

Document 3d: NEFMC Risk Policy and strawman EBFM goals and objectives

In the following, the four pillars of the Council Risk Policy are listed and Interwoven with Elements of the EBFM PDT Draft Goals and Objectives. Elements derived from the Goals are highlighted in color boxes. Those from the objectives are in colored text. If some elements are considered subsets of others, they are indented. A number of ‘objectives’ are also categorized as ‘Tools’ or ‘Best Practices’.

NEFMC Risk Policy Supported by Four Strategic Approaches:

1. *The Council’s risk policy will take account of both the probability of an undesirable outcome and the negative impact of the outcome. The probability of outcomes that have a long-term negative impact on ecosystem function should be low.*

EBFM PDT Goals: Protect/Conserve Ecosystem Structure and Function

1. To protect the ecological integrity of US marine resources as a sustainable source of wealth and well-being for current and future generations
2. Conserve ecosystem structure and function to ensure sustainable delivery of ecosystem services. Goal measured by the biological diversity of species, demographics (e.g. age structure), genetics, and habitat types.
3. Maximize benefits to society ensuring ecological and social integrity
4. Sustain long term economic benefits while ensuring that fishing does not affect the state and dynamics of managed species and the ecosystem.

Fundamental Elements of the Overarching Goal

Biodiversity

Conserve genetic diversity

Minimize adverse fishery and non-fishery impacts on habitats

Ecosystem Services

Sustain and enhance ecotourism opportunities (whale watching, seabirds, recreational fishing, etc.)

Biodiversity

Minimize discarding of all species, including species that have no landed economic value

Achieve a catch level that is consistent with ecosystem needs and productivity, adequate forage

Minimize adverse effects caused by climate change by preserving biodiversity to maintain ecosystem resilience

Humans as Part of the Ecosystem

Increase stakeholder engagement to improve adaptability and responsiveness

Increase flexibility for fishermen to adapt to changing distribution and productivity among species having commercial and/or recreational value.

Preserve important relationships between small fishery-dependent communities and the nearby marine resources that support them.

Allow flexibility for groups with harvest rights to participate in multiple fisheries in an EPU and/or management unit

Define fisheries in a spatial dimension rather than by species, allowing fishermen to target species in high abundance within specified management areas

--Allocate and manage catches in a spatial dimension rather than by species

Facilitate ongoing adaptation of ecosystems and fishing fleets to a changing climate.

2. *The cumulative effects of addressing risk at all levels of the fishery management process (e.g., estimation of OFL, ABC, ACL, ACT, and setting accountability measures) will be taken into account.*

Stressors Cumulatively Contributing to Risk

Reduction in Genetic diversity

Adverse fishery and non-fishery impacts on habitats

Discarding of all species, including species that have no landed economic value

Catch levels that are inconsistent with ecosystem needs and productivity, adequate forage

Adverse effects caused by climate change by preserving biodiversity to maintain ecosystem resilience

3. *Harvest control rules and management procedures will consider stability in the face of uncertain information and inherent variability in ecosystems.*

Catch levels that are consistent with ecosystem needs and productivity, adequate forage

Estimate uncertainty in ecosystem and multispecies assessments

Characterize uncertainty

Implement broad ecosystem monitoring programs

Evaluate uncertainty in ecosystem sampling and monitoring programs

Optimize the delivery of services that support productive and healthy ecosystems.

Define and implement appropriate buffers against uncertainty

Develop, test, and verify ecosystem trophic models and management strategy evaluation models to provide strategic and tactical management advice

-- Develop a process to assess stock condition and productivity for each EPU and for setting catch limits for defined management units.

Develop ecological reference points that account for localized productivity, accounting for variations in productivity, trophic interactions, and gains or losses through net migration of species to and from neighboring EPUs

Develop conceptual model of EPU food web

Describe habitat needs of different life history stages of animals and plants in the significant foodweb” and develop conservation measures

4. *Implementation of the policy will be analysis-based, using methods commensurate with the importance of tradeoffs between conservation, ecosystem roles, and fishery benefits, as well as the tradeoffs between short-term and long-term benefits. The goal should be harvest control rules and management procedures that are formally evaluated with a view towards extracting signal from noise so that management and fisheries are less sensitive to uncertainty. This goal should allow for a dynamic process of implementation and review, and modification when warranted.*

Develop Mechanisms for addressing tradeoffs

Recognize and account for ecological interactions among species that occur within an EPU, providing for sufficient food source to sustain a diverse population of marine species

Estimate uncertainty in ecosystem and multispecies assessments

Establish ecosystem indicators, reference points (targets) and performance thresholds in a manner that links to executing management tools

Calculate total removals – including incidental mortality and relate removals to standing biomass, production, optimum yields, natural mortality and trophic structure

Management Tools

Manage removals (landings and discards) through a consistent system of catch shares, as a primary management tool

Implement a system of highly productive MPAs that perform multiple ecological functions and preserve more natural population structure for a wide range of species.

Develop, test, and verify spatial analysis tools for guiding and supporting management decisions at various spatial scales, including the EPU and management sub-units

Delineate extent of ecosystem interactions (EPU boundary)

Define an EPU and management units that are consistent with species occurrence and human activity based on statistical patterns of similarity.

Ensure adequate prey availability in times and areas needed to support abundant megafauna

Best Practices

Create adaptive processes and structures

Encourage fishing practices that minimize discarding and environmental effects

Develop robust and accurate science that incorporates ecological processes to support management decisions

Simplify regulations and slow the pace of regulatory change

Prioritize ecosystem research with highest returns

Incorporate multiple levels of ecological complexity and operating space and time scales across indicators.

Facilitate ongoing adaptation of ecosystems and fishing fleets to a changing climate.

Require all Council actions to be reviewed for risk caused by climate change effects.

Improve data availability and usability

Apply co-management procedures