



New England Fishery Management Council
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 Daniel Salerno, *Chair* | Cate O'Keefe, PhD, *Executive Director*

MEMORANDUM

DATE: April 9, 2026
TO: Cate O'Keefe, Ph.D., Executive Director
FROM: Scientific and Statistical Committee
SUBJECT: Response to Terms of Reference - (1) 2026 State of the Ecosystem Report; (2) SSC workshop on dynamic reference points; (3) Risk Policy; and (4) Other Business

The Scientific and Statistical Committee (SSC) met in person and via webinar on March 30, 2026 to address Terms of Reference (TOR) for reviewing the *2026 State of the Ecosystem - New England* (SOE) report prepared by the Northeast Fisheries Science Center (NEFSC), receiving an update on plans for an SSC workshop on dynamic reference points, providing input on the Council's Risk Policy development, and to discuss other business.

SSC members in attendance: Dr. Conor McManus (Chair), Dr. Edward Camp (Vice-Chair), Dr. Anna Birkenbach, Dr. Adam Delargy, Dr. Alex Hansell, Dr. Lisa Kerr, Dr. Gareth Lawson, Dr. Jason McNamee, Dr. Mateja Nenadovic, Dr. Kevin St. Martin, Dr. Fred Serchuk, Dr. Michelle Staudinger, Dr. Sam Truesdell, Dr. Hiro Uchida, and Dr. John Wiedenman.

2026 STATE OF THE ECOSYSTEM REPORT

Terms of Reference

The Northeast Fisheries Science Center (NEFSC) has provided the *2026 State of the Ecosystem Report* (SOE, Document #2). Please address the following Terms of Reference:

- A. Recommend key signals described in the report that the Council should consider when making management decisions over the next year.
- B. Recommend potential improvements to future reports to support the Council's review and input to the NEFSC.

General Comments

To address these TORs, the SSC considered the information listed at the end of this memo. The SSC received a presentation from the Northeast Fisheries Science Center (NEFSC) staff on the SOE report. The SSC appreciates the tremendous work by many contributors that goes into producing this high-quality and useful product to support regional fisheries management. The

SSC continues to value the opportunity to provide feedback on the report and make recommendations aimed at increasing its utility for fisheries decision-making. The SSC appreciates the continued work to advance this product and make it more actionable for Council decisions.

Terms of Reference Findings

TOR A. Recommend key signals described in the report that the Council should consider when making management decisions over the next year.

The SSC noted several signals reported in the SOE that the Council should consider in its management deliberations. Ideally, the SOE would be presented to the Council with accompanying guidance as to how it can be used to help with decisions. The risks to meeting management objectives (spatial and seasonal management, catch limits and marine development) are useful bullets that offer high level information relevant to many Council decisions (p.3). A number of useful trends are available. For example, total revenue as well as its breakdown into price and volume offered by the Bennet Indicator give socioeconomic context for decision-making (p.21). Prey and thermal indicators offer useful information with respect to current conditions, and the MOM6 bottom temperature forecasts in particular are helpful to posit expected future ecosystem states that will represent the conditions framing the outcomes of Council decisions (p.3). In addition to holistic ecosystem trends, the SOE also reports trends associated with particular species that could provide utility; for example, recent ocean acidification risk associated with sea scallops was lower in 2025 than in many recent years (p. 79).

TOR B. Recommend potential improvements to future reports to support the Council's review and input to the NEFSC.

The SSC recommends curation of the SOE and related products that would further streamline its application to management. One challenge the SSC faces is the limited timeframes under which ABC decisions need to be made; directing members to relevant information would improve the utility of these products. Within the SOE, it would be helpful to emphasize cases where the information provided has species-specific applications; a table or index listing such instances could help focus decision-makers on relevant information that informs a particular decision. Documenting instances where ecosystem trends or specific indices (e.g., Gulf Stream Index, bottom temperature within some particular stock area, etc) that are used directly by stock assessment models (and possibly their forecasts) reference would be highly useful for the SSC. Products such as the "snapshot" ESP for black sea bass that was presented to the MAFMC SSC in 2025 could help provide species-specific information that could have a clear on-ramp into management, particularly if developed concurrently or in time for SSC specification deliberations.

The SOE reports commercial managed species revenue from trips within wind project areas. Aside from the exclusion of some commercial vessels, an additional impact is the inability of the NEFSC bottom trawl survey to operate. This increases the uncertainty of survey index data used in stock assessments. It would be useful for the SOE to summarize the active and potential future exclusions from the footprint of this survey.

Species that are overfished and undergoing overfishing are highlighted in the report. An emphasis on which stocks are moving into or out of rebuilding plans could help improve stakeholders' understanding of overall management performance beyond just stock status.

