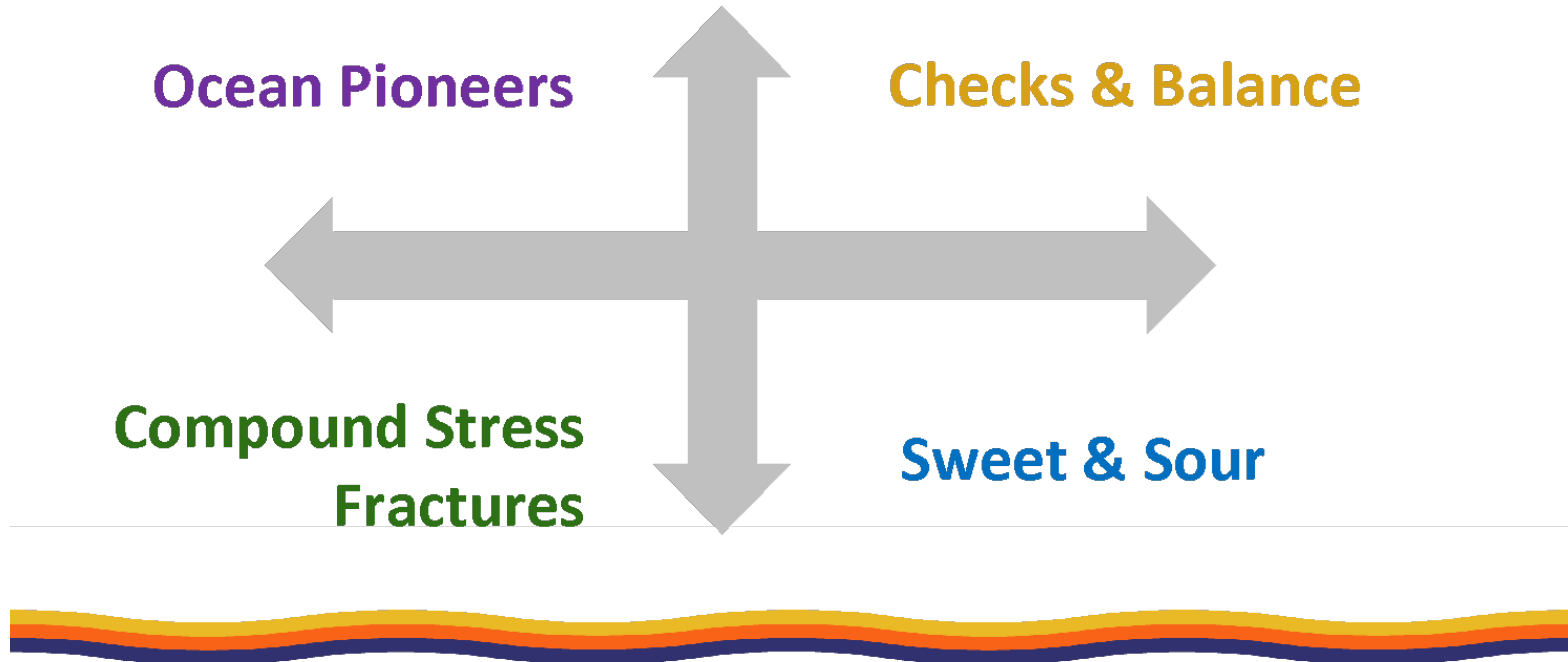
Checks and Balance: Challenges, Opportunities, Potential Actions

- Focus on access and participation from small fleets and low-income recreational fishermen
- Focus on joint management of stocks rather than switching from one management body to another
- More emphasis on new technology, biological sampling in ports
- Consider how new ocean users have a seat at the table

