



The Use of Management Strategy Evaluation in the Council Process: *Lessons Learned and Future Direction*

Spring CCC Meeting

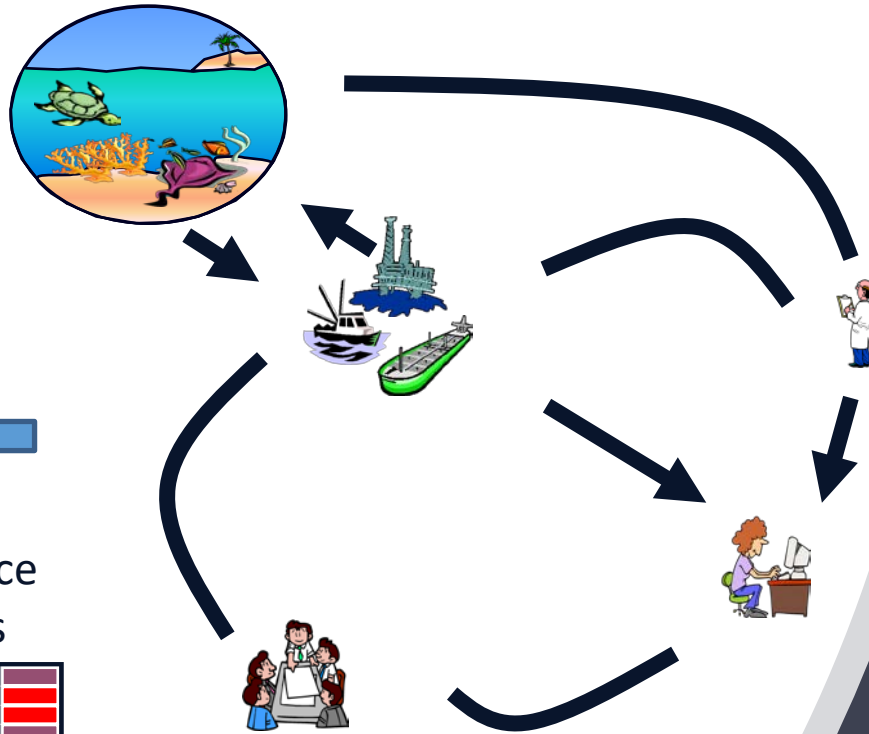
Brandon Muffley, MAFMC staff

May 18, 2022

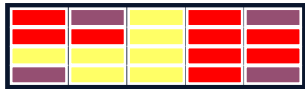


Presentation/Topic Overview

- Overview (high level) of MSEs
- Outcomes from National SCS Workshop 6
- Mid-Atlantic Council Experiences
- Regional Examples
- National Perspectives and Direction - NOAA Fisheries
- Council Feedback and Discussion Questions



Performance measures



(Figure courtesy of Beth Fulton)

What is Management Strategy Evaluation (MSE)

- A process to identify and compare the performance of alternative management strategies designed to address desired (typically conflicting) objectives before implementation



- “If we manage the system like X, what are the likely consequences compared to Y or Z?” (from G. Fay)
- Typically uses quantitative model(s) to simulate a population, its ecosystem, uncertainties, different strategies, and their interactions
- It won't specify a single outcome or strategy to address all objectives
 - Will identify poor strategies

Why might the Councils consider MSE?

- Compare and evaluate how management strategies may achieve multiple management objectives
 - Quantify and balance trade-offs of strategies
- Identify sensitivity of management performance to system/ecosystem drivers and key uncertainties
- Allows for an evaluation of the full management cycle
 - Management implementation → stock implications → stock assessment/ref. pts → future catch limits
- Test strategies before implementation
 - Simulation is “cheap”, implementation/experiment is expensive
- Decisions not any easier, but process helps and offers avenue for dialogue and new/different information
- Robust tools available for future priorities and issues




National SCS 6: Outcomes & Recommendations

- Stakeholder engagement is critical
 - Clear roles and responsibilities
 - Commitment to engagement
- Effective communication of results
 - Clear, concise, straightforward approach to complex concepts
 - Simplicity and consistency showing results
 - Uncertainty of results, inputs, and underlying mechanisms
- Other roles and responsibilities
 - Include economists and social scientists
 - Use of independent facilitator
 - Lead analysts not lead, limit complexity

Sixth National Meeting of the
Scientific Coordination Subcommittee
of the Council Coordination Committee

