

Dr. Jason Link
Senior Science Advisor for Ecosystems
NOAA Fisheries
1315 East-West Highway
Silver Spring, MD 20910

RE: Comments on Draft NOAA Ecosystem Based Fishery Management (EBFM) Policy

Dear Dr. Link:

Thank you for your presentation on NOAA Fisheries Draft EBFM Policy on EBFM at the September 2015 New England Fisheries Management Council meeting. The Council is encouraged by NOAA Fisheries' commitment to and new draft policy for developing EBFM as the basis for managing the nation's fisheries, recognizing the many benefits of doing so. As you know, the Council is in the initial phase of developing a prototype Fishery Ecosystem Plan, one that can be implemented after validation, testing, and evaluation.

Although there could be many benefits derived from EBFM, the Council recognizes that there are some important challenges and potential obstacles that will require NOAA Fisheries leadership to address in a consistent manner.

Two areas where the draft policy could be improved are 1) outlining a plan to strengthen the National Standard 1 guidelines and enable management that relies on ecosystem-based aggregate reference points and 2) outlining a plan to strengthen the science that will support EBFM planning and implementation. Although the draft policy combines the two, it would be clearer if there are two separate documents: one document focusing on technical guidance that identifies the core strategy in NOAA Fisheries EBFM policy and the other document focusing on high-level policy focusing on supporting plan development and ecosystem science

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Regarding the first issue, the Council commented on the draft National Standard 1 guidelines in June 2015 and many of our comments addressed the foreseeable management challenges of develop Fishery Ecosystem Plans (FEP). As written, the new National Standard 1 guidelines open a Pandora's box full of intriguing possibilities and temptations with no guidance on how to be scientifically rigorous and responsible as managers. Although flexibility in developing EBFM approaches is needed, the Agency should offer more commitment to revising the guidelines and promoting a consistent approach for applying ecosystem reference points.

As written, the new National Standard 1 guidelines would allow aggregate MSY level estimates as the basis for specifying optimum yield (OY) in a fishery. The National Standard 1 guidelines are however unclear what this means in practice.

Several related questions arise about transitioning from a maximum sustainable yield (MSY) determination for individual stocks to a system that sets limit reference points and targets for aggregate groups of energetically-related species. Can the Overfishing Limit (OFL), Acceptable Biological Catch (ABC), and ACL be set for the aggregation of species covered by the MSY estimate or would stock specific status determination criteria, ACLs, etc. still be required? Can the rebuilding target of a species within the complex be set lower than would be the case for a single species estimate of B_{msy} for a species within the aggregate because this will produce a higher yield for the aggregation? Or conversely, should it be set higher because a high yield than the single species MSY can be achieved by a multispecies fishing strategy? These are not easy questions, and depending on how an aggregate level of MSY is used in management there could be abuse (chronic overfishing to avoid the short term pain that results in long term benefits). This ambiguity can also lead to very different definitions and applications of ecosystem based reference points.

Additionally, EBFM entails multiple objectives, by definition, which will require tradeoffs with the objective to achieve optimum yield from a fishery. EBFM will require a broader definition and interpretation of optimum yield that accounts for all types of ecosystem services provided by harvested marine species (including harvested species that are unmarketable). Some species have more value as forage and less relative value when landed (yield). Other species are primary predators on a highly valued species, but have a difficult to measure existence value. These considerations within the context of EBFM means that every stock should not be managed to achieve its own MSY, or that a specific minimum biomass threshold (for example $\frac{1}{2} B_{msy}$) is appropriate for every stock of fish because this application might not provide for the optimum mix of ecosystem services and overall value.

At the same time, fishery managers are facing changing conditions forced by warming water temperatures and other oceanographic trends that are associated with climate change and global warming. As a result of these changes, measurable shifts in species distributions are occurring, moving some stocks out of one region primarily managed by one entity (the Mid-Atlantic Fishery Management Council, for example) and into another region (primarily managed by the New England Fishery Management Council, for example). NOAA fisheries should work to clarify the conditions under which joint management should be implemented, or when management should change from one jurisdiction to another. Even without changing jurisdictional authority, EBFM will require collective buy-in and cooperation amongst the various management entities that have jurisdiction over fisheries of energetically-related stocks. NOAA Fisheries, through its EBFM Policy, will need to take a leadership role to make this coordination and cooperation happen.

Finally, the draft NOAA policy outlines some general steps the agency will take to enhance science supporting EBFM, but is not sufficiently specific about how and when it will be done. It is unclear how the agency will develop and validate models to provide appropriate catch advice and estimate uncertainty about that advice. Many population models are fit to several years of existing data, which represent prevailing conditions at best and past conditions at worst. Specific to ecosystem models, dietary (and hence energy flow) data are based on years of stomach content data that are affected by overlapping species distributions and prey preferences.

These data and assumptions that the models use may not be valid even in the short term, where management decisions often focus. Thus setting ecosystem catch limits based on these models and data may guide us to incorrect management decisions if the effects of climate change are not taken into account. Although this problem is recognized in the draft EBFM policy, it is not clear

that the policy places sufficient emphasis on quantitative forecasts that account for changing conditions.

The Council is also concerned that new initiatives to provide scientific advice for EBFM will be possible without siphoning off resources to make decisions on current management plans. The EBFM policy statement should be more specific about how it will allocate funds and resources between programs that support current mandates as well as new programs to support EBFM, or how to manage the transition.

Sincerely,

E.F. "Terry" Stockwell
Chair