New England Fishery Management Council
50 WATER STREET | NEWBURYPORT, MASSACHUSETTS 01950 | PHONE 978 465 0492 | FAX 978 465 3116
E.F. "Terry" Stockwell III, *Chairman* | Thomas A. Nies, *Executive Director*

MEMORANDUM

DATE: March 12, 2015

TO: EBFM Oversight Committee

FROM: Andrew Applegate, Council staff, and Tobey Curtis, GARFO staff

SUBJECT: **Policy alternatives and their implications for implementing Ecosystem-Based Fisheries Management (EBFM)**

At the request of the EBFM Committee chair and vice-chair, Council and GARFO staff have developed this discussion document to help the Committee understand the ramifications of using various available management procedures to develop EBFM policies. This document identifies four procedures that might be used, identifying the favorable and unfavorable attributes of each strategy:

- Developing Ecosystem Approach to Fisheries Management (EAFM) policy documents;
- Developing an Example Fishery Ecosystem Plan (eFEP);
- Developing an Implemented Fishery Ecosystem Plan (iFEP), or;
- A Blended Fishery Ecosystem Plan (bFEP) that would take the form of an Omnibus Amendment to Council plans.

Our fishery management partners may also adopt or adapt compatible approaches to mesh with NEFMC management.

The Committee may have other attributes that it wants to add as it sorts out which procedural strategy to recommend to the Council. Other approaches or a sequential development path might also be pursued, but these would essentially be minor modifications to the four procedures identified here. Choosing one of these four strategies now does not preclude formal development using another strategy later.

Since late May, the EBFM Committee has been presented with and examined various ways that regional fishery management councils and some countries (e.g. Australia, Canada, Iceland) have developed and implemented EBFM policies. In addition, some special topics have been presented to the Committee. These topics included a prototype ecosystem status report, ecosystem terms of reference that have been addressed in recent assessments, an assessment of climate change vulnerability of NE region species, a summary of the MAFMC's climate governance workshop, and the results of a stakeholder survey about their perceptions of EBFM. The MAFMC also was completing a white paper on management of forage fish, another EAFM topic.

One important result of the stakeholder survey was that there was a commonality of EBFM support among groups, but there were also different ideas and concerns about the potential specifics of EBFM, i.e. how it would be applied. In addition to these presentations, the EBFM Committee provided feedback on an ecosystem status report, a final version to be presented at the April 2015 Council meeting, and on a prototype Georges Bank multispecies assessment model of 10 commercial managed species at a later date. In January 2015, the Council was also presented with a summary of a developing Climate Change Strategy for Fisheries on a national level.

From these presentations and discussion, it appears that there are four general ways that the Council could develop and operationalize EBFM policy. From a slightly different perspective than the one discussed here about procedure, the Council's Scientific and Statistical Committee (SSC) presented a white paper on EBFM, outlining a transitional strategy (see discussion in the next paragraph). Other potential approaches than the four procedural strategies outlined in the table below would be small modifications or a blend of the four described below.

Three of the procedures in this document might also be thought of as a transition to full EBFM, similar to the approach discussed in the 2010 SSC white paper (http://www.nefmc.org/tech/council_mtg_docs/Nov 2010/Tab 12_Ecosystem Based Mgmt/1_White Paper_report_5 nov 2010.pdf), but more recently there has been interest to jumping right to full EBFM development that would address all of the problems and issues head on. In its white paper, the SSC discussed the characteristics of EBFM, a transitional strategy, and how it might be developed.