The Use of Management Strategy Evaluation
to Inform Management Decisions Made by the
Regional Fishery Management Councils



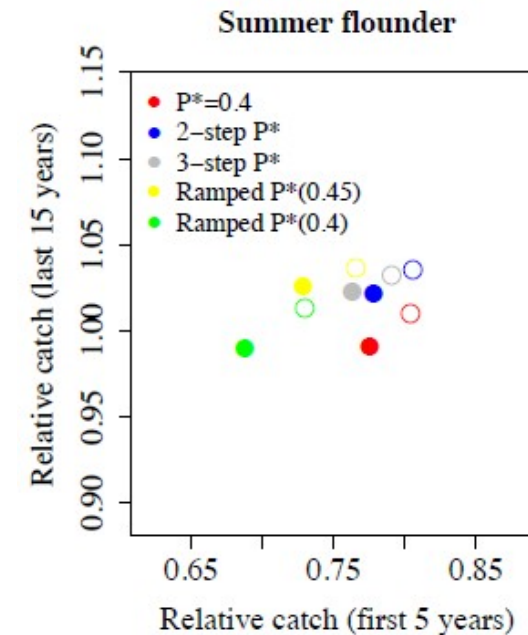
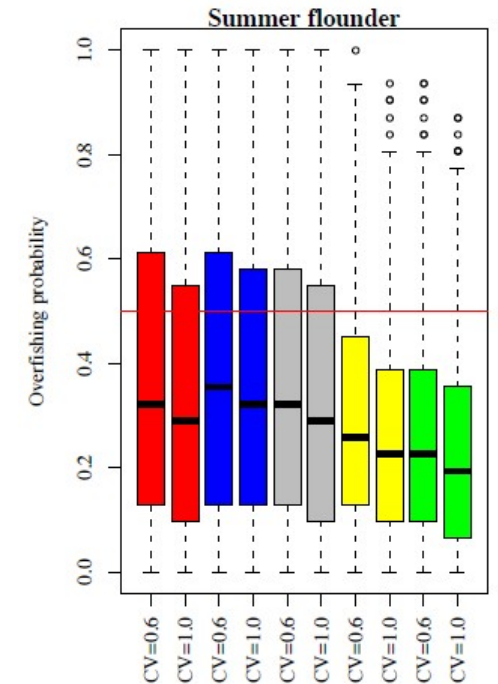
Workshop Proceedings

Kona Kai Resort, San Diego, California
January 16-19, 2018
Hosted by the Pacific Fishery Management Council