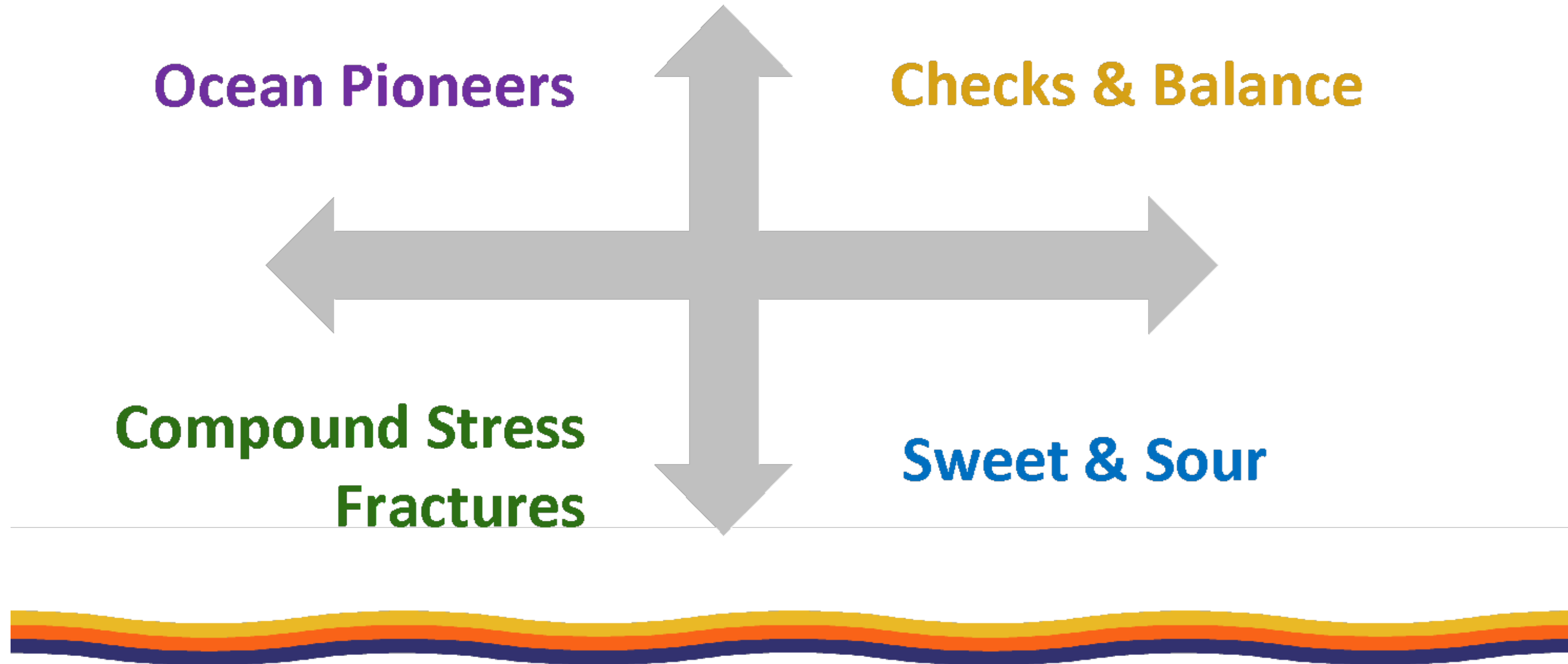
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