

IRA Project 3.3: Ecosystem Component Species

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Project Overview

- **Purpose:** Establish management strategies for ecosystem components (EC) in the New England region
- **Need:** Climate-driven changes in distribution, abundance, and productivity indicate that evaluation of EC status is warranted for several resources
- **Objective:** Analyze factors in MSA and NS Guidelines, as well as changes in environmental drivers and fishery data, to develop criteria and thresholds for designating Ecosystem Component Species (EC Species) within the NEFMC fishery management system

Ecosystem Component Species

Stocks that a Council or the Secretary has determined do not require conservation and management, but desire to list in an FMP in order to achieve ecosystem management objectives (50 CFR 600.305(d)(13))

- Identified at the species or stock level; or grouped in a complex
- Management measures can be adopted to:
 - collect data,
 - minimize bycatch or bycatch mortality,
 - protect their associated role in the ecosystem; and
 - must be consistent with National Standard 9 – Bycatch*
- Do not require:
 - ACLs,
 - reference points, or
 - accountability measures

** Measures must, to the extent practicable, minimize bycatch, and to the extent bycatch cannot be avoided, minimize mortality of that bycatch.*

Conservation and Management Factors

When does a species or stock need to be managed through an FMP (50 CFR 600.305(c)(1)(i-x)):

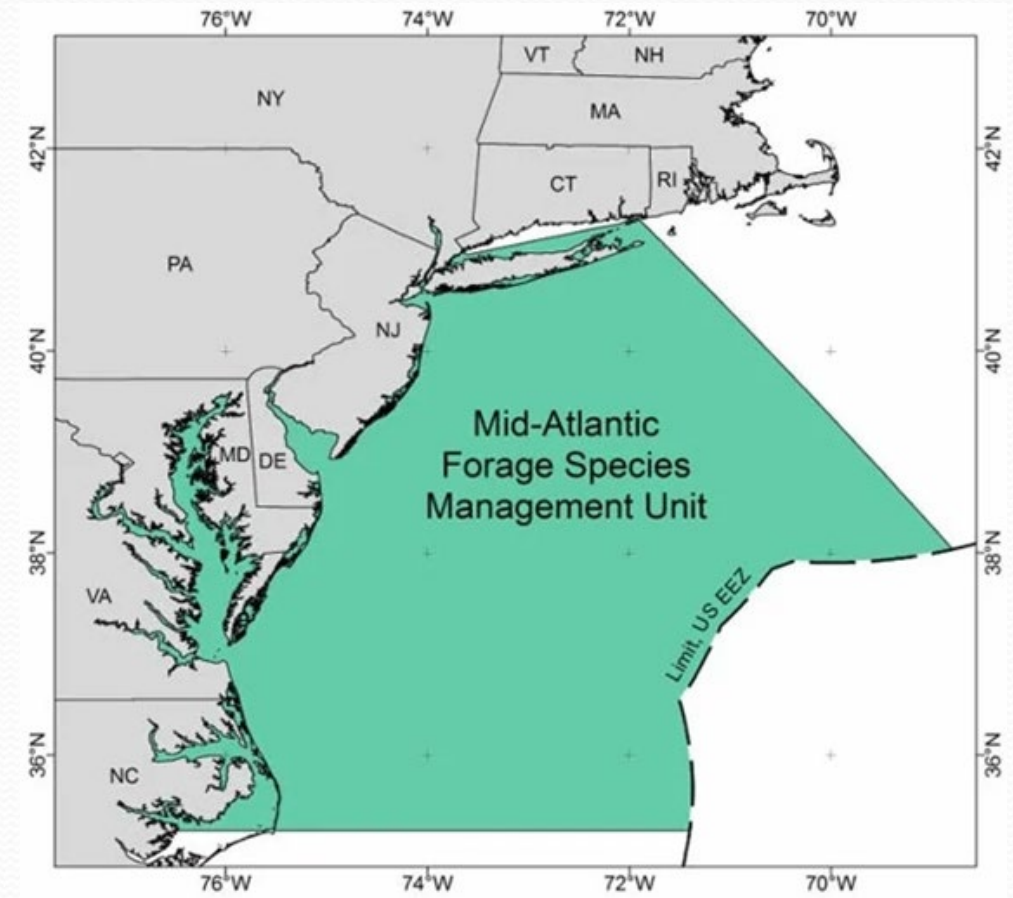
1. The stock is an important component of the marine environment.
2. The stock is caught by the fishery.
3. Whether an FMP can improve or maintain the condition of the stock.
4. The stock is a target of a fishery.
5. The stock is important to commercial, recreational, or subsistence users.
6. The fishery is important to the Nation or to the regional economy.
7. The need to resolve competing interests and conflicts among user groups and whether an FMP can further that resolution.
8. The economic condition of a fishery and whether an FMP can produce more efficient utilization.
9. The needs of a developing fishery, and whether an FMP can foster orderly growth.
10. The extent to which the fishery is already adequately managed by states, by state/federal programs, or by federal regulations pursuant to other FMPs or international commissions, or by industry self-regulation

