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

DRFT MEETING SUMMARY

Risk Policy Working Group

November 14, 2025

9:30 a.m. Webinar

The New England Fishery Management Council's (NEFMC) Risk Policy Working Group (RPWG) met by webinar on November 14, 2025 to: 1) discuss the development and use of Risk Policy Matrix in Council actions; 2) continue to refine elements of the Risk Policy Concept for future use; 3) Review feedback from simulation testing and consider recommending adjustments to the Risk Policy factors, data sources, and scoring rubric 4) discuss other business.

MEETING ATTENDANCE

Megan Ware (Chair), Dan Salerno (Vice-Chair), Jonathon Peros (Council Staff), Dr. Jason McNamee, Dr. Naresh Pradhan, Melanie Griffin, Moira Kelly, Geoff Smith, Bill Lucey, Dr. Kevin St. Martin, Dr. Joe Caracappa. Dr. Cate O'Keefe (Executive Director), Dr. Roger Brothers from the University of Maine, along with several Council members and Council staff joined the webinar.

Materials for the meeting can be found at this link.

KEY OUTCOMES

- The working group developed recommendations for possible modifications to the Risk Policy Concept. These included:
    - Shape of the curve. The working group agreed to explore shifting the full logistic curve above the 50% probability level to provide more stability at high and low levels of risk tolerance, while maintaining the ability to respond quickly to changes in the middle range.
    - Z-Score Scaling. Z-scores should be able to access the full range of the logistic curve, rather than being limited to the more linear portion. Additional work to determine the scaling is needed.
    - Score Ranges. Consider revising the possible score ranges, in concert with revisions to Z-score scaling.
- The working group will continue to utilize sub-groups to explore revisions to the following factors:

- Stock Assessment Type
- Recruitment
- Fish Condition (and Ecosystem Productivity)
- Commercial and Recreational Fishery Characterization

The meeting began at 9:31 a.m.

WELCOME AND INTRODUCTIONS

Ms. Ware opened the meeting with a roll call and logistics updates. She acknowledged the new working group members Geoff Smith and Bill Lucey. Ms. Ware reviewed the agenda for the working group, and acknowledged the recent interest in the Risk Policy by the Council and SSC as a tool for navigating current challenges, particularly in groundfish specifications.

RISK POLICY AND THE STATUS OF REGIONAL SCIENCE AND MANAGEMENT

Dr. Cate O'Keefe presented an overview of the current status of regional science and management, highlighting impacts of federal budget cuts and the Council's efforts to develop new tools for addressing challenges. Dr. O'Keefe noted that the Council is navigating changes to data collection programs, stock assessment products, and management actions. She emphasized that the Council is exploring was to increased flexibility in management through the Council's approval of a recent omnibus amendment. She concluded by emphasizing the importance of integrating risk policy into harvest control rules and increasing consistency in how the Council considers risk in management.

Mr. Jonathon Peros presented an updated Risk Policy work plan, and outlined the two phase approach that was used in 2025 (Alpha and Beta). The presentation focused on the Beta phase, which is aims to update and refine the Risk Policy Concept by June of 2026. Mr. Peros explained that an update to the Concept would occur concurrently with the Council completing a weightings exercise in June. Completion of updates and weightings by June 2026 should allow time for staff, the SSC, and the Council to understand and apply it for specifications in 2027. The work plan includes revising some of the factors, data sources, and mechanics of the Risk Policy in preparation for a quantitative application of the risk policy with harvest control rules.

Ms. Ware emphasized the need for a group commitment to meet the June deadline. A working group member raised questions about the weighting process and the integration of the risk policy into harvest control rules, which Jonathon addressed by confirming that a single weighting would be applied "globally" for all stocks.

RISK POLICY CONCEPT, MECHANISTIC TOPICS (INPUT FROM UMAINE DEMONSTRATION, DR. ROGER BROTHERS)

Dr. Roger Brother presented on an ongoing project focusing on evaluating the Council's Risk Policy in the context of ABC Control Rules, focusing on Risk Policy Mechanics and Implications. Dr. Brothers discussed the shape of the logistic curve, z-score scaling, and factor score ranges, highlighting how these elements interact to determine risk tolerance.

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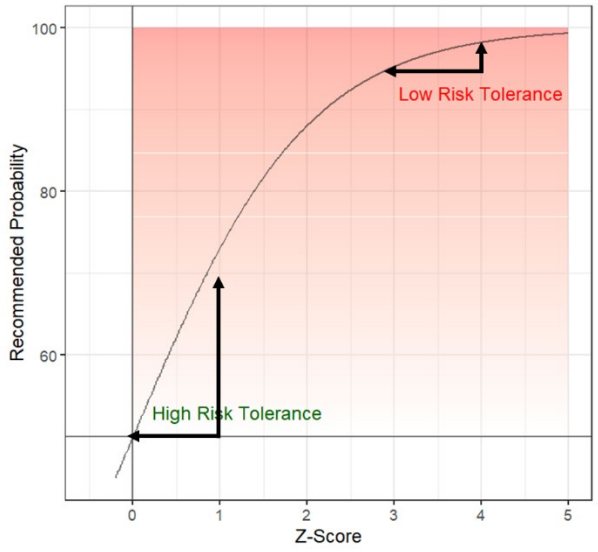
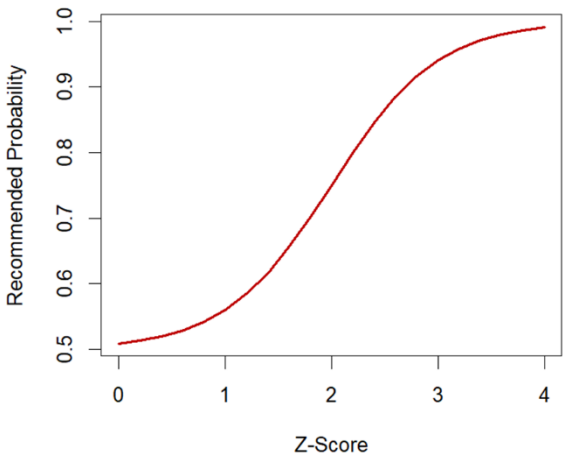
Shape of the Curve

Following a presentation by Dr. Brothers, the group discussed the shape of risk assessment curves, with Dr. McNamee explaining the rationale for the initial choice of a logistic curve, which allows for flexibility and is responsive near the 50% mark. The Working Group agreed to explore shifting the full logistic curve above the 50% probability level to provide more stability at high and low levels of risk tolerance, while maintaining the ability to respond quickly to changes in the middle range. Mr. Smith suggested clarifying the terminology around "probability of management success," which Ms. Ware acknowledged as a future task, while the group also discussed the importance of curve steepness to avoid excessive volatility in harvest control rules.