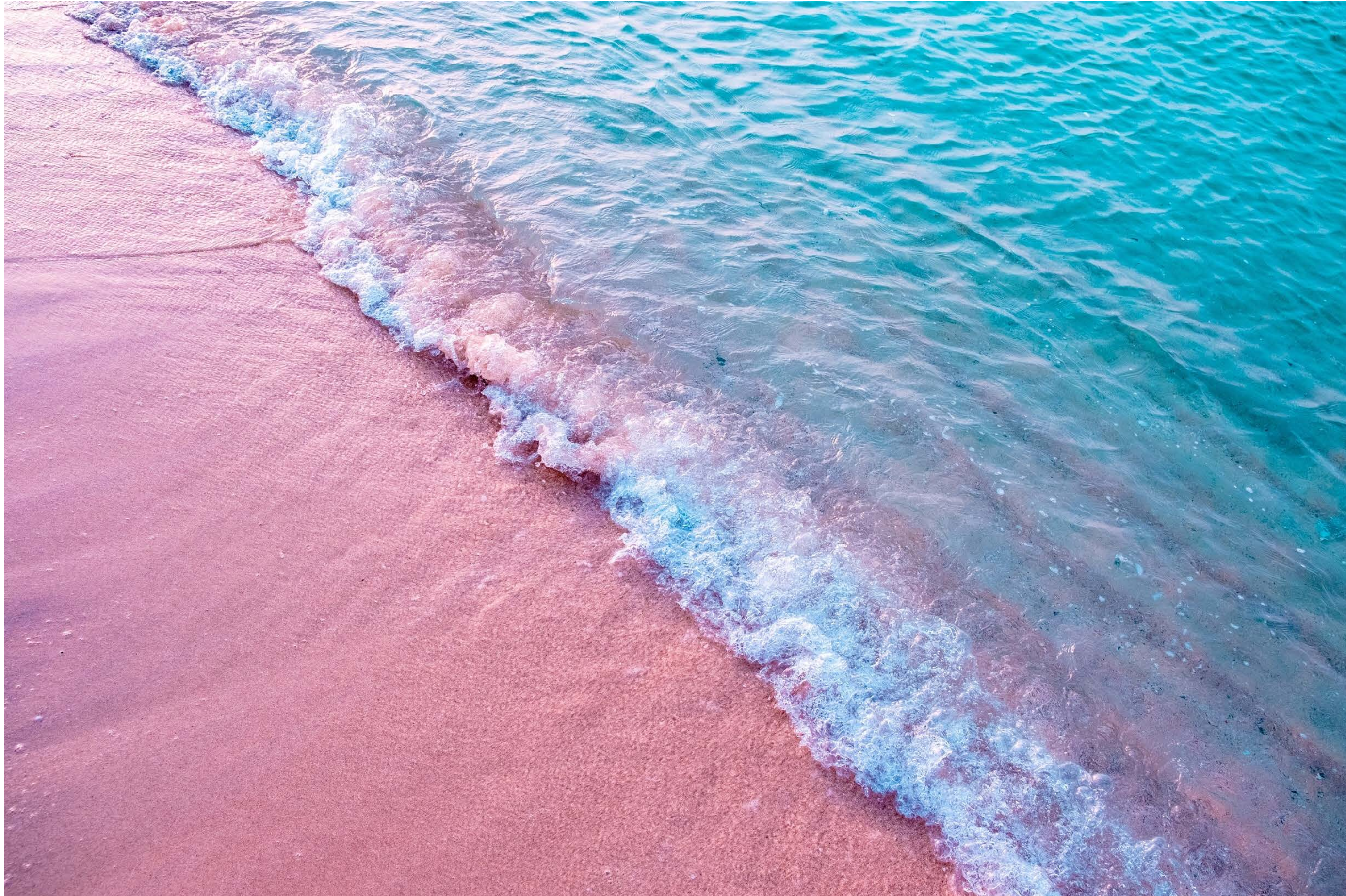
1. Which scenario is closest to describing the situation as you see it today?