John DeVore and Jennifer Gilden, editors

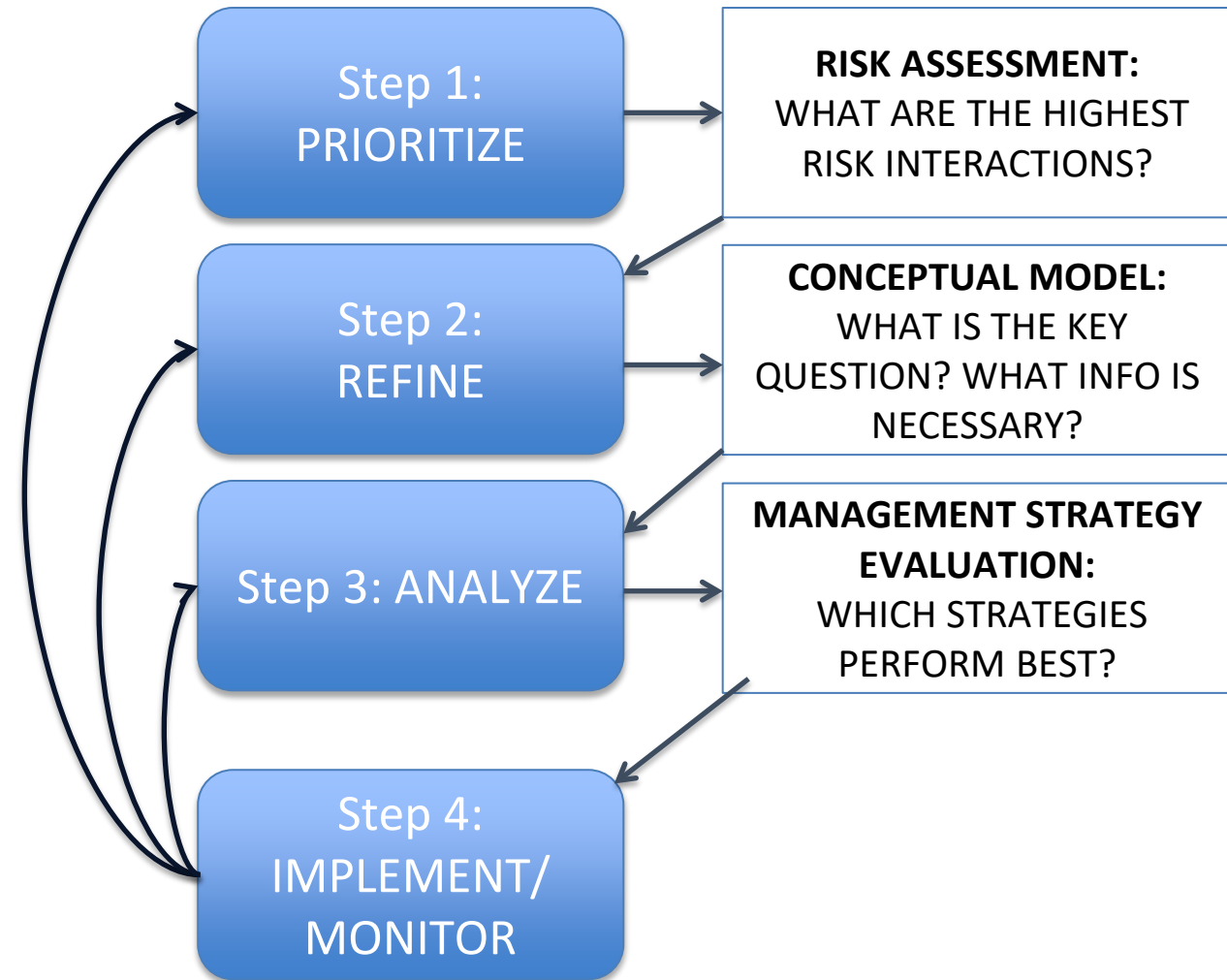
MAFMC MSE Experiences

- Different types of MSE – depending on scope & need
 - “Technical” terms: desk top vs full blown
- Desk top example
 - Used this type of MSE on numerous occasions
 - Council risk policy – interested in not only biological considerations but also economic and social
 - Use of contractor and NOAA Fisheries SSB
 - Engagement with staff, SSC, and Council direction
- Full blown example
 - 1st time going through this type of MSE
 - Recreational discards in summer flounder fishery
 - About 2 years into process with about 3 months to go