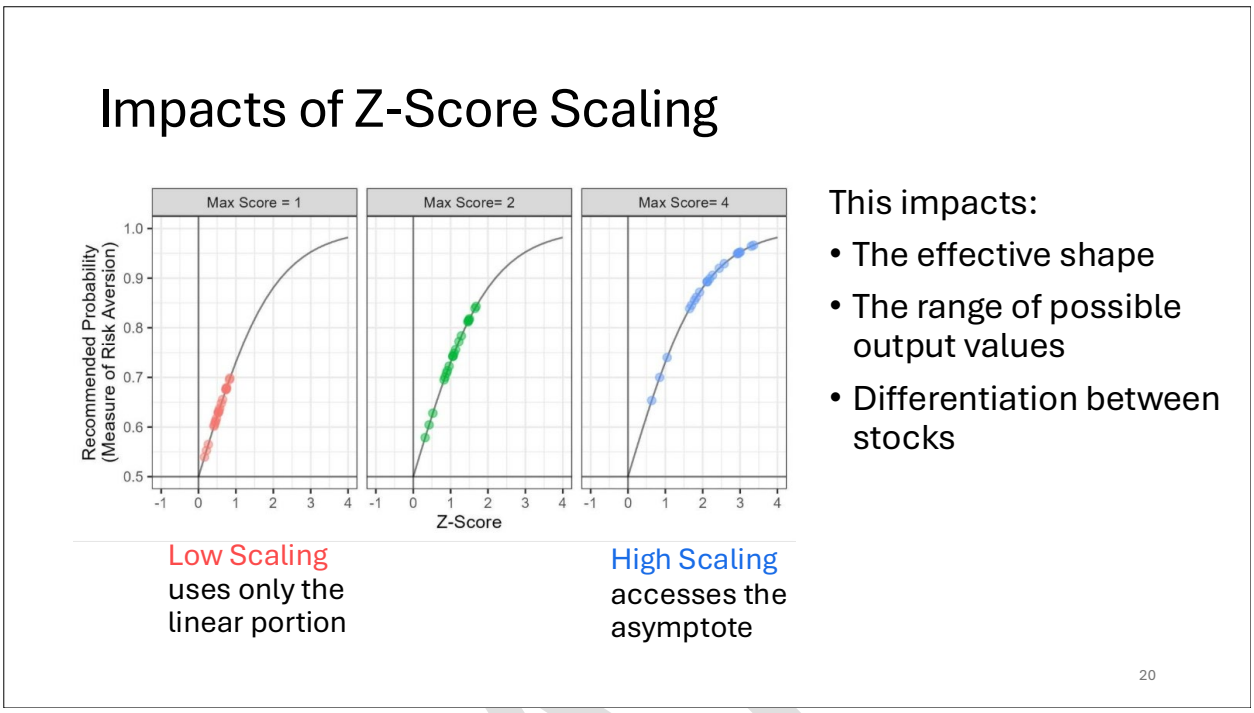
Table 1 - Comparison of current and proposed shape of Risk Policy curves, with notes from R. Brothers presentation (11/14/25).

Current Shape of Curve	Working Group's Recommended Shape of Curve
	
Curve is steeper at low Z-Scores, which means that it is more responsive at high risk tolerance. Curve is at asymptote at high Z-scores, which means it is less responsive at low risk tolerance.	With this curve, risk tolerance moves quickly at intermediate Z-scores and moves slowly at high and low Z-Scores.

Z-Scale Scoring

Ms. Ware and Dr. Brothers presented on the scaling calculations for risk assessment. Ms. Ware explained how scores are transformed from a -4 to 4 range to a -1 to 1 range (Z-score) for analysis. Dr. Brothers presented visualizations showing how different scaling factors affect movement along the logistic curve, noting that the full range of curve cannot be realized under the current approach. Working group members agreed that the Risk Policy and Z-scores should be able to access the full range of the logistic curve, rather than being limited to the more linear portion.

Figure 1 - Relative impacts of varying Z-Score Scaling (1 , 2, 4). From R. Brothers presentation, 11/14/25.



SCORE RANGES

Dr. Brothers explained how the distribution of Z-scores (between -4 and 4) also influences movement along the curve. He noted that negative scores combined with a truncated logistic curve result in a loss of information and reduced differentiation between stocks. Unequal score ranges introduce implicit weighting, skewing factor influence. Additionally, the assumption that a neutral score equals zero can misalign the intent of scoring rubrics with the outcomes of the logistic function. Since a Z-score of zero corresponds to a recommended probability of 0.5, this often provides little or no buffer between ABC and OFL, meaning that neutral conditions could lead to the most risk-tolerant value allowed.

RISK POLICY CONCEPT REVIEW AND DISCUSSION

The working group focused on reviewing and discussing the goals, data, and scoring rubrics of the Risk Policy factors. Dr. Brothers presented interpretations of the current risk policy's goals for seven factors, including stock status, recruitment, assessment type, climate vulnerability, fish condition, commercial fishery, and recreational fishery. The group discussed the relationship between factors and its potential impact on determining risk tolerance, as well as the neutral positions and directionality for each factor. Ms. Ware encouraged the workgroup to consider whether all factors are necessary in the first iteration of Risk Policy implementation with ABC control rules, and to consolidate if possible (i.e. use fewer than 7).

The working group discussed each of the factors, and had a preliminary discussion about whether or not to include them in the initial quantitative implementation. Regarding recruitment, the working group noted that Dr. Kerr and Dr. McNamee were working to revise the scoring method using quantiles to better characterize recruitment trends. This work is expected to

continue. The group debated whether or not do drop the stock assessment type factor (for now), noting the potential implementation challenges. Members of the working group expressed concern how data updates will be scored, and agreed to continue the discussion about including the factor after a sub-group has time to make a recommendation. Another sub-group will form to examine the fish condition factor, and ecosystem productivity more broadly. The working group noted that some concern has been expressed around using fish condition alone as a proxy for environmental productivity, and recommended that a sub-group report back on the continued use of fish condition, and other options for characterizing ecosystem productivity. The working group also expressed strong support for continuing to refine and develop factors related to economic and community importance. Ms. Ware explained that the commercial and recreational fishery characterization sub-groups had looked at score ranges for these factors that would contribute to neutral or more risk tolerant Z-score outcomes.

PROGRESS AND NEXT STEPS

The working group agreed to assemble sub-groups for several factors: commercial and recreational fishery characterization, recruitment, stock assessment, and ecosystem productivity. The subgroups will likely meet in December, ahead of a full workgroup meeting in January 2026.

Sub-Group	**Working Group Members**
Recruitment	Lisa, Jason
Assessment Type	Dan, Moira
Fish Condition / Ecosystem Productivity	Joe, Jonathon, Geoff
Commercial and Recreational Fishery Characterization	Megan, Dan, Kevin, Bill, Jonathon

OTHER BUSINESS

No other business was discussed.

The meeting ended at 1:07pm.

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DRAFT MEETING SUMMARY

Risk Policy Working Group

August 21, 2025

1 p.m. Webinar

The New England Fishery Management Council's (NEFMC) Risk Policy Working Group (RPWG) met by webinar on August 21, 2025 to: 1) Discuss use of the Risk Policy in upcoming Council actions; 2) Continue to refine elements of the Risk Policy Concept for future use. Review feedback from simulation testing and consider recommending adjustments to the Risk Policy factors, data sources, and scoring rubric; 3) discuss other business.

MEETING ATTENDANCE

Megan Ware (Chair), Dan Salerno (Vice-Chair), Jonathon Peros (Council Staff), Dr. Lisa Kerr, Dr. Jason McNamee, Dr. Naresh Pradhan, Dr. Jon Deroba, Melanie Griffin, Moira Kelly, Dr. Joe Caracappa. Ms. Angelia Miller participated in the meeting, along with several members of the Council and Council staff.

Materials for the meeting can be found at this link.

The meeting began at 1:01 p.m.