2. Which scenario do you believe is most likely to play out by 2042?



BREAK



'Placing Bets' Across A Scenario Matrix

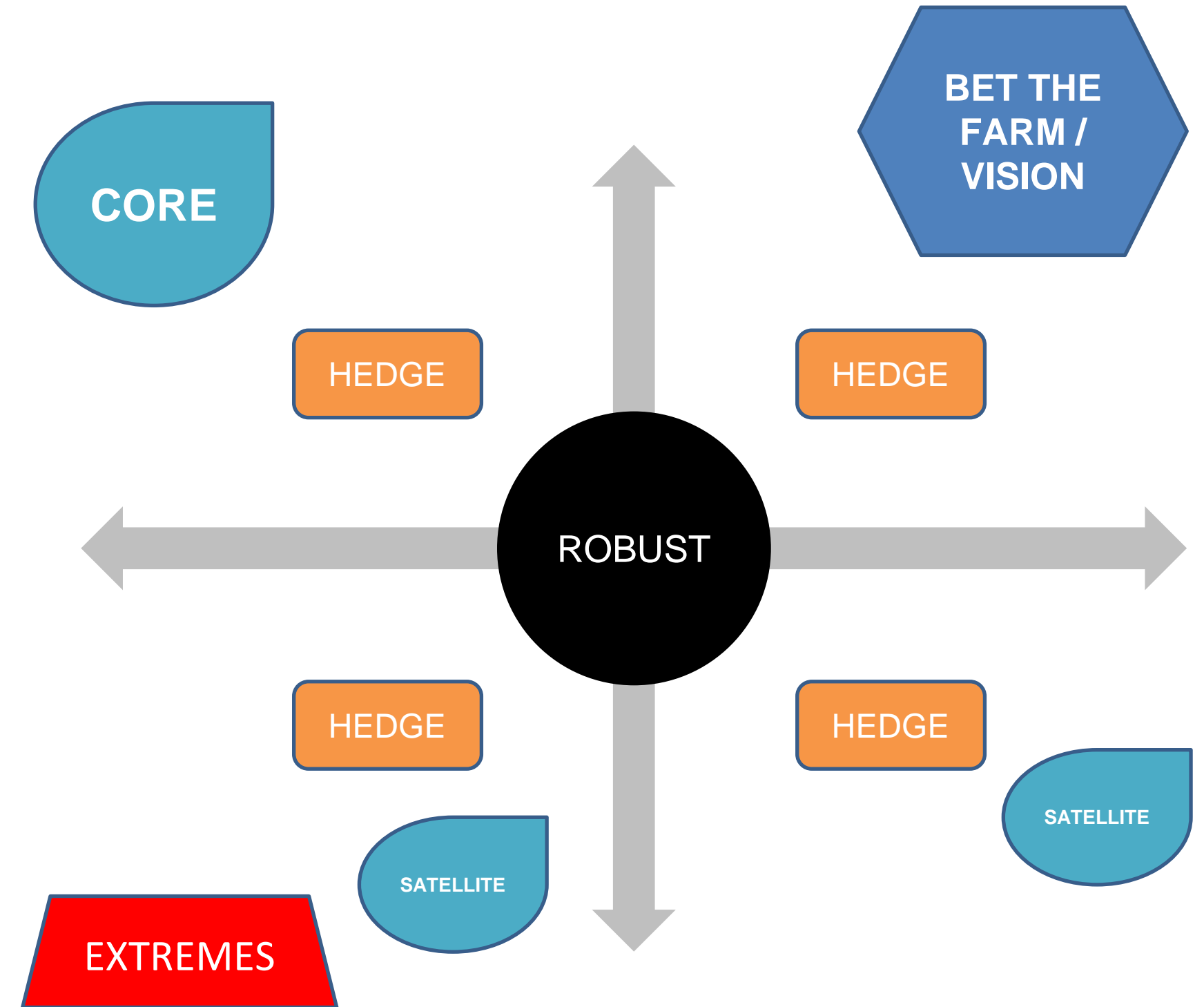
ROBUST: Pursue those options that would work out well (or at least not hurt you too much) in any of the four scenarios

HEDGE: Make several distinct bets of relatively equal size, then wait and see what happens

BET THE FARM/VISIONING: Make one clear bet that a certain future will happen — and then do everything you can to help make that scenario a reality

CORE/SATELLITE: Place one major bet, with one or more small bets as a hedge against uncertainty (experiments)