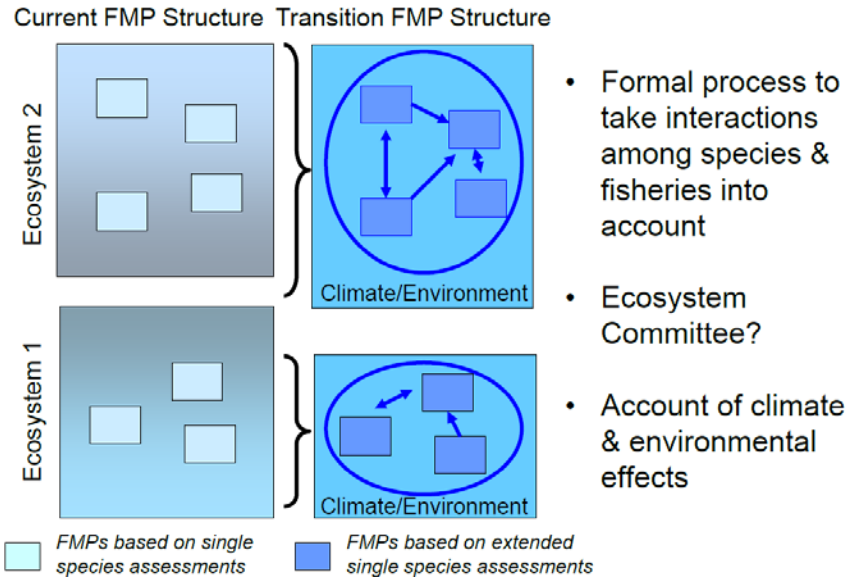
In the SSC White Paper, the characteristics of an EBFM plan were identified as:

- Adaptive
- Specified geographically
- Accounts for uncertainties
- Considers multiple external influences
- Strives to balance diverse social objectives (NOAA Strategic Plan 2005-2015)

And an EBFM plan would have the following benefits:

- Simplification of management structures
- Coordination of management actions for stocks, protected species, biodiversity & habitat
- Comprehensive consideration of fishery & biological interactions
- Accounts for ecosystem constraints on rebuilding
- Consideration of climate change
- Coordination with State EBM efforts & Northeast Regional Ocean Council

The SSC envisioned a transitional strategy that would account for species interactions in existing plans through extended assessments:



A final step in this transition would replace extended single species FMPs with a smaller number of integrated management plans for ecological regions on the Northeast Shelf, directly or indirectly covering all species in the ecosystem in specified regions, or EPUs defined by physical features, species distributions, and fishery characteristics. Within this final set of ecosystem management plans, safe ecosystem fishery allocations would be made within defined EPUs.

To manage this transition to EBFM, the SSC recommended that the Council initiate the following next steps:

- Define new ecological regions
- Identify priority issues & services associated with each region
- Define EBFM objectives & identify risks of not achieving these
- Develop management strategies to achieve EBFM objectives
- Design status & productivity reporting requirements & associated assessment tools required to monitor progress towards EBFM objectives
- Council
    - Design consultative processes
    - Dialogue with MAFMC, ASMFC, & New England states on harmonization of EBFM efforts
- PDTs
    - Outline EBFM plan requirements
    - Dialogue with current PDTs to develop transition
    - Design PDT structures under EBFM
- SSC
    - Prepare white paper on socio-economic analyses required by EBFM
    - Dialogue with NMFS & Council staff on stock assessment, EBFM

Since the SSC delivered its white paper, the Council has made some progress toward developing EBFM, despite the relative importance of other management priorities and limited resources. The Council has appointed an EBFM Committee and Plan Development Team. Both have held

several meetings with an eye toward further development of EBFM. Lately, the SSC chair and several members have expressed an interest in updating and revising the white paper.

Several extended assessments have been attempted and peer reviewed which have provided advice about the implications of predator-prey interactions on select managed species. In some cases this advice has been taken into account to choose scientific uncertainty buffers in Acceptable Biological Catch (ABC) control rules. Lately, the Council has taken that work one step further and charged the EBFM PDT with developing guidance on options for a forage-based Atlantic herring ABC control rule. This guidance is scheduled for presentation to the Council in June 2015.

Now that some of these other management priorities have been addressed, the Council is initiating the process of developing EBFM, but some evolution of EBFM development has occurred based on the experience of other management bodies. Using one of the procedures described below and in the following table, the quickest and best path may follow a somewhat different path or strategy than the one envisioned by the 2010 SSC White Paper.

Ecosystem Approach (EAFM), Policy documents

This approach would develop through a series of policy documents that the Council would formally incorporate into overall management policies, via future plan amendments. These policy documents aren't formally reviewed by NMFS, but formal review would occur when proposed actions were developed in a plan amendment that will change fishing regulations. Overall EAFM objectives might not be obvious with an incremental EAFM procedure or strategy, but could be developed as a first order.