WELCOME AND INTRODUCTIONS

Ms. Ware opened the meeting and reviewed the agenda for the working group. She explainted that the focus of the meeting would be around refining risk policy factors based on feedback from public and Council input, simulation testing, and sub-groups. She noted that while the working group focused on weighting exercise at recent meetings, the current priority for the working group was to revisit the Risk Policy Concept and continue work in the Beta phases of Risk Policy implementation.

RISK POLICY ALPHA AND BETA PHASES

Mr. Jonathon Peros recapped the Alpha/Beta applications of the Risk Policy. The Alpha Phase focuses on the use of the revised Risk Policy matrix, but no scoring of factors will occur. Mr. Peros explained that the Council's technical staff met in July to discuss assembling data for the matrix, and that instructions were developed.

In the Beta Phase, the Council and RPWG will continue to refine the Risk Policy concept. Adjustments to the Risk Policy will not occur on a rolling basis unless specifically directed by the Council. Mr. Peros also highlighted that multiple Council groups and projects are interconnected and advancing on different timelines.

Ms. Angelia Miller detailed her work populating matrices for groundfish stocks, and shared recommendations for improving readability with different formatting. This included a recommendation to transpose columns into rows to expand space on the page for descriptor text, and trim the number of columns that are presented, focusing on just data responses for public facing documents. She also shared ideas to avoid redundant documentation, and ensure the system is adaptable to new processes (e.g. stock assessment data updates).

Key feedback from the working group is summarized below:

- The working group supported proposed changes that are intended to make the matrix more approachable. These include adopting a new format of the matrix to reduce white space on the page by transposing columns to rows. A working group member suggested that a more detailed version of the matrix that includes data sources could be housed on the Council website as a reference. The group also felt that it is important to ensure placeholders are used when data is unavailable to maintain consistency across matrices.
- The working group supported exploring the concept of a cover sheet for groundfish stocks. Ms. Miller will develop a draft cover sheet for groundfish stocks, and the working group will provide feedback on this approach.
- The working group also supported continuing work to refine how recreational fishery information is shared through Risk Policy matrices.

REVIEW OF RISK POLICY CONCEPT AND SUB-GROUP INPUT

The working group opened with a discussion around recent feedback and new challenges observed during a recent SSC meeting. Dr. Kerr noted the shift from full stock assessments to streamlined data updates and the extension of catch advice periods from three to five years. These changes can introduce additional uncertainty, as data updates lack the depth of traditional assessments and longer specification periods increase discomfort about using outdated data. Dr. Kerr suggested incorporating these scenarios into the Risk Policy framework, possibly through scoring or guidance. Dr. McNamee supported these observations, noting that these issues were not previously contemplated and require planning. Mr. Salerno confirmed these concerns were echoed at the NRCC meeting and added that future assessments may include data updates with projections, signaling a need for the risk policy to adapt to evolving assessment formats.

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Dr. Kerr and Dr. McNamee presented a comprehensive review of the recruitment factor, and identified challenges with the current rubric. Ambiguities in terms such as "multiple year classes" and "average recruitment," unclear timeframes, and overlapping criteria could lead to conflicting scores. They proposed clarifying the factor's goals—whether to capture process error, observation error, or future uncertainty—and suggested a quantile-based approach to classify recruitment as low, average, or high. Additionally, they introduced the idea of a second dimension for "trust" in recruitment estimates, creating a two-axis scoring table that combines magnitude and confidence. They raised questions about species-specific timeframes and cautioned against double counting by crosswalking with related factors like climate and assessment uncertainty. Working group feedback was generally positive: several members endorsed the quantile approach and two-axis table but requested clearer, quantitative guidance for defining trust. Dr. Kerr proposed developing a checklist for PDTs.

For the stock assessment type factor, Mr. Salerno and Ms. Kelly recommended simplifying the assessment type and performance rubric to improve usability. Their proposal focused scoring based on the most recent assessment report rather than historical trends. They also suggested categorizing assessments as analytical or empirical, with subcategories for major retrospective patterns requiring rho adjustments and empirical assessments with or without stock status determination. The sub-group also proposed adding considerations for time since last assessment and projection quality. Feedback from the working group emphasized prioritizing projection quality over time gaps, noting that life history traits influence projection reliability. Dr. Deroba suggested using generation time ratios to adjust for species differences, while Dr. McNamee flagged evolving challenges with state-space models. The working group supported flip-flopping scores for empirical versus analytical rho-adjusted models based on simulation results.

Revisions to the commercial fishery characterization factor were proposed to better reflect socioeconomic conditions. Ms. Ware proposed changing the scale to 0 to -4, meaning the factor would only add risk rather than increase precaution. Six scoring questions were introduced, focusing on participation decline, revenue per vessel trends, consolidation, fuel cost increases beyond inflation, quota dependencies for other species, and port-level revenue concentration. Working group members supported the revisions but raised concerns about data availability and timeliness. Dr. Pradhan recommended narrowing the variables to participation, revenue, and fuel cost for simplicity, while other working group members suggested worked examples to illustrate interactions between fishery health and stock health.

Mr. Peros and Dr. Carracappa reviewed the fish condition factor, which is currently used as a proxy for climate and ecosystem considerations, and concluded it was insufficient. They recommended expanding the factor to include multiple indicators such as habitat quality and productivity drivers, while retaining fish condition at the stock level. They proposed integrating data streams from the State of the Ecosystem (SOE) report and EDAB to capture broader ecosystem impacts. Dr. Kerr cautioned against excessive complexity and suggested testing simple versus comprehensive approaches. Mr. Andy Applegate from the Council staff noted that fish condition alone may misrepresent ecosystem health due to density dependence, reinforcing the need for multiple indicators.

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RISK INDICATORS

Mr. Max Grezlik from the NEFSC introduced high-priority indicators for climate and ecosystem considerations to the working group, focusing on NEFSC products that are peer-reviewed, not used in stock assessments, have a mechanistic connection to life history for Council managed stocks. Working group members noted that these indicators are of interest given the feedback on fish condition as a stand-alone factor. Indicators temperature-based metrics (cold pool persistence, heat wave index), recruitment drivers (Calanus abundance), and economic indicators (Shannon diversity index, Bennett index price component, net revenue) for several Council managed stocks. Discussion focused on integrating species-specific indicators into a broader risk policy framework and evolving toward a quantitative climate vulnerability index. Working group members considered this information in the context of the current Risk Policy, and suggested these granular indicators could eventually replace or complement the current climate vulnerability scores.

RISK POLICY SIMULATION TESTING UPDATE

Dr. Kerr provided a brief update on simulation testing, explaining that future work will demonstrate how risk scores translate into ABC buffers using logistic curves and risk tiers. The team is scoping Management Strategy Evaluation (MSE) scenarios and preparing a report summarizing scoring demonstrations for Groundfish stocks.

OTHER BUSINESS

No other business was discussed.

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MEETING SUMMARY

Risk Policy Working Group

June 18, 2025

12:30 p.m. Webinar

The New England Fishery Management Council's (NEFMC) Risk Policy Working Group (RPWG) met by webinar on June 18, 2025 to: 1) Discuss use of the Risk Policy in upcoming Council actions, focusing on the development of any refinements and/or clarifications to the Risk Policy Matrix and guidance for Plan Development Teams for 2025; 2) Discuss and make recommendations on the continued development of the Risk Policy, and review results and feedback from the Risk Policy weightings exercise at the April Council meeting; 3) receive an update on simulation testing to the Risk Policy; 4) discuss other business.