EXTREMES: Prepare for, or prevent, a worst-case scenario



Cross-Cutting Ideas and Main Takeaways

Ocean Pioneers:

Checks & Balance:

Mostly
maintained

- challenges of the **current cross-jurisdictional structure**
- mechanics of **changing management responsibilities**
- making **decisions with less clarity and certainty**
- fishery management is sure to involve more **collaboration**
- suitable balance of **funding and attention in data and science**
- limitations of current **stock assessment processes and methods**
- need for **increased flexibility needs around permitting and landing**
- investigate **spatial planning and ocean zoning** to minimize conflicts
- **maintaining and increasing shoreside access** to increase participation

Unpredictable
changes &
conditions, low
ability to assess

Predictable
changes &
conditions, high
ability to assess

Pre

s by 2040

Mostly declining

Sweet and Sour:

Compound Stress Fractures:

Do you agree with these 9 'cross-cutting issues'?

Which are most important for the Council to address to be prepared for climate change over the decades ahead?

Are there other (scenario-specific) potential actions that we should pay attention to?

Prioritization of Issues for Discussion

1. Challenges of the current cross-jurisdictional structure

2. Mechanics of changing management responsibilities

3. Making decisions with less clarity and certainty

4. Fishery management is sure to involve more collaboration

5. Suitable balance of funding and attention in data and science

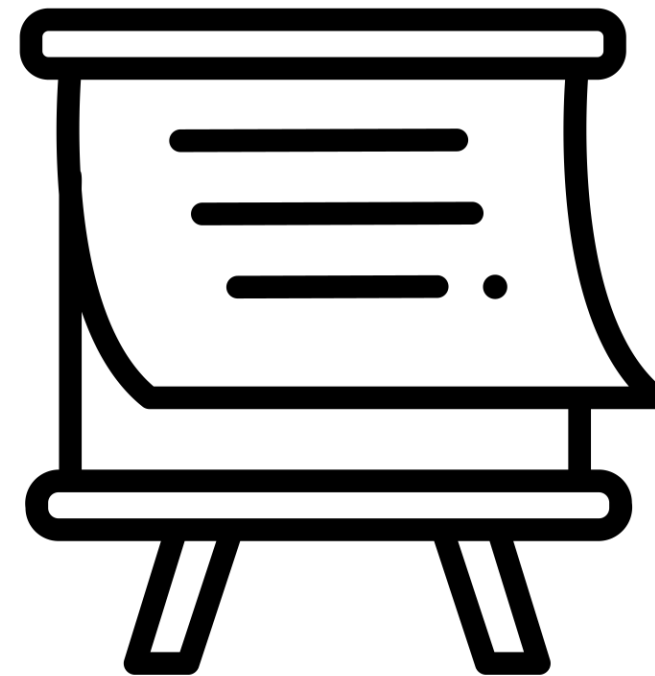
6. Limitations of current stock assessment processes and methods

7. Need for increased flexibility around permitting and landing

8. Investigate spatial planning and ocean zoning to minimize conflicts

9. Maintaining and increasing shoreside access to increase participation

Prioritization of Issues for Discussion



Each Council member has 3 votes. Place those votes alongside the 3 cross-cutting issues that you feel are most important to be discussed at the Summit meeting in February

Next Steps: Summit Meeting

Date: February 15-16

~50 participants, drawn from Councils, Commission and NFMS

- Review ideas and findings from Commission and Council discussions
- Identify potential actions for further consideration

Potential Actions may include both near-term and long-term priorities, and fall into categories such as:

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



Key Discussion Topics for the Summit Meeting

Given our voting on highest ranked themes and common issues, and recalling the earlier discussion of potential actions, **can we be more specific about how this issue/theme should be discussed at the Summit?**

Are there any other issues that we should also include in further conversations, including at the Summit?

As we prepare for the Summit Meeting, what else should the Core Team be mindful of?