When discussing catch-based management objectives and outcomes, it could be useful to identify stocks that are underutilized relative to their management targets. It would be useful to report what the catch limits were to disaggregate availability or targeting from management constraints as well as to indicate whether additional fishing opportunities may exist.

The SOE contains substantial information on unfished, lower trophic level species and other aspects that relate to the overall ecosystem. This information could warrant an additional objective centered on ecosystem health. Presently, the stability objective includes the ecosystem as one consideration, but separating out ecosystem health as an objective would center its importance in supporting fisheries and communities.

The report summarizes species diversity in the NEFSC trawl survey and the diversity of recreational catch. It would be informative to track these metrics as cold- and warm-water species components.

With regard to the Fishery and Ecosystem Stability section, the SSC supports the refined criteria where stability is measured by volatility, adaptive capability, and shifts from baseline. A clear explanation on how “stable” and “not-stable” labels are interpreted was also useful (e.g., “not-stable” does not mean “we are experiencing negative impacts.”) Nevertheless, these terms inherently do carry positive/negative connotations, especially when they are used to describe the state of fisheries, which could be misleading. For example, in this report the fishery was described as “not-stable.” It is conceivable that non-experts may interpret this as a negative status. Further, given that the ecological stability was determined to be “not-stable” for both Georges Bank and Gulf of Maine, fisheries trying to adapt to changing ecological conditions would make them appear not-stable, which can be considered as a positive outcome. Perhaps a better term is equilibrium, where “not at equilibrium” simply implies that the system is still adjusting rather than an “unstable” system that is about to collapse.

The report quantifies profits from the federal fleet, however this is not inclusive of fishing activities from stocks that are not managed by the Council, so it is unclear whether this is representative of the conditions experienced by fishing communities. If the objective is to provide inference at a broader scale than strictly Council-managed stocks, it would be worth reconsidering this metric or how it is presented.

The Bennet Indicator offers a useful breakdown of revenue into volume and price components; however, the magnitude of these components depends on the starting year used for reference. The year 1982 is used because it is the start of data availability, but the report would benefit from more consideration of sensitivity to the reference year or further justification of that assumption.

The Social and Community Risks section, and elsewhere in the document, referred to “communities” as a key unit of analysis, but do so in multiple ways (e.g. community as port, community as fleet, community as community of practice, community based on gear and/or vessel characteristics). The expansion of indicators and metrics addressing the status of communities is very much welcome but that expansion also suggests a need to review and make clear the different accountings of community and community wellbeing. The SSC did not offer definitions of these metrics.

Editorial suggestions

- Ensure that the terms “profits” and “revenues” are distinguished and not used interchangeably.
- Better explain the term "fleet count."

SSC WORKSHOP ON DYNAMIC REFERENCE POINTS

Terms of Reference

- A. Review, comment on, and as needed recommend revisions to the draft goals, expected outcomes, and agenda of the SSC workshop on dynamic reference points.

General Comments

To address this TOR, the SSC considered the information listed at the end of this memo. The SSC received a presentation from Council staff on plans for an SSC workshop from June 1-2, 2026 in Boston, MA. The workshop is focused on dynamic reference points, which unlike static reference points, can change through time in response to non-stationarity in fish population dynamics. While scientific approaches to define dynamic biological reference points exist, the lack of a full understanding of their appropriate application and practical concerns about this change in developing management targets and thresholds has presented challenges to adoption. This workshop aims to develop practical guidelines for integrating dynamic reference points into fisheries stock assessment and management.

Terms of Reference Findings

TOR A. Review, comment on, and as needed recommend revisions to the draft goals, expected outcomes, and agenda of the SSC workshop on dynamic reference points.

The SSC appreciated the opportunity to provide feedback on the proposed workshop goals and outcomes. The Committee inquired about attendance from outside experts, with the notion that expertise from outside the SSC may be useful for these discussions. It was confirmed that the meeting will operate similar to a traditional SSC meeting, but there will be an opportunity to have local non-SSC members with expertise participate to a degree. The SSC had much discussion on how to best incorporate social scientist information to the topic. The presenter confirmed there will be an opportunity to consider social science in the context of scaling or considering the impacts of dynamic reference points impacts on fisheries and the management system. Currently, the vision is for social scientists to work together in breakout groups to provide recommendations. Social scientist expertise will also be valuable in understanding how to address uncertainty in management systems. Prospective case studies were proposed for inclusion by the workshop facilitators, and the SSC recommended including SNE/MA winter flounder. A question was posed by the SSC on how do we get a better handle of the uncertainties associated with the economic impacts of dynamic reference points (given much of our discussions have focused on the biological uncertainties).