MEETING ATTENDANCE

Megan Ware (Chair), Dan Salerno (Vice-Chair), Jonathon Peros (Council Staff), Dr. Lisa Kerr, Dr. Jason McNamee, Dr. Naresh Pradhan, Dr. Jon Deroba, Melanie Griffin, Moira Kelly, Rick Bellavance, Dr. Joe Caracappa. Several members of the Council staff, along with other Council members and the general public joined the webinar.

Materials for the meeting can be found at this link.

KEY OUTCOMES

- The working group supported a two-phase approach for using and developing the risk policy.
    - In 2025, the Risk Policy use will include populating a revised Risk Policy matrix, and reliance on the new Risk Policy statement and description of stability. Factors will not be scored. This approach was described as Alpha phase.
    - Concurrently, the Council will continue to develop the Risk Policy through a Beta phase that includes simulation testing, refinement of factors and data, and responding to input and feedback being provided by various Council bodies.
- The working received an update on Risk Policy simulation testing from Dr. Roger Brothers and members of the project team. The working group agreed to address feedback from the project team over the summer, and to provide immediate feedback on issues of scaling, weighting, and use of certain factors.

- The working group agreed to the following next steps:
    - Assemble sub-groups to discuss and respond to feedback on factors provided by the Council, CESC, and simulation testing project team.
    - Assemble a Risk Policy use sub-group to develop instructions around how Council groups should use the risk policy in 2025. This includes guidance for PDTs, the SSC, APs, and Committees.
    - Council staff consider preparation of Risk Policy documents for possible regulatory flexibility action, and for spiny dogfish.
    - Work to further refine terminology and definitions to improve use and understanding of the Risk Policy.

The meeting began at 12:31 p.m.

WELCOME AND INTRODUCTIONS

Ms. Ware opened the meeting with a roll call and logistics updates. She acknowledged the Cheri Patterson has retired from New Hampshire Fish and Game, and noted that this will be Rick Bellavance's last meeting as he terms off the Council later this summer. Ms. Ware stated that discussions about re-populating the working group can occur following the election of officers at the September Council meeting. Ms. Ware reviewed the agenda for the working group.

RISK POLICY MATRIX AND SCORING

Mr. Jonathon Peros presented a recap of the weighting exercise that was completed at the April Council meeting. The presentation focused on the weighting process that the Council used, and the outputs from the exercise. The working group was reminded that weights are public records, and briefly reviewed the instructions that Council members were given to complete weightings. The Council provided weights for three scenarios: 1) all managed species / FMPs (Global); 2) Atlantic sea scallops; 3) Gulf of Maine haddock. When completing the weightings, Council members were instructed to apply a weight of critically important, the highest weight, no more than three (3) times. Mr. Peros noted that when comparing the average weights by factor and between exercises, the weights were largely similar. He noted that some Council members had expressed interest in using a Global weighting approach at the April meeting.

Working group members spoke to the continued need to refine and clarify the terminology being used to describe and apply the Risk Policy. The working group keyed into the results for weights for the recreational fishery characterization, with one member noting that the weights varied for this factor, and that it came out as the lower overall average weight for the full Council. Mr. Ware addressed the comments, and spoke to plans to revise the recreational fishery characterization questions, which could have factored into this outcome during the practice session.

Ms. Ware highlighted the success of the weightings exercise. Working group members generally supported completing one set of "global" weights to cover all Council managed resources, though some working group members felt that there was value in competing weights at a finer resolution (FMP or stock level). One working group member cautioned that completing weights at the stock level can blur the lines between the scoring process which is meant to be objective,

and the weightings process, which is a policy choice by the Council. The working group also supported developing communications around what use a "global" weighting approach would mean and look like.

POLICY MATRIX AND SCORING

Dr. Roger Brother presented on an going project focusing on evaluating the Council's new Risk Policy in the context of ABC Control Rules. The project is focused on qualitatively and quantitatively evaluating the performance of the Council's Risk Policy, and has three main objectives: 1) Evaluate the Council's updated Risk Policy and demonstrate factor scoring and potential for integration with ABC Control Rules. (Spring and Summer 2025); 2) Develop Management Strategy Evaluation (MSE) framework to evaluate the performance of the Risk Policy in the context of groundfish ABC Control Rules. (Summer and Fall 2025); 3) Work with the NEFMC project oversight team to co-develop priorities and alternative scenarios for the MSE and conduct simulation testing. (Fall and Winter 2025).

Dr. Brothers reviewed the scoring and weighting of factors before addressing how the Risk Policy can be integrated with the Council's existing ABC control rules. Two concepts were proposed: 1) A dynamic buffer between the OFL and ABC; and 2) Risk tiers that indicate alternative buffer levels or fundamentally different Control Rules by tier. Next, Dr. Brothers summarized the existing ABC control rules used by the Council.

The majority of the presentation focused on work being completed under project objective 1, and the team's initial scoring of factors across groundfish stocks. The team completed scoring of 5 of the 7 factors for groundfish stocks, and catalogued difficulties or challenges they encountered, along with issues in applying the rubric and metrics defined in the Risk Policy concept document. Following a review of the factor scoring, Dr. Brothers walked through a demonstration of applying Z-scores and carrying the results through to possible management advice. This analysis included sensitivities for the scaling of Z-scores (1, 2, 4), and the weights being used to derive Z-scores (uniform and NEFMC weights).

Key feedback from the project team is summarized by factor below:

SSB / Stock Status:

- Method: NOAA Fisheries' StockSmart was used compile assessment results over time for all stocks in the NE Multispecies FMP.
- Difficulties, Challenges, Considerations:
    - For empirical stocks, with unknown status, how to characterize the 5-year trend could be made more explicit (i.e., linear regression: significance, slope)?
    - The project team experienced challenges automating scoring using data from StockSmart. StockSmart only reports managed stocks, and does not report certain quantities for certain assessments due to stock-specific details.
    - There is potential for large variation in when SSB is close to a rubric threshold.
    - There can be a range of potential drivers the influence scoring other than a change in stock "health". These include changes made to and/or in the assessment model, revisions to reference points (e.g. SNE winter flounder).

Recruitment:

- Method: The project team used StockSmart to compile assessment results over time for all stocks in the NE Multispecies FMP. For individual stock assessments through time we characterized whether the age 1 abundance estimated in each of the last 5 years was above or below the timeseries mean. The team applied the Risk Policy rubric to dynamically characterize an SSB score over time.
- Difficulties, Challenges, Considerations:
    - There are aspects of the scoring guidelines in the rubric that are open to interpretation. In these instances, the project team made the following assumptions:
        - What does multiple large year classes mean? Assumed 3 or more.
        - How far above or below the mean is considered "large" or "small?"
        - What is an appropriate time frame to characterize "average?" Project team used the full time series.
        - How close to the mean is considered average?
        - What do you do when conditions for multiple scores are met simultaneously? For example, two years about the mean and two years below the mean.
    - Explicit criteria should be developed to identify when "recent changes in recruitment have been accounted for in reference points and/or stock projections" (default score to 0). The project team defaulted to 0 when:
        - Reference points assume recent average recruitment (e.g., SNE/MA yellowtail flounder).
        - Projections assume temporal auto-correlation in age-1 abundance (e.g. GOM haddock).
        - Projections assume a stock-recruitment relationship (e.g. SNE Atlantic cod).
    - Defining "large recruitment events" as above average and "low recruitment" as below average allows for potential misinterpretation. Sporadic or variable recruitment should be carefully considered. The current rubric doesn't address this effectively. A quantile-based approach to defining above, below, and average recruitment could help.