Regional Fishery Management Council Examples

- 4 other regional councils have pursued EC designations in their FMPs
 - Mid-Atlantic Fishery Management Council (MAFMC)
 - Pacific Fishery Management Council (PFMC)
 - North Pacific Fishery Management Council (NPFMC)
 - Western Pacific Fishery Management Council (WPFMC)
- Pursued from 2010-2020 across various MSA revisions
- Analytical approaches:
 - Catch history
 - Food web and diet analysis
 - Vulnerability assessment (Patrick et al., 2009)

Mid-Atlantic Fishery Management Council

- Designated 16 forage species and species groups in 2015 through their [Unmanaged Forage Omnibus Amendment](#)
 - Added these species across all FMPs
- Management measures:
 - Implemented a combined 1,700-pound-per-trip incidental possession limit for all EC species within the Mid-Atlantic Forage Species Management Unit.
 - Requires commercial vessels that possess and/or catch EC species in Mid-Atlantic Federal waters to have a commercial fishing permit from GARFO
 - Transiting permitted through the management unit area as long as forage species are caught outside and landed outside the area, and gear is stowed while transiting



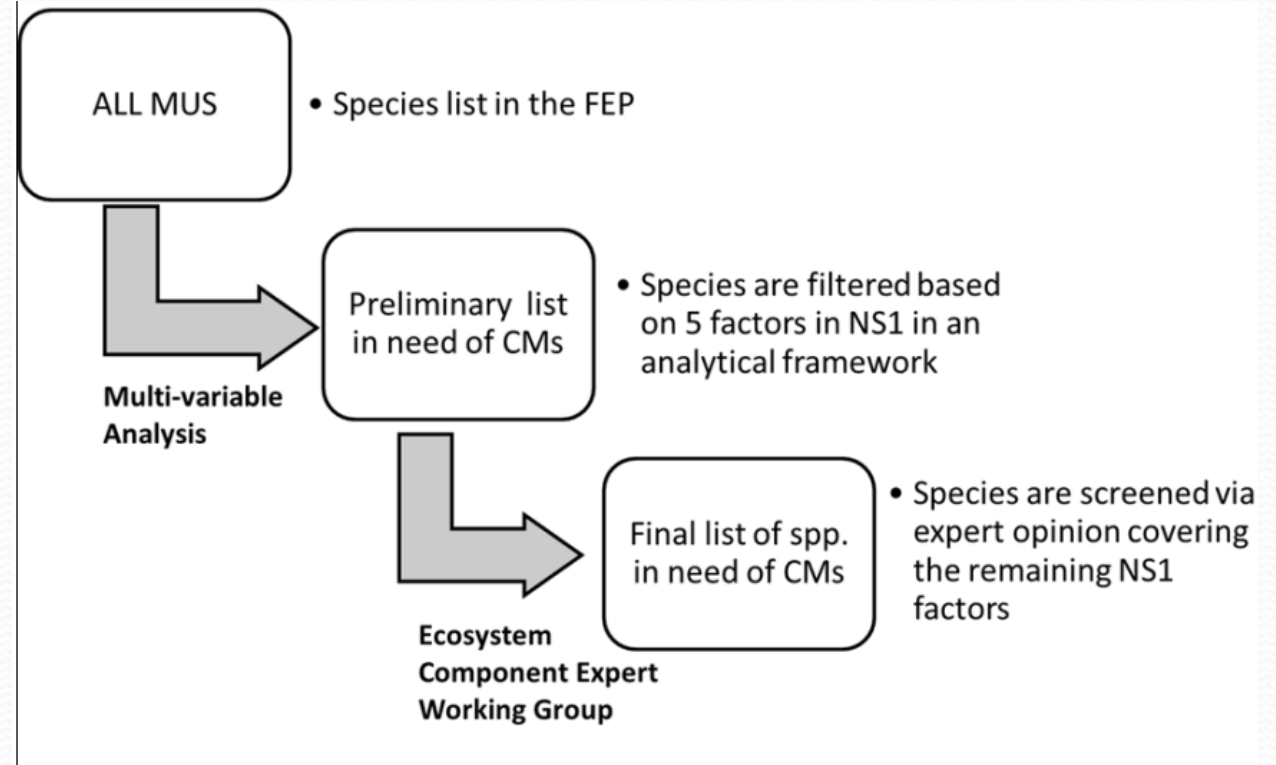
Mid-Atlantic Forage Species Management Unit
Source: MAFMC

Pacific Fishery Management Council

- 30 EC species designated
 - FMP-specific and/or shared across FMPs
- Actions occurred from 2010 to 2020
- Reclassified big skate as a species “in the fishery” (e.g., in need of conservation and management)
 - Designated as EC Species under the Groundfish FMP in 2016
 - Removed designation in 2017
- One applicable example for the NEFMC: Shortbelly rockfish
 - Previously a managed species under the Groundfish FMP
 - Designated an EC Species in 2020
 - Monitored for incidental bycatch with threshold of 2,000 mt cumulative annual catch

Western Pacific Fishery Management Council

- Designated over 400 EC species specific to three of their Fishery Ecosystem Plans (FEPs).
 - American Samoa FEP
 - Mariana Archipelago FEP
 - Hawaii Archipelago FEP
- Prioritized evaluation of species needing conservation and management
 - All others were designated EC Species
- Retained management measures for corals and crustaceans that were classified as EC species.