This procedure does not require NEPA review or formal scoping until the point that EBFM considerations are incorporated into an FMP action. Scoping, however, may be an effective way to solicit early public input. Developing an EAFM policy that could apply to and be implemented by existing FMPs would be more consistent with the MAFMC approach and might raise the least amount of jurisdictional issues, but certain types of policies may be difficult to implement because of multiple fishery management jurisdictions that have spatial overlaps and trophic interaction.

This EAFM procedure is being followed by the MAFMC and others to develop ecosystem management policy, which would be utilized in managing fisheries via existing FMPs.

Example Fishery Ecosystem Plan (eFEP)

This approach would design an FEP as an example or template. Its utility is in the development process that could identify and hash out EBFM problems and issues without the burden of having arguments (or public input) about how individuals and groups would be affected and what rights they would have. Ecosystem insights derived from the eFEP process (e.g., multi-species or ecosystem assessments, trophic interactions, climate effects, etc.) could be applied to individual FMP actions as deemed appropriate by the Council. The eFEP could also be used as an example at future public hearings as an interim step to full FEP development that would later become regulation. This general approach is being implemented by the Pacific Fishery Management Council.

Implemented Fishery Ecosystem Plan (iFEP)

Unlike EAFM, a stand-alone FEP would be developed to address all fishery management issues that apply to an ecosystem (EPU). All current FMPs would be dissolved and integrated into the appropriate FEP (e.g., Gulf of Maine, Georges Bank). Considerable reorganization of fishery management by the Council, NMFS, and associated partners might be necessary to support this transition. It would include or possibly modify jurisdictional interactions amongst authorities that regulate fisheries which overlap or target trophically-interrelated species. iFEPs would be taken to public hearing, final alternatives would be chosen, and the document with chosen preferred alternatives would be formally submitted to the Secretary of Commerce for implementation. As such, it would have to comply with and adhere to all applicable laws and regulations.

Blended Fishery Ecosystem Plan (bFEP) - Omnibus Amendment

This document would have many similarities with other Council omnibus amendments, an umbrella policy that would be taken to public hearings and formally submitted to the Secretary of Commerce for implementation. Such an omnibus amendment would amend existing FMPs, be formally reviewed as a package, and be simultaneously implemented across all plans. It would be developed to work within the current management structure, which has both positive and negative attributes (see table below). As such, an omnibus amendment would have to comply with and adhere to all applicable laws and regulations. This general approach has been applied and implemented by the North Pacific Management Council as an Aleutian Islands FEP overlay. The North Pacific Council is using a similar strategy for a Bering Sea FEP, under development.

Table 1. Attributes of four potential processes for the NEFMC to develop and apply EBFM policy.

Process

	Ecosystem Approach (EAFM) Policy documents	Example Fishery Ecosystem Plan (eFEP)	Implemented Fishery Ecosystem Plan (iFEP)	Blended Fishery Ecosystem Plan (bFEP) - Omnibus Amendment
	Incremental	***Incremental***	***Holistic***	***Blended***
Overview	This process would allow the Council to develop broad management objectives, which would become part of the Council policies and would be applied to individual FMPs when amended. Other management partners may also apply compatible policies. Similar to MAFMC's current approach.	This process would produce a prototype Fishery Ecosystem Plan, either theoretical or practical for a specific, defined area (EPU). While not intended to change regulations, it could be used as an example or template for future action and could initiate hearings with specifics that the public would need to understand the potential changes required. It might highlight jurisdictional and allocation issues.	This process would develop a new fishery management plan, intended to replace existing management plans in a specific area (EPU). Scoping would be required, followed by public hearings on a draft management plan. This plan would need to include alternatives to address jurisdictional and allocation issues.	This process would develop an omnibus amendment to produce management alternatives that would address ecosystem issues (EAFM), but not replace existing FMPs. Specific issues such as forage based ABC control rules or responses to climate change might be addressed, but it would not by itself address jurisdictional issues or change fishery allocations. It could apply to specific areas (i.e. an EPU) that overlaps the jurisdiction of an FMP.