Council's EAFM Decision Framework

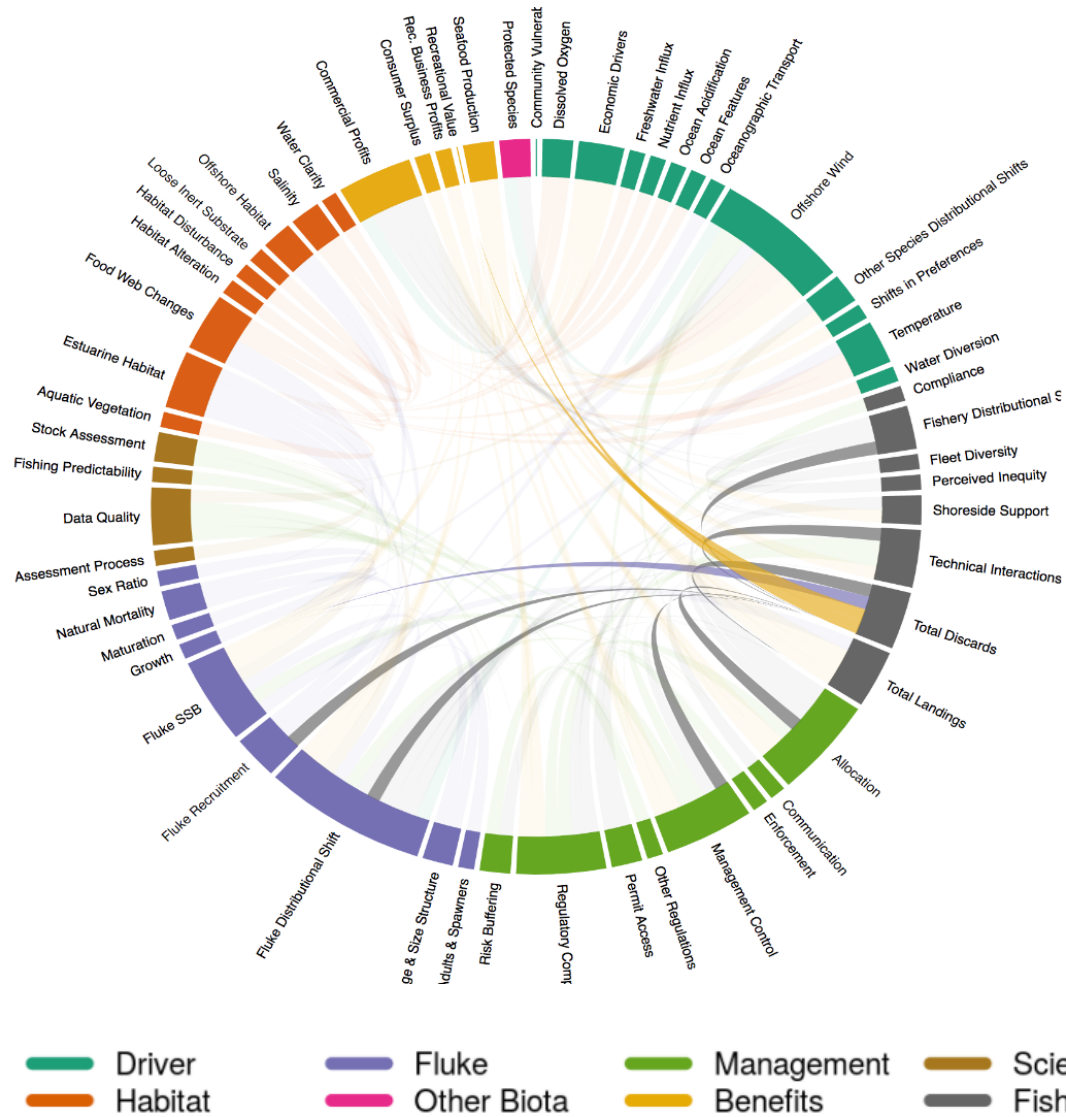
- Developed a strategic, deliberative, and structured process
 - Goal of incorporating species, fleet, habitat and climate interactions into management
 - Planning tool to help Council transition and incorporate EAFM approaches
- Completed **Step 1** (2017) and **Step 2** (2019); Initiated **Step 3** (2020)



Source: Sarah Gaichas, http://www.mafmc.org/s/3_Habitat_in_IEAs_Gaiches.pdf

Conceptual Model Management Question

Evaluate the biological and economic benefits of minimizing summer flounder discards (live and dead) and converting discards into landings in the recreational sector. Identify management strategies to effectively realize these benefits.



- Opportunity to align EAFM work with traditional Council management process
- Different approach and process to evaluate management challenges to address and reduce regulatory discards
- EAFM issue and focus – seven linked risk factors: Management, Summer Flounder Stock, Science, Fishing Fleets, and Benefits



Emphasis on Stakeholder Outreach and Input

4 different initiatives identified

1. AP kick-off webinar and mock workshop
2. Online scoping feedback
3. Regional MSE workshops
4. Core stakeholder group workshops