Recruitment:

- Method: The project team used the most recent stock assessment report to characterize the assessment type, magnitude of the retrospective pattern, and the number of uncertainties that were listed. Next, the team applied the scoring rubric for each stock.
- Difficulties, Challenges, Considerations:
    - The project team reported that the rubric was straightforward to follow, but they did need to make two assumptions to complete the scoring. First, for models like ASAP, that are analytical, but not state-space, the only determining criteria was the level of retrospective pattern. Second, for state-space analytical models (e.g., WHAM), the only element used for determining the factor score was the number of uncertainties listed in the assessment report.

- Potential issues flagged by the project team included: 1) There is not objective guidance informing which uncertainties are listed in stock assessment reports; 2) There is wide variation among stocks, that is unlikely to reflect meaningful differences; 3) The rubric does not consider that model results are "rho-adjusted" when there is a major retrospective pattern; 4) The rubric does not consider the magnitude of uncertainty in assessment results (e.g., estimated uncertainty bands SSB or R); 5) It is possible to have an empirical assessment that performs well.

Climate Vulnerability

- Method: The project team used the characterizations in Hare et al. (2016) in combination with the rubric from the Risk Policy Concept Document. The team did not score this dynamically over time.
- Difficulties, Challenges, Considerations:
  - The project team reported that the rubric was straightforward and that they did not make any additional assumptions.
  - The underlying data being used to score this factor is nearly 10 years old and is likely dated.
  - A new climate vulnerability analysis (CVA 2.0) is in development, and can be applied when ready.

Fish Condition

- Method: The team used the ecodata package in R to extract the Fish Condition data that underly the State of the Ecosystem reports. For each species/EPU combination the team stepped through years (2005-present) and recalculated the quantile classifications. The Risk Policy rubric was applied to dynamically score each stock over time.
- Difficulties, Challenges, Considerations:
  - The project team reported that the fish condition factor was straightforward to score using the rubric and the available data. However, it was not always easy to find a map of stock boundaries to determine which State of the Ecosystem EPUs should be considered. The team used both stock areas and distribution maps reported on NOAA's website to qualitatively assign each stock to an EPU (or multiple, if appropriate). For a unit stock like pollock, the team only used the GOM EPU.
  - Scores can fluctuate dramatically between successive years. The theoretical relationship between mean condition and risk tolerance is unclear and may vary across stocks. Assigning stocks to EPUs is not straight forward. In addition, for stocks that extend into multiple regions the rubric weights each region equally. Their distributions, however, are unlikely to be uniform throughout all regions.

Dr. Brothers specifically noted the potential for interdependence across factors as a potential source for double counting. He explained that the climate related shifts in productivity could be reflected in several factors (stock status, recruitment, climate vulnerability, and fish condition). Also, stocks with empirical assessments will score lower than those with analytical models for SSB, recruitment, and assessment type/performance.

With respect to the scoring rubric provided in the Risk Policy concept, the project team emphasized that the rubric was difficult to interpret for some factors, and noted that it is important to align the rubric with products that are being used. Finally, they suggested that the Council should clarify its intention of each factor, for example two factors deal with productivity (recruitment and condition).

Working group members expressed gratitude to Dr. Brothers and the project team, noting the substantial progress that has been made on simulation testing and the thoughtful feedback they had provided on the scoring rubric. Members of the working group asked clarifying questions about the impacts of uniform weighting versus the Council's weighting, and were curious how different the Z-scores and management advice were when applying the Council weights versus a uniform weight. The working group was also interested in how applying the commercial and recreational fishery characterization factors might change the outcomes that were presented at the meeting (5 factors vs. 7 factors).

The working group raised ideas of setting a maximum deviation from uniform weighting as a possible option, with an example of not allowing for the Z-score to move more than 25% away from a uniform distribution.

When asked if they needed any specific feedback from the working group, the project team stated that providing guidance around the inclusion of factors and data to use would be useful (e.g. the commercial and recreational factors were not yet included in outputs for the meeting). They also mentioned guidance around the use of the fish condition factor, and if there should be simulation runs without it. Input on the scaling of Z scores and the weighting outputs was also welcomed. Dr. Kerr also acknowledged the role of the project oversight team for this work, and said input would be coming from that group.

RISK POLICY USE AND DEVELOPMENT

Mr. Peros presented a staff recommendation to begin use of the risk policy and continue its develop in separate tracks work (phases). In the "Alpha Phase" the revised Risk Policy matrix will be populated using guidelines outlined in the Risk Policy concept, but the factors will not be scored. In the "Beta Phase" the Council and RPWG will continue to develop the Risk Policy, focusing on updates to the Risk Policy factors and guidelines for scoring (e.g. questions, data), weighting of factors by the Council, outcomes from the simulation testing, and the linkage of the Risk Policy with updated groundfish ABC control rules. These changes are anticipated to occur no earlier than 2026. Changes or adjustments to the Risk Policy will not be made on a rolling basis unless explicitly instructed by the Council. Mr. Peros also noted that there are several Council groups and projects that are interrelated and running on various timelines. This is different from the PDT-Committee structure, and the group discussed the options for addressing the feedback on the Risk Policy that is coming from a range of sources at different times.

Mr. Peros also noted that a follow-up from the CESC meeting was to have staff, the CESC Chair, and the RPWG Chair explore opportunities for Steering Committee engagement in Risk Policy implementation. The working group recommended that feedback should be in writing, and sent directly to Council staff if it is not included in a meeting summary (e.g. CESC). The group also supported having staff summarize the Council's discussions.

Feedback at the April Council on factors focused on the fish condition factor, along with interest in revisiting the questions used to score the commercial and recreational fishery characterization. There continues to be opportunity to adjust or change factors (combine, different data sources, different questions for PDTs to answer). At the CESC meeting, the participants raised several questions about how Z-scores are calculated and used, particularly in relation to control rules and their influence on management decisions. Mr. Peros stated that this highlighted a need for clearer guidance and explanation.

Other ongoing work includes the simulation testing and ABC CR development the Dr. Brothers presented on. Mr. Andrew Applegate on Council staff has been focused on assembling data for Risk Policy from a range of sources, and is exploring the integration of this data into Council documents (Annual Monitoring Reports). Finally, Mr. Peros noted that there may be some potential for to work with the NEFSC's EDAB group on the synthesis of data and information being assemble for stock assessments or as part of the ESPs.

The working group agreed to assemble sub-groups to respond to feedback on factor scoring, and to develop outreach materials to the PDTs, SSC, Advisory Panels, and Committees. Mr. Peros will follow-up on the application of the Risk Policy to upcoming Council actions, including a spiny dogfish action and a potential regulatory flexibility action.