Process

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	Incremental	***Incremental***	***Holistic***	***Blended***
	Pros/cons			
Scoping	Does not require formal scoping, but an informal scoping process may be desirable.	Does not require formal scoping, but an informal scoping process may be desirable.	Requires formal scoping and public hearings, plus formal review and promulgation of regulations. Must meet all applicable laws and National Standards.	Same as iFEP.
NEPA Considerations	Does not require NEPA review or an EIS, but policy may need agency review to be used in management plans and amendments.	Example FEP would not require agency review or EIS.	Requires EIS development and NEPA review.	Same as iFEP.
MSA constraints	Legal constraints must be recognized	May be developed without legal constraints	Legal constraints on certain approaches could inhibit development	Same as iFEP.
Management jurisdiction	No direct jurisdictional issues	No direct jurisdictional issues	Must face and address jurisdictional issues	Jurisdictional issues would be side-stepped, but may arise to implement EAFM policies in management plans.

Process

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	Incremental	***Incremental***	***Holistic***	***Blended***
Fishery allocations	Allocations issues are managed through the usual process, not in the EAFM policy.	Allocations schemes (e.g. spatially explicit ACE) are developed as an example	Must develop new allocation schemes	Allocations schemes may augment, instead of replace, existing allocations.
Migration of stocks across EPU boundaries	Does not require explicit consideration of movement between EPUs	Movement between EPUs to be considered	Movement between EPUs to be estimated and taken into account	Movement between EPUs to be estimated and taken into account
MSA Reauthorization	Allows flexibility if reauthorization implements new EBFM requirements	Same as EAFM	Risk of future incompatibility with potential reauthorized MSA requirements	Same as iFEP
Council approval	This strategy would be easier (and quicker) to develop and seek Council approval. EAFM topics might be addressed sequentially.	This strategy is probably the easier strategy to develop and seek Council approval, but has the least effect or requires additional work to implement.	This strategy would take the longest and would probably be difficult to approve due to its wide and immediate ramification, including cross jurisdictional and allocation issues.	This strategy could have fewer cross jurisdictional and allocation issues than an iFEP and thus could take less time to develop. On the other hand, it would have a similar level of difficulty and duration to develop and approve as the Omnibus Habitat Amendment.

Process

	Ecosystem Approach (EAFM) Policy documents	Example Fishery Ecosystem Plan (eFEP)	Implemented Fishery Ecosystem Plan (iFEP)	Blended Fishery Ecosystem Plan (bFEP) - Omnibus Amendment
	Incremental	***Incremental***	***Holistic***	***Blended***
	Type of Ecosystem Issues Addressed			
Examples of Issues which may be addressed	Predation and competition (trophic interaction); ABC control rule ecosystem risk policy	Predation and competition (trophic interaction)	Predation and competition (trophic interaction); applied ABC forage-based control rules	Predation and competition (trophic interaction); applied ABC forage-based control rules, direct
	NA	Multispecies MSY Basket quota/point system Portfolio approach	Multispecies MSY Basket quota/point system Portfolio approach	?
	Response to climate change and environmental variability	Response to climate change and environmental variability	Response to climate change and environmental variability	Response to climate change and environmental variability, direct or optional
	Community resiliency, indirect	Community resiliency, example	Community resiliency, direct	Community resiliency, direct
	NA	Example or template, only	Limited access and catch allocation for EPU.	EPU sub-ACL and AMs, direct
	Unmanaged species in a fishery may be managed as a general policy.	Examples of how unmanaged species in a fishery could be addressed.	Defines and addresses unmanaged species in the fishery	May define and address unmanaged species in the fishery

Process

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	Incremental	***Incremental***	***Holistic***	***Blended***
Others issues addressed?	Bycatch of managed and unmanaged species addressed as a policy	Bycatch of managed and unmanaged species to achieve multispecies objectives in EPU, example or template	Bycatch of managed and unmanaged species to achieve multispecies objectives in EPU, direct	Bycatch of managed and unmanaged species to achieve multispecies objectives in EPU, direct or optional
	Habitat management policy	Habitat management, example	Habitat management, direct	Habitat management, direct