Early and continued engagement – each building off each other

Scoping Feedback Form -

Broad stakeholder input covering a variety of topics for input



Regional Workshops -

Smaller (although could still be large), targeted group, and more focused input

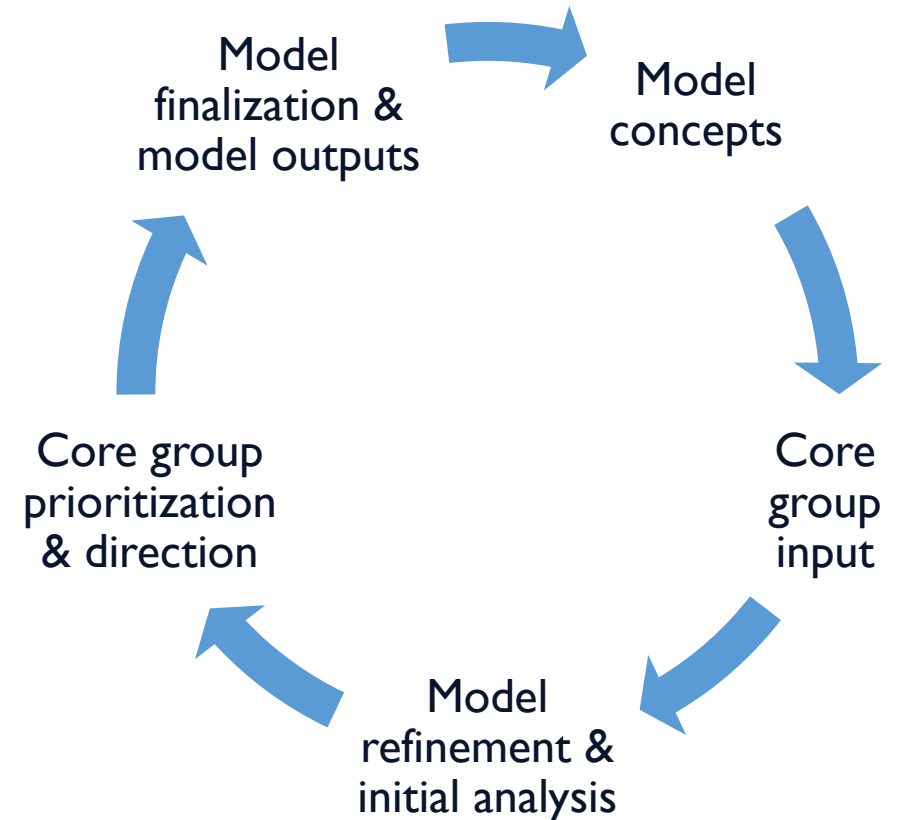


Core Stakeholder Group -

Small, representative group (10-15 members) providing direct input and feedback during 5 workshops

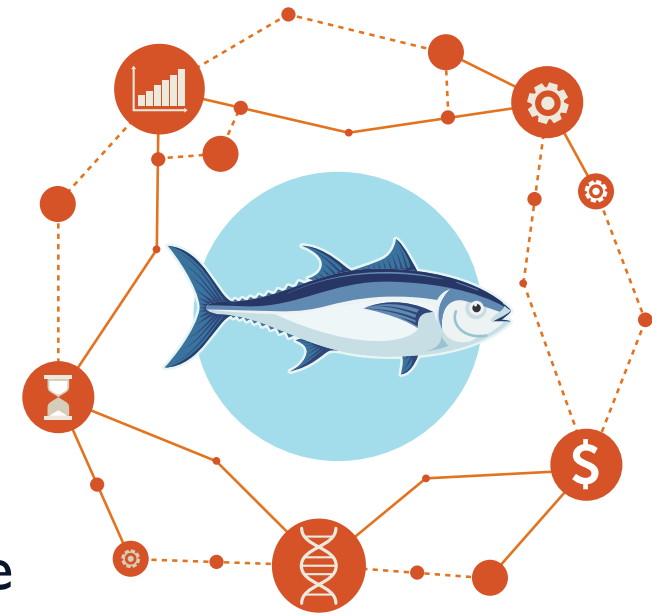
Core Group and Technical Work Group

- Core Stakeholder Group
 - Primary source of input representing range of fishery perspectives – 13 members
- Technical Work Group
 - Interdisciplinary group developing project products and materials, including models – 14 members
- Core group workshops
 - Primary focus refining, clarifying, and prioritizing objectives, metrics, management scenarios, trade-off weighting
 - Underlying emphasis on communication and understanding between core group and technical work group
 - General support and agreement for process and outcomes



MAFMC MSE Experiences – Early Takeaways

- **Timelines** – need to be flexible and then add 50% or 100% more!
- **Facilitation** – very helpful but need someone independent with expertise in MSE or structured decision making
- **Define clear objectives** - use process pre-MSE to prioritize issue and determine if MSE is needed (or what type) for problem
 - Keep focus
 - Managers, stakeholders, scientists all looking at other areas of interest
- **Future utility** - potential application to other activities and priorities. Keeping focus can be harder but increased buy-in
- **Separate from management action** – clearly want connection to management issue/concern without deadline constraints
- **Commitment** – to time, investment, process. It's a lot and not always intuitive where things are headed



