Overview of the Mid-Atlantic Council EAFM & Ecosystem Activities

November 2022

Ecosystem Approach to Fisheries Management (EAFM) Guidance Document

Background

In 2011, the Mid-Atlantic Fishery Management Council (Council) embarked on a Visioning Project – a stakeholder driven process to outline a vision for future fisheries management within the Mid-Atlantic. The feedback received during this process served as the foundation for the development of the Council's 2014-2018 Strategic Plan. One area of focus within the Strategic Plan was to develop an Ecosystem Approach to Fisheries Management (EAFM) Guidance document in order to advance ecosystem considerations within the Council management process.

Initially approved in 2016 (revised in 2019), the EAFM Guidance Document is non-regulatory and articulates the Council's ecosystem goals, policies, and recommendations to help transition from single-species management to an approach that considers fisheries within a broader ecosystem context. The Guidance document has a series of chapters that focus on four priority ecosystem topics raised during the Visioning Project and each chapter identifies policy guidelines and science and management recommendations to support incorporation of ecosystem considerations into the Council process. The four priority focus areas include:

1. Forage/low trophic level species considerations
2. Fisheries habitat
3. Climate change and variability
4. Ecosystem-level interactions (species, fleet, habitat, and climate)

Since the approval of the EAFM Guidance document, the Council has worked to implement and advance a variety of management actions and activities associated with each of the four priority areas. Included here is an overview of some of the Council activities associated with the different priority areas including links to relevant websites, background documents, and/or scientific manuscripts.

EAFM Guidance document related materials

Reference information

- Managing Forage Fishes in the Mid-Atlantic Region White Paper (November 2014)
- Climate Change and Variability White Paper (April 2015)
- Species Interactions White Paper (*F*ebruary 2016)

MAFMC EAFM & Ecosystem Related Background Materials

EAFM Structured Framework

Below is a brief overview of the steps outlined in the EAFM structured decision framework adopted by the Council as an approach to incorporate species, fleet, habitat, and climate interactions into management (Figure 1).

Step 1: Prioritize (Risk Assessment) – The first step in this structured framework process includes identifying and prioritizing ecosystem interactions and risks through a comprehensive risk assessment. The Council completed the initial risk assessment in 2017 and the assessment is updated annually utilizing information from the NEFSC Mid-Atlantic State of the Ecosystem Report to provide a snapshot of the current risks to meeting the management objectives and helps the Council decide where to focus limited resources to address priority ecosystem considerations in its science and management programs.

Step 2: Refine (Conceptual Model) – Developing conceptual models is the second step and are used to identify key environmental, ecological, social, economic, and management linkages for a high-priority fishery. In 2019, the Council completed the development of an interactive conceptual model that considered 16 different high-risk factors identified by the risk assessment that are affecting summer flounder and its fisheries. The Council used the conceptual model to scope out priority summer flounder management questions to be further evaluated in Step 3.

Figure 1. The Mid-Atlantic Fishery Management Council's EAFM structured decision framework to incorporate ecosystem considerations into management (from Gaichas et al. 2016).

Step 3: Analyze (Management Strategy Evaluation) – Management strategy evaluation (MSE) is the third step and is designed to evaluate different management approaches within an ecosystem context to determine if the outcomes associated with the different approaches achieve the intended management goals. Building off the information developed during the conceptual model scoping process, the Council agreed to focus this MSE on evaluating the biological and management implications of alternative strategies to minimize recreational summer flounder discards.

Step 4: Implement and Monitor – the Council will use the results of the MSE to consider implementing new management measures to minimize recreational summer flounder discards. In addition, the models developed as part of the MSE are also being used to help evaluate and identify recreational management measures in 2023 under the recently approved recreational harvest control rule for summer flounder and other recreational species**.** The Council will need to monitor performance measures to determine if the MSE goals and objectives are being met.

Relevant manuscripts

- Implementing Ecosystem Approaches to Fisheries Management: Risk Assessment in the US Mid-Atlantic, Frontiers in Marine Science, S. Gaichas, G. DePiper, R. Seagraves, B. Muffley, M. Sabo, L. Colburn & A. Loftus (2018)
- There Is no I in EAFM: Adapting Integrated Ecosystem Assessment for Mid-Atlantic Fisheries Management, Coastal Management, B. Muffley, S. Gaichas, G. DePiper, R. Seagraves & S. Lucey (2021)
- Learning by doing: collaborative conceptual modelling as a path forward in ecosystem-based management, ICES Journal of Marine Science, G. DePiper, S. Gaichas, B. Muffley, G. Ardini, J. Brust, J. Coakley, K. Dancy, G.W. Elliott, D. Leaning, D. Lipton, J. McNamee, C. Perretti, K. Rootes-Murdy, M. Wilberg (2021)

Fisheries Habitat

- Northeast Regional Marine Fish Habitat Assessment (NRHA) – a collaborative, multi-disciplinary effort to describe and characterize estuarine, coastal, and offshore fish habitat distribution, abundance, and quality in the Northeast.
    - NHRA Data Explorer – an R-Shiny application used to explore data on trends in fish species distribution at state and regional scales, and to share other products and documentation including model-based outputs and reports.

Forage Fish Considerations

- Unmanaged Forage Omnibus Amendment – prohibits the development of new and expansion of existing directed commercial fisheries on unmanaged forage species in mid-Atlantic federal waters until new information is evaluated.
    - Unmanaged Landings Report – annual updates on commercial landings of unmanaged species to monitor for signs of developing unmanaged commercial fisheries in the Mid-Atlantic.
- Chub mackerel: Chub Mackerel Amendment – developed measures to formally manage Atlantic chub mackerel as a stock in the fishery under the Atlantic Mackerel, Squid, and Butterfish FMP.
    - HMS Diet Study Summary – a Council funded study to get a better understanding of the role of chub mackerel in the diets of HMS predators (e.g., yellowfin and bigeye tunas, and white and blue marlins).

Climate Change and Variability

- East Coast Climate Change Scenario Planning – a collaborative management partner initiative to explore jurisdictional and governance issues related to climate change.
- Predicting Near-Term Fisheries Shifts Under Climate Change – a research project with Rutgers University to develop forecast models to predict short-term (1-10 years) climate-induced distribution changes for four economically important Mid and South Atlantic managed species.