The meeting facilitators asked SSC members to please share relevant literature with them so they could start to include the literature in meeting materials. Lastly, the SSC commented on whether this workshop topic would be well suited for a Scientific Coordination Subcommittee (SCS) meeting theme in the future. It was noted that several themes from this meeting were presented at

the SCS8 meeting, but perhaps a future SCS meeting could further focus on the topic, particularly if the outcomes of this meeting would be useful to other SSCs.

RISK POLICY

Terms of Reference

- A. Consider the information provided on the revised Risk Policy Concept, including factor revisions, mechanics of developing z-scores, example linking the Risk Policy with an ABC Control Rule, and options for the SSC's use of the Risk Policy. Provide feedback on the proposed application of the Risk Policy Concept.

General Comments

To address this TOR, the SSC considered the information listed at the end of this memo. The SSC received presentations on the development of the Council's Risk Policy, including a presentation by Jonathon Peros (NEFMC) describing updates and revisions to the policy since the last time the SSC reviewed it, and a presentation from Dr. Roger Brothers, (University of Maine) regarding simulation and sensitivity analyses for how risk policy scores and weightings could be used to inform SSC deliberations. The presenters also provided overall timelines for expected implementation of the Risk Policy Concept.

Terms of Reference Findings

TOR A. Consider the information provided on the revised Risk Policy Concept, including factor revisions, mechanics of developing z-scores, example linking the Risk Policy with an ABC Control Rule, and options for the SSC's use of the Risk Policy. Provide feedback on the proposed application of the Risk Policy Concept.

The SSC reviewed the materials and presentations, and thanked the presenters and working group members for their time and efforts. The social science (SS) members of SSC also noted that the integration of socioeconomic dimensions into the Risk Policy is a positive step towards integrating socioeconomic information and considerations in earlier stages of the decision-making process. The SSC then proceeded to provide several comments for consideration.

Risk Policy Factors (weighting and scoring)

The SSC emphasized that where possible, additional thought should be given to how the factors are correlated (e.g., commercial and recreational fisheries factors, biological and fisheries factors). The presenters emphasized that there has been considerable discussion amongst the work group regarding correlation between factors and perhaps overweighting certain elements as a result. This led the work group to reduce the total number of factors to five. The SSC noted that, for example, reducing socioeconomic concerns into a single factor (or one of several elements contributing to a single factor) could undermine the effectiveness of the Risk Policy in conveying the full socioeconomic context at various stages of the decision-making process. The presenters noted that the number of factors could increase in the future.

It was noted that the commercial and recreational fishery characterization factors are still under development. For example, commercial fisheries characterization factors considered for scoring were listed (e.g., quota usage, fishing communities, etc.) but the SSC suggested that some critical

details were missing. These include (a) how these factors translate to (or define) the scores; (b) what is the temporal benchmark – trends over the past five years, ten years, since Amendment 16, etc.; and (c) what data sources are used to get these factors. Furthermore, for some indicators the causal mechanism assumed was unclear. For example, economic stress was assumed to have a one-directional effect on the risk tolerance – more stress pushes the risk tolerance higher, not lower – but does not explain why this direction was chosen. As for the metrics used as scoring factors, the SSC recommends including economic stability, cultural continuity, and community vulnerability, and that final descriptions of the metrics included in these factors indicate the data sources, temporal benchmarks, scoring thresholds, and causal mechanisms. The SSC did not discuss specific recommendations for the definition of these metrics. For recreational fisheries, it should include participation trends, economic value and consider the for-hire sector and more dispersed private recreational fishery.

Related to the last point, there was a brief discussion of how the Risk Policy factors, especially for commercial and recreational fisheries, consider short and long-term risk. Focusing again on the increased socioeconomic stress leading to risk tolerance increase, the policy is implying that the long-term risks (e.g., low harvest due to depleted stock) is discounted heavily in favor of short-term risks (e.g., relieving today's stress). The presenter acknowledged that the current structure of the Policy does give priority to short-term effects, but also noted that other factors (e.g., recruitment and stock status) can provide balance to think about long-term health of the resource and fishery and that these tradeoffs can be considered as implementation progresses. The SSC recommends revisiting these topics in future revisions.