Sub-Group	**Working Group Members**
Risk Policy Use Sub-Group (documentation and communication)	Jonathon, Moira, Melanie
SSB / Stock Status	Lisa, Jason
Recruitment	Lisa, Jason
Assessment Type	Dan, Moira
Climate Vulnerability	N/A, CVA 2.0 is moving forward.
Fish Condition	Joe, Jonathon
Commercial Fishery Characterization	Megan, Dan, Joe
Recreational Fishery Characterization	Megan, Moira
Scaling of weights and scores (for Z score)	Megan follow-up with Roger and Lisa

OTHER BUSINESS

Mr. Risk Bellavance thanked Ms. Ware and Mr. Salerno for their leadership of the group, and expressed gratitude for the opportunity to participate in this effort. No additional other business was discussed.

The meeting ended at 3:37pm.

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MEETING SUMMARY

Risk Policy Working Group

March 7, 2025

1 p.m. Webinar

The New England Fishery Management Council's (NEFMC) Risk Policy Working Group (RPWG) met by webinar on March 7, 2025 to: 1) Plan for a Council run-through of the Risk Policy weightings process to be presented at the April Council meeting; 2) continue to work on the implementation of the Risk Policy. Focus on refinements to the Risk Policy Matrix and plans for simulation testing and coordination with other ongoing Council efforts such as the Climate and Ecosystem Steering Committee; 3) discuss other business.

MEETING ATTENDANCE

Megan Ware (Chair), Dan Salerno (Vice-Chair), Jonathon Peros (Council Staff), Dr. Lisa Kerr, Dr. Jason McNamee, Dr. Naresh Pradhan, Cheri Patterson, Melanie Griffin, Moira Kelly, Rick Bellavance, Dr. Joe Caracappa. Andy Applegate (Council Staff) also participated in the discussion.

Materials for the meeting can be found at this link.

KEY OUTCOMES

- The working group developed recommendations for how to structure the weightings exercise at the April 2025 Council meeting:
    - Multiple weightings exercises for the Council to complete.
    - For each factor, define what is considered for scoring and what is considered for weighting, noting that they are not exactly the same.

The meeting began at 1:02 p.m.

IMPLEMENTATION OF THE RISK POLICY IN 2025 AND APRIL COUNCIL MEETING

The Council is expected to complete a practice weightings exercise at the April Council meeting in Mystic, CT. Council staff provided an overview of plans for the meeting, and noted that the objectives are to familiarize the Council and members of the public with the Risk Policy concept and to allow Council members to gain experience with weightings at the Council meeting. Staff shared a draft agenda of the Risk Policy report at the April meeting, before reviewing results of a

weighting exercise that the working group was asked to do in preparation for the group's meeting on March 7. Council staff noted that working group members had expressed a clear preference for how weightings questions would be asked (grid/matrix), and had questions about how much data should be provided to support the weightings process.

The working group felt that having background information available for Council members as they completed the exercise would be useful, but noted the tension between providing data that would be used for scoring as part of a weightings exercise. The working group also discussed the importance of balancing the need for detailed information with the potential for overwhelming Council members. The group recommended having more information explaining each of factor, and describing the difference between scoring and weighting. The working group saw value in having the Council do the weightings exercise multiple times to build familiarity with the process. There was discussion around how the weightings could be done, including limits on the number of times a factor could be weighted as critically important. The working group debated the merits of weighting at the species/stocks individually versus at the fishery management plan level, or just one weighting for all Council managed species. The group noted some of the challenges of conceptually separating weighting from scoring (objective, done by the PDT). The working group also spent time discussing the recreational fishery characterization, and how there is no recreational fishery component in some FMPs. In these cases, the score for this factor should be 0, which would mean that the factor would not contribute to the Z score in the Risk Policy concept. The working group agree that more communication is needed in this area.

RISK POLICY MATRIX AND SCORING

The working group discussed the revised Risk Policy Matrix. Council staff explained that members of the working group would be meeting with the Council's technical staff to roll-out the new matrix and solicit input. Staff also touched on the data sources that would inform scoring, noting that information needed to support the risk policy comes from a multitude of sources. The working group discussed opportunities to integrate data needed to support the risk policy into annual monitoring reports, SAFE reports, NEPA analyses that the Council produces (affected environment). The group discussed the need for a long-form document to support the scoring process and reduce redundancy. Mr. Andy Applegate discussed the potential to automate annual monitoring reports and integrate them with the risk policy matrix with the group. The working group supported the concept of automating data, noting that the availability and timeliness of data are key issues that need to be considered. The working group emphasized the importance of collaboration with Council staff to streamline processes and reduce workload in the implementation of the Risk Policy. A member of the working group suggested looking at NOAA stock smart for potential automation and data integration opportunities, and Dr. Joe Carracappa offered to share code for pulling data from the NOAA Stock Smart database.

OTHER BUSINESS

Under other business, Council staff noted that Megan Ware and Dan Salerno would be meeting with Council staff to discuss weightings and scoring, and highlighted that the Council has recently formed a Climate and Ecosystem Steering Committee (CESC). Council staff explained that the CESC aims to provide overarching guidance and support for climate-ready fishery

measurement approaches, and that they would be supporting the work of the risk policy working group. Council staff also noted that Dr. Lisa Kerr and Dr. Roger Brothers from the University of Maine were under contract to conduct simulation testing of the Risk Policy in conjunction with the development of new ABC control rules for the Northeast multispecies FMP. The simulation testing will help understand the impact of weightings and scoring factors on the Risk Policy outputs, and the influence it will have on catch advice. Working group members stated they the looked forward to working with Lisa and Roger as the project gets underway.

The meeting ended at 3:42pm.

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MEETING SUMMARY

Risk Policy Working Group

January 8, 2025

The New England Fishery Management Council's (NEFMC) Risk Policy Working Group (RPWG) met by webinar on January 8, 2025 to: 1) Consider revisions to the risk policy matrix; 2) discuss opportunities to leverage the State of the Ecosystem report to support the Risk Policy; 3) discuss implementation of the Risk Policy in 2025; 4) begin work on planning for a Council walk-through of the weightings process; 5) address other business as needed.

MEETING ATTENDANCE

Megan Ware (Chair), Dan Salerno (Vice-Chair), Jonathon Peros (Council Staff), Dr. Lisa Kerr, Dr. Jason McNamee, Dr. Naresh Pradhan, Cheri Patterson, Melanie Griffin, Moira Kelly, Rick Bellavance, Lindsey Williams. The working group was joined by Dr. Joe Carracappa from the Northeast Fisheries Science Center.

Materials for the meeting can be found at this link.

KEY OUTCOMES

- The working group developed recommendations for a new risk policy matrix that better aligns with the new concept and directly links to factors.
- The working group discussed ways to leverage the State of the Ecosystem report and other NMFS products to support the Risk Policy.
- The working group made preparations for a weightings exercise at the April Council meeting.