Examples and Experiences In Other Regions

- Wide range across regions in terms of use of MSEs, topics considered, and engagement of Council
 - Many considering but not all have conducted
 - Some Council led with Science Center support, some Science Center led with some or no Council engagement
 - Use of contractor and/or academia to help support modeling needs
- Topics:
 - Modifying prohibited species catch limits in applicable fisheries
 - Regional, spatial, sector, and/or fleet allocations or strategies
 - Recreational fisheries issues – seasons, discards, multi-fishery interactions
 - Differing objectives across management entities



Examples and Experiences from the New England Council

Tom Nies, Executive Director



New England
Fishery Management
Council

Management question or topic(s) where MSEs have been used/being considered

1. Development of ABC control rules for Atlantic herring FMP (*complete*)
2. Development of ABC control rules for Northeast Multispecies (*complete*)
3. Exploration of the impact of inaccurate catch trends on groundfish assessments (*complete*)
4. Development of prototype Ecosystem Fishery Management Plan for Georges Bank (*in development*)
5. Evaluation of scallop catch limits (*research priority only*)

Atlantic herring MSE - Overview of process used

- MSE used to support development, analysis and selection of ABC control rule ([NEFMC Herring Amendment 8 Page](#))
- Timeline – 2016 – 2019 (5 Phases)
- Resources needed
 - 2 NEFMC and 2 NEFSC staff very engaged for multiple years
 - Biological and economic MSE models developed in-house (NEFSC)
 - Lots of meeting at every level, plus 2 fully open public workshops
 - Facilitator hired to run public MSE workshops
 - Contractors used to develop analysis products and communication tools for presenting results
 - External peer review of MSE models and analysis tools

Amendment 8 MSE Phases	Timeline
1. Identify parameters to be tested	Jan-Jun 2016
2. Simulation testing	Jul-Nov 2016
3. Review results, improvements	Dec 2016
4. MSE Peer Review	Jan-Mar 2017
5. Incorporation into DEIS and approve action	2017 - 2019

Atlantic herring MSE – Outcomes

EXTERNAL PEER REVIEW OF ATLANTIC HERRING MANAGEMENT
STRATEGY EVALUATION

March 13-15, 2017
Embassy Suites, Boston Logan Airport
Boston, Massachusetts

Panel Members
Dr. Lisa Kerr (Chair)
Dr. Gavin Fay
Dr. Douglas Lipson
Dr. John Wiedenmann

Atlantic Herring Fishery Management Plan

Amendment 8

Including a Final Environmental Impact Statement and
Initial Regulatory Flexibility Analysis



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Final Submission
May 2019

Volume I

Prepared by the
New England Fishery Management Council
In consultation with the
National Marine Fisheries Service and the
Mid-Atlantic Fishery Management Council



Management Strategy
Evaluation (MSE)

Atlantic Herring Fishery Management Plan

Management Strategy Evaluation
Debrief Final Report



Prepared by the
New England Fishery Management Council

November 18, 2019

1 The dream and the reality: meeting decision-making
2 time frames while incorporating ecosystem and
3 economic models into management strategy evaluation

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18 This draft manuscript is distributed solely for purposes of scientific peer review. Its content is deliberative
19 and predecisional, so it must not be disclosed or released by reviewers. Because the manuscript has not yet
20 been approved for publication by the U.S. Geological Survey (USGS), it does not represent any official USGS
21 finding or policy.

Atlantic herring MSE – Lessons Learned

- Periodic Council updates to approve milestones – helped to increase participation, understanding, and overall buy-in.
- Collaboration with consultants critical – addressed resource gaps, fresh ideas, high level of expertise. Outside facilitators highly recommended.
- Peer review important step to validate models and increase Council/public confidence.
- Debrief process will be helpful to have when Council updates this MSE, considers starting other MSEs, and hopefully useful for other regions as well ([Herring-MSE-debrief-final-report](#)).
- Keep MSE separate from other measures – very controversial issue added to this action – hard to stay focused on MSE and slowed overall timeline.
- Need to build more capacity for MSE in region overall.