Risk Tolerance and Interaction with ABC Control Rules

The SSC considered the two options for determining the scientific uncertainty buffer between OFL and ABC (Document 2, slide 13). Regarding Option A (simple percentage buffer or potential proportion of OFL approach), the SSC noted that depending on the buffer approach, there could be unintended consequences that should be anticipated. Using the tiered buffer approach could result in a large change in the potential proportion of the OFL depending on how the tiers are designed. The dynamic buffer approach can result in a smaller or less dramatic change by using a continuous relationship between the potential proportion of OFL and recommended probability of management success. If the relative size of ABCs are scaled to their OFL, in addition to stock size changes, the resulting changes could be more pronounced. Buffer and scaling considerations should also note how close can ABCs be set in relation to the OFL. The presenters noted that there will be forthcoming management strategy evaluation (MSE) work that will better simulate how different buffers and scoring can influence alterations in recommended ABCs. The interaction with the risk policy concept and harvest control rules was also discussed by the SSC. The SSC appreciated the presenters outlining the different NEFMC control rules and how risk policy could apply to non-groundfish stocks (e.g., scallops, small mesh multispecies, monkfish), and noted the forthcoming MSE/simulation work would better inform their future recommendations.

The SSC considered the five options for how the SSC could use the Risk Policy in recommending ABCs (Document #1, slide 17). The SSC recommended applications that allow the SSC greater flexibility for use, such as that outlined in concept 5 (Advisory ABC: Outputs from the Risk Policy with ABC control rule server as a starting point for deliberations), to allow for flexibility in how close an ABC is to the OFL. Such flexibility or latitude also provides the

SSC an opportunity to better evaluate other elements such as additional social and economic considerations (e.g., the degree of economic stress) and assessment uncertainty.

OTHER BUSINESS

Feedback on NEFSC Data Updates

The discussion focused on providing feedback to NEMFC leadership and staff on how NEFSC data updates could be augmented for improved use in SSC deliberations and decision-making when full stock assessments are unavailable. A key issue identified was the lack of clear decision rules linking updated data (e.g., survey indices, catch) to management actions. Data updates do not align with our current control rules and, to date, resulted in status quo or more conservative recommendations in most cases. SSC members emphasized the need for a structured framework to define when changes in data should trigger adjustments to catch advice.

For future data updates, the SSC highlighted that it would be useful to incorporate age-structured data (e.g., catch-at-age, indices-at-age), though concerns remain about the sustainability of aging efforts. Additional data sources, such as alternative survey indices and fishery dependent (e.g., catch per unit effort) indices, were seen as potentially valuable to future data updates but require standardized processes for use, and in some instances additional peer-review prior to being operationalized. The SSC briefly discussed whether additional information from current surveys datastreams (e.g, timing of the surveys) would also be useful when considering the indices. Overall, the group underscored the need for clearer decision rules and consideration of additional data streams relevant on a stock by stock basis. It should be noted that if the SSC were to develop the decision rules itself, the aforementioned survey and catch data would need to continue to be provided via plots and tableau format.

Discussion on the Use of Longer-Term Specifications

The discussion focused on improving approaches for setting multi-year fishery specifications, particularly 5-year timelines. Committee members noted that longer-term specifications innately result in using “older data” to inform catch advice, and as such may be less reliable given changing environmental and ecosystem conditions. During SSC catch advice deliberations in 2025, the SSC used a semi-structured approach when determining when to deviate from constant catch advice over a five-year period, considering concerns such as the degree of uncertainty in estimates (e.g., “paper fish”) in out-years, applying control rules potentially resulting in increased risk of overfishing, or applying control rules potentially resulting in substantial socioeconomic hardship with deviation from them not measurably increasing overfishing risk. As discussed in previous meetings, SSC members suggested the potential role of the Risk Policy and approaches like increasing buffers between OFL and ABC over time.

There was interest in using monitoring and industry data (e.g., observer data, catch information) to inform mid-cycle adjustments, especially when new stock assessments are unavailable. However, it was acknowledged that without new data inputs, there may be little difference between 3-year and 5-year approaches. Thus, the key issue is not the timeframe itself, but whether new or informative data streams are available to justify changes in catch advice. The SSC also discussed the potential value of ecosystem indicators in their semi-structure approach that could be relevant to adjust specifications in interim years. For example, recent trends in

environmental signals from SOE reports could help inform catch advice for stocks over five years when information on environmental linkages for a given stock exists.

INFORMATION

SOE Report

1. Presentation on SOE report by J. Caracappa, NEFSC
2. *2026 State of the Ecosystem Report*, with memo from NEFSC to SSC re: SOE request tracking, March 20, 2026

Dynamic Reference Points Workshop

1. Presentation on workshop planning by J. Cournane, NEFMC
2. Workshop overview white paper

Risk Policy

1. Presentation on Risk Policy Concept revisions, SSC use of Risk Policy, and implementation plan by J. Peros, NEFMC
2. Presentation on Risk Policy mechanics and ABC control rule example by R. Brothers, UMaine
3. Risk Policy Concept and Appendices
4. Draft Risk Policy Workplan

Background Documents

1. 2025 State of the Ecosystem – New England, NOAA/NEFSC