Classification process for FEP-listed species. *Source: WPFMC, 2018.*

North Pacific Fishery Management Council

- Designated 5 categories of ecosystem components in the Bering Sea and Aleutian Islands (BSAI) Groundfish FMP and the Gulf of Alaska (GOA) Groundfish FMP
- Prioritized evaluation of species needing conservation and management through their Arctic FMP.
 - Methods for quantifying stocks in need of conservation and management included using ex-vessel price, CPUE, and revenue per unit effort (RPUE)
 - All others designated EC Species
 - commercial fishing is prohibited

Ecosystem Component	
Prohibited Species¹	Pacific halibut Pacific herring Pacific salmon Steelhead trout King crab Tanner crab
Forage Fish Species⁴	Osmeridae family (eulachon, capelin, and other smelts) Myctophidae family (lanternfishes) Bathylagidae family (deep-sea smelts) Ammodytidae family (Pacific sand lance) Trichodontidae family (Pacific sand fish) Pholidae family (gunnels) Stichaeidae family (pricklebacks, warbonnets, eelblennys, cockscombs, and shannys) Gonostomatidae family (bristlemouths, lightfishes, and anglemouths) Order Euphausiacea (krill)
Grenadiers⁴	Pacific grenadier Popeye grenadier Giant grenadier
Squids⁴	Chirotuthidae family Cranchiidae family (glass squid) Gonatidae family (armhook squid) Onychoteuthidae family (hooked squid) Order Sepioidea (North Pacific bobtail squid)
Sculpins⁴	Cottidae family Hemitriptidae family Psychrolutidae family Rhamphocottidae family

	Finfish	Invertebrates	Other Marine Life*
Target Species	Arctic cod and saffron cod	Snow crab (<i>C. opilio</i>)	
Ecosystem Component Species	All finfish other than Arctic cod, saffron cod	All marine invertebrates other than snow crab (<i>C. opilio</i>)	All other forms of marine animals and plant life
*other than finfish, invertebrates, marine mammals, and birds			

Regional Fishery Management Council Summary

- Many examples and designations were pursued prior to the 2016 MSA revision
 - Which consolidated and clarified guidance on identifying whether stocks require conservation and management, among other changes ([81 FR 71858](#); Oct. 18, 2016)
- Quantitative thresholds and criteria are useful to determine if a stock requires conservation and management, and can include:
 - A vulnerability analysis based on NMFS Vulnerability Evaluation Work Group ([Patrick, et al. 2009](#))
 - Average annual landings over a specified time frame
 - Quartiles of frequency of occurrence
 - Proportion of catch
 - Levels of revenue
- EC designations
 - allow for flexible management and monitoring of stocks
 - can be implemented and removed at the discretion of the Council

Potential List of Focal Species

- Proposing a set of species across a number of NEFMC FMPs
 - Species are either non-targeted, or possession is prohibited.
- Proposing to include sand lance
 - Designated an EC species in the MAFMC Omnibus Amendment
 - An NEFMC designation would allow for contiguous management of an important forage fish

Species	FMP
Sand lance	None
Windowpane flounder	Groundfish FMP
Atlantic halibut	Groundfish FMP
Ocean pout	Groundfish FMP
Witch flounder	Groundfish FMP
Atlantic wolffish	Groundfish FMP
Thorny skate	Skate FMP
Clearnose skate	Skate FMP
Rosette skate	Skate FMP
Smooth skate	Skate FMP
Offshore hake	Small Mesh FMP
Atlantic salmon	Atlantic salmon FMP

Draft Action Plan

Analysis and Evaluation

- Consider the conservation and management factors supported by:
 - Species distribution modeling using fishery independent data
 - Species co-occurrence matrices
 - Food web and diet data analysis
 - Fishery performance evaluation
- When possible, review how conservation and management factors have changed since a species was added to an FMP.

Guidance and Designation

- Draft guidance document and/or Council policy for EC species designation and monitoring, including:
 - Literature review of NS Guidelines and RFMC applications
 - Methods for evaluation, criteria for designation, and thresholds for monitoring
- Produce EC Designation report for the selected focal species.
- Designate EC species through Council action(s).

Draft Timeline

2025: Planning and Analysis

- *August:* Initial analysis and selection of focal species
- *September:* Focal species review and planning with CESC
- *September-December:* Develop and implement necessary joint species distribution modeling approaches

2026: Develop Guidance and Evaluate Candidate Species

2027 and later: Implementation of Council action(s)

Key Questions and Decision Points

Feedback and questions regarding:

- the proposed action plan
- the initial set of potential focal species