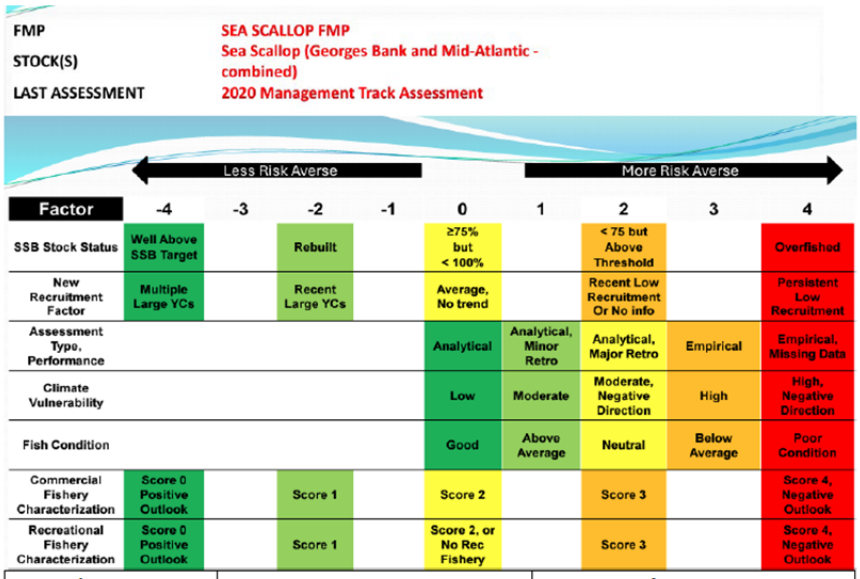
The meeting began at 9:03am.

RISK POLICY MATRIX AND SCORING OF FACTORS

Ms. Megan Ware provided an overview of the Risk Policy concept before presenting on possible modifications to the Council's risk policy matrix. The working group reviewed the current matrix in sections, and considered changes to the amount of information being provided, and the way it is organized. Ms. Ware highlighted the need to develop a matrix that aligns with the current risk policy, and is more approachable for Council members and the public. Another emphasis was to create a matrix that could reduce staff workload and trimming down the length of the matrix to

improve clarity. Ms. Ware presented a modified version of the matrix for the group to review, stepping through recommendations to add and remove information, and posed a series of questions to the group. Ms. Melanie Griffin presented a streamlined version of the matrix that combined the color-coded scoring matrix and descriptions of scoring for each factor. There was broad support for the simplified version of the matrix that Ms. Griffin presented (Figure 1).

Figure 1 – Draft Risk Policy Matrix Concept discussed at the Working Group Meeting.



FMP	SEA SCALLOP FMP
STOCK(S)	Sea Scallop (Georges Bank and Mid-Atlantic - combined)
LAST ASSESSMENT	2020 Management Track Assessment

Less Risk Averse ← → More Risk Averse

Factor	-4	-3	-2	-1	0	1	2	3	4
SSB Stock Status	Well Above SSB Target		Rebuilt		≥75% but < 100%		< 75 but Above Threshold		Overfished
New Recruitment Factor	Multiple Large YCs		Recent Large YCs		Average, No trend		Recent Low Recruitment Or No info		Persistent Low Recruitment
Assessment Type, Performance					Analytical	Analytical, Minor Retro	Analytical, Major Retro	Empirical	Empirical, Missing Data
Climate Vulnerability					Low	Moderate	Moderate, Negative Direction	High	High, Negative Direction
Fish Condition					Good	Above Average	Neutral	Below Average	Poor Condition
Commercial Fishery Characterization	Score 0 Positive Outlook		Score 1		Score 2		Score 3		Score 4, Negative Outlook
Recreational Fishery Characterization	Score 0 Positive Outlook		Score 1		Score 2, or No Rec Fishery		Score 3		Score 4, Negative Outlook

Group Theme	Factor	Supporting Information
Stock Status and Uncertainty	Biomass Stock Status	SSB/Target, Overfished?, Rebuilding? Target rebuilding date
	Recruitment	Recent trends and how accounted for in assessment
	Assessment Type	Type, Model, Terminal Year, Description, Availability of Biological and Assessment Data, major sources of uncertainty
Climate and Ecosystem Considerations		
	Climate Vulnerability	Climate impacts and whether accounted for in assessment
	Fish Condition	Trends, habitat, trophic interactions
Economic and Community Importance		
	Commercial Fishery Characterization	Landings, Revenues, LPUE, DAS, Lease price, Vessels, permits, dealers, processors, employment, communities, major sources of uncertainty, choke stocks
	Recreational Fishery Characterization	Communities, Trips, major sources of uncertainty
Additional Information	Overfishing?	

RISK POLICY AND THE STATE OF THE ECOSYSTEM REPORT

Mr. Jonathon Peros presented several slides focusing on the opportunities to leverage the state of the ecosystem report (SOE) to support the Council's Risk Policy. The presentation recapped how the current Risk Policy plans to use indictor data generated for the State of the Ecosystem report. Dr. Joe Caracappa from the Northeast Center explained the schedule and process for the state of the ecosystem report and the potential for aligning indicators with the risk policy

The group discussed the ideas around making more connections between data sources to support the Council's decision-making process, and that there are opportunities to re-think how information is being packaged to better serve the management process. The group noted that there are other products like ecosystem and socioeconomic profile (ESPs) that are often used for stock assessment could also be leveraged to support management efforts like risk policy.

The group asked Dr. Carracappa about the ability to for the SOE to present indicator data at the FMP or species level. There are some indicators that have been grouped by fishery management plan. Most are presented in the SOE report at the ecosystem production unit (EPU) scale. Dr. Carracappa answered several questions about the use of commercial and recreational data in the SOE reports. Dr. Carracappa noted that the SOE process is not in the business of scoring indicators based on predetermined levels. He explained that the Center is looking for input on how to better describe indicators and trends using language of risk in both regions.

IMPLEMENTATION OF RISK POLICY AND APRIL COUNCIL MEETING PREPARATION

Ms. Megan Ware addressed planning for a weightings exercise at the April council meeting. She explained that the objective for this meeting is to build familiarity with the weightings process and provide the Council with an opportunity to practice the weightings process, review results in near real-time, and provide feedback. Ms. Ware reminded the group that weightings are a way for the Council to signify the level of importance of a particular factor and that the weightings process is a policy decision that includes input from all Council members. She also explained that all voting Council members are expected to participate and that weightings will occur at the fishery management plan level and not the species or stock level.

The working group discussed the format of the extended Council session, along with technology options, and possible stocks to use in a weightings mock trial. The working group felt that it will be important for the Council to debrief after each round of weightings.

After debating which stocks/species to focus on, the group settled on recommending using scallops and herring as case studies for the mock trial. The working group emphasized the need for multiple rounds and potential challenges with groundfish examples. Dr. Jason McNamee shared a visualization tool for displaying weightings/survey results, and members of the group touched on concerns about potential biases in polling. The group suggested identifying folks at the Council or NMFS who may have experience in survey and polling methods. A weightings sub-group of Ms. Ware, Mr. Salerno, Dr. McNamee, Ms. Kelly, and Mr. Peros was formed to make progress on this topic before the next working group meeting.

Mr. Peros noted that the Council was in the process of developing a request for proposals to conduct simulation testing of the Risk Policy concept in conjunction with the development of groundfish ABC control rules.

The next meeting was tentatively scheduled for March 7th, with a focus on refining the weighting process and addressing any remaining questions to address before the April Council meeting.

No other business was discussed. The meeting ended at 11:53am.

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MEETING SUMMARY

Risk Policy Informational Webinar for Advisory Panel Members

September 19, 2024

The New England Fishery Management Council's (NEFMC) Risk Policy Working Group (RPWG) hosted an informational webinar for Advisory Panel (AP) members on September 19, 2024 to discuss: 1) Review the Council's current Risk Policy; 2) elements of the newly developed Risk Policy Statement and concept; 3) examples of applying the revised Risk Policy; and 4) implementation plans.