EBFM MSE

- Demonstrate how MSE will be used to evaluate EBFM management strategies for a Georges Bank Ecosystem Production Unit
- Compare the EBFM and existing (primarily single species) management strategies
- To show whether and how the proposed EBFM strategy (i.e. ceilings and floors approach) would have biological outcomes that are consistent with Magnuson Stevens Act National Standard 1 criteria

General Comments

- Manage expectations
- Using MSE is costly and time consuming
- Stakeholder engagement can be tricky
- Communicating results is complicated

Examples and Experiences from the North Pacific Council

Dave Witherell, Executive Director





**NOAA
FISHERIES**

NMFS MSE Working Group Slides to inform CCC meeting

Jon Hare, Acting Director of Scientific Programs
and Chief Science Advisor

May 2022 CCC

The MSE framework has been successfully adapted for diverse regional needs

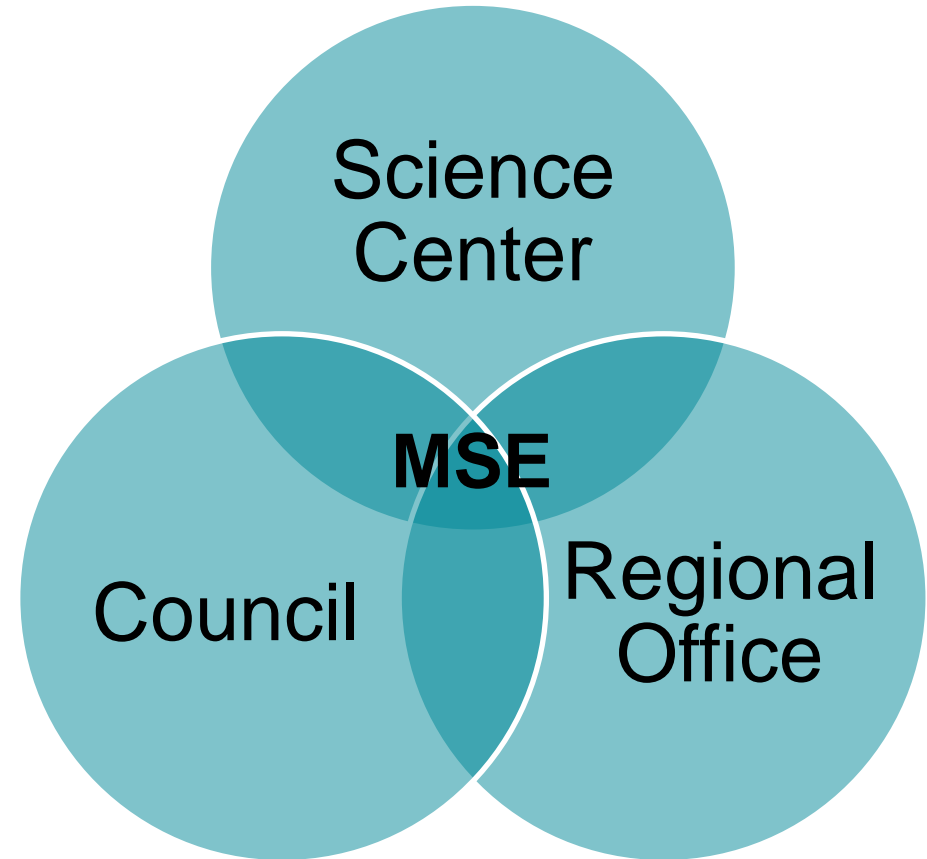
- MSEs requested by management bodies and developed in collaboration with Councils and industry (e.g. albacore, hake, Atlantic herring, summer flounder)
- Research MSEs to start conversations and begin to understand the different types of uncertainty and the consequences of them (e.g., the impacts of climate change or ecosystem uncertainty on current management)



- Planning: decisions to initiate MSEs are somewhat adhoc, making organizing resources and people challenging
- Uncertainty: inherently difficult to acknowledge and communicate
- Analytical: few shared tools and intensive computing needs
- Legal: MSA constrains the types of control rules that can be considered

Suggestions to strengthen collaborations

- Clarify vision for how MSEs can be most helpful to all parties
- Develop regional MSE prioritization plans
- Support regular virtual trainings on MSE
- Strengthen interagency relationships



Future Needs and Direction??

- Limitations and needs identified by Councils to conduct an MSE in their region
 - Lack of data to support an MSE
 - Mis-match in timing and Council needs
 - Council priorities, time, and capacity – many needs, continually changing, limited resources
 - Integration of results into the management process
- Areas/topics of interest where an MSE might work best
 - Implications of climate change on fisheries of concern
 - Recreational fisheries management challenges



Discussion Questions

- Any additional thoughts on lessons learned to share
- What are some ways to improve outcomes or increase the use of MSEs by the Councils?
- How can we increase collaboration and resources with Science Centers?
- How can we tailor the use of MSE's to the Council process and needs?