MEETING ATTENDANCE AND FORMAT

Megan Ware (Chair), Dan Salerno (Vice-Chair), and Jonathon Peros (Council Staff) presented information to the group and took questions from AP members and the public. A complete list of webinar participants is shown at the end of the summary.

RISK POLICY STATEMENT AND CONCEPT

This informational meeting focused on elements of the newly developed Risk Policy (2024) that would replace the New England Fishery Management Council's existing Risk Policy (2016) sometime in 2025.

Working group members explained the revised Risk Policy statement, the concept of stability, and noted that proposed risk policy includes seven factors that the Council would use to characterize risk. These factors will be scored and weighted to assess risk tolerance/risk aversion. The application of the revised Risk Policy (2024) was presented for two stocks: Atlantic sea scallops and Gulf of Maine haddock. Following these examples, working group Chair Ms. Megan Ware described a stepwise implementation plan for the risk policy, noting continuation of the Risk Policy working group, simulation testing of the risk policy, and the opportunity for the Council to continue to refine specifics elements of the Risk Policy such as how weighting would be completed.

Members of the Council's Advisory Panels and public asked questions during and after the presentation, and provided feedback, which is shared below:

- Mr. Hank Soule (Groundfish Advisory Panel Chair)
    - Mr. Soule sought clarification about the number of factors being considered in the revised Risk Policy. RPWG members explained that while the group had developed an expansive

list of possible factors, they had settled on a smaller number of factors that were intended to touch on three categories of stock status and uncertainty, climate and ecosystem considerations, and economic and community importance.
    - Mr. Soule pointed out that for commercial and recreational fishery characterization, many of the factors listed on slide 12 in the presentation could be used to describe this, noting active permits or the number of angler trips.
    - Mr. Soule pointed out that on slide 15, the numbers used to describe the score for Gulf of Maine haddock did not match the scoring rubric in the table that was presented. RPWG members acknowledged the need to correct this and confirmed that the scoring scale for this factor is 4 to -4.
    - Mr. Soule asked a conceptual question about the interpretation of simulation runs using only the scoring and not weights from the Council, and if this would reflect the state of the real world.
    - Mr. Soule asked about Gulf of Maine haddock, and if the new risk policy had been in place, 1) would the fishery have averted a large cut in allocation, and 2) would the risk policy have addressed the impacts of overly optimistic Gulf of Maine haddock assessment. Mr. Salerno stated that the risk policy would not have changed either of those processes/outcomes, and went on to note that the risk policy could have played a role in reducing the distance between the OFL and ABC (addressed by NMFS through an emergency action). Ms. Ware also pointed to the revised stability text as new guidance for catch setting to the SSC and Council. Mr. Soule and Mr. Salerno discussed how market conditions could be accounted for in the revised Risk Policy (2024).
- Mr. Chris Rainone (Monkfish AP and Spiny Dogfish AP)
    - Mr. Rainone voiced support for the concept of stability, and noted the impacts that fluctuations in fish price, export markets, weather, and new recruitment have on fisheries. He expressed concern with poor stock assessments.
    - Mr. Rainone asked if the factors could change, and if so how easily adaptable would they be? Mr. Ware explained that the current list attempts to capture high-level concepts, and that there is room for the factors to evolve over time through implementation. She used an example of a recommendation from a plan development team, or missing data, as instances when the factors or the data used to score the factors could change.
- Mr. Mike Waine, public, American Sportfishing Association.
    - Mr. Waine felt that the scoring of some factors may be more objective than others. He used the example of data coming from the stock assessment for Biomass / Stock Status, and compared that to the commercial and recreational fishery characterization where he noted more interpretation of data needs to occur. Ms. Ware noted that the intent is to have scoring be as objective as possible, noting that there are many nuances that have emerged as the working group was worked through examples of applying the risk policy. Mr. Salerno noted the role of PDTs in the scoring process.
    - Mr. Waine suggested using the terms risk prone to risk averse for describing the scoring and weighting of factors. He noted that it can be difficult to follow double-negatives that were presented in the slides.

MEETING ATTENDANCE

JONATHON PEROS
MEGAN WARE
CATE O'KEEFE
DANIEL SALERNO
JANICE PLANTE
JENNIFER COUTURE
TRAVIS FORD
LAURA DEIGHAN
SAMANTHA TOLKEN
CHERI PATTERSON
ELIZABETH ETRIE
MICHAEL WAINE
KIMBERLY GORDON
CHRIS RAINONE
MELISSA SMITH
WILLIAM LUCEY
JEANNE FULLER
ASHLEY TRUDEAU
CONNOR BUCKLEY
AL COTTONE
ALLISON MURPHY
MATTHEW RIGDON
SAMANTHA TOLKEN
LEO CHOMEN
EMILY BODELL
DREW MINKIEWICZ
MELANIE GRIFFIN
HANK SOULE
RICK BELLAVANCE
TED PLATZ
SCOTT OLSZEWSKI
CAROLINE POTTER
JACKIE ODELL
KATIE ALMEIDA
MARYBETH TOOLEY
KELLY WHITMORE
LINDSEY WILLIAMS

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MEETING SUMMARY

Risk Policy Working Group

September 6, 2024

The New England Fishery Management Council's (NEFMC) Risk Policy Working Group (RPWG) met by webinar on September 6, 2024 to: 1) address Term of Reference (TOR) 2 by continuing to develop a revised Risk Policy concept; 2) consider applying the new approach to catch setting and management of species or stock for illustration purposes; 3) review plans for presenting the Risk Policy Concept to Council Advisory Panel members (TOR 3) prior to the September Council meeting; 4) address other business as needed.

MEETING ATTENDANCE

Megan Ware (Chair), Dan Salerno (Vice-Chair), Jonathon Peros (Council Staff), Dr Lisa Kerr, Dr. Jason McNamee, Cheri Patterson, Melanie Griffin, Moira Kelly, Rick Bellavance, Lindsey Williams.

The working group was joined by Mitch McDonald (NOAA GC), and several members of the public.

Materials for the meeting can be found at this link.

KEY OUTCOMES

- The working group reviewed the results of a weightings exercise and developed additional feedback on how to improve this process.
- The working group developed input for updating guidelines, and recommended the removal of the factor revenue concentration across communities.
- The working group provided feedback on preparation for the September Council meeting and an informational session with the Council's Advisory Panel members.

The meeting began at 9:03am.

TOR 2 – IMPLEMENTATION OF THE RISK POLICY PROCESS USING ATLANTIC SEA SCALLOPS AS AN EXAMPLE

Mr. Jonathon Peros presented an illustrative application of the revised Risk Policy (2024) using Atlantic sea scallops as an example. Mr. Peros began the example by reviewing the process,

outcomes, and feedback of a weightings exercise the RPWG had completed for the illustrative example.

A complete write-up of the RPWG's input and recommendations on weightings can be found in this document, which was prepared for the September 19th Risk Policy Informational Webinar for Advisory Panel members, and September Council meeting. The working group touched on the technology needs to support the weightings exercise, and the need to develop clear guidance for Council members who would be completing the weightings process. The group supported the use of a mock trial to allow Council members to become more familiar with the process, and emphasized the importance of full participation in the weighting process and the potential for a no response option to be revisited based on council feedback. Working group members noted that it can be difficult to not conflate the scoring and weightings processes, and recommended providing more guidance on how to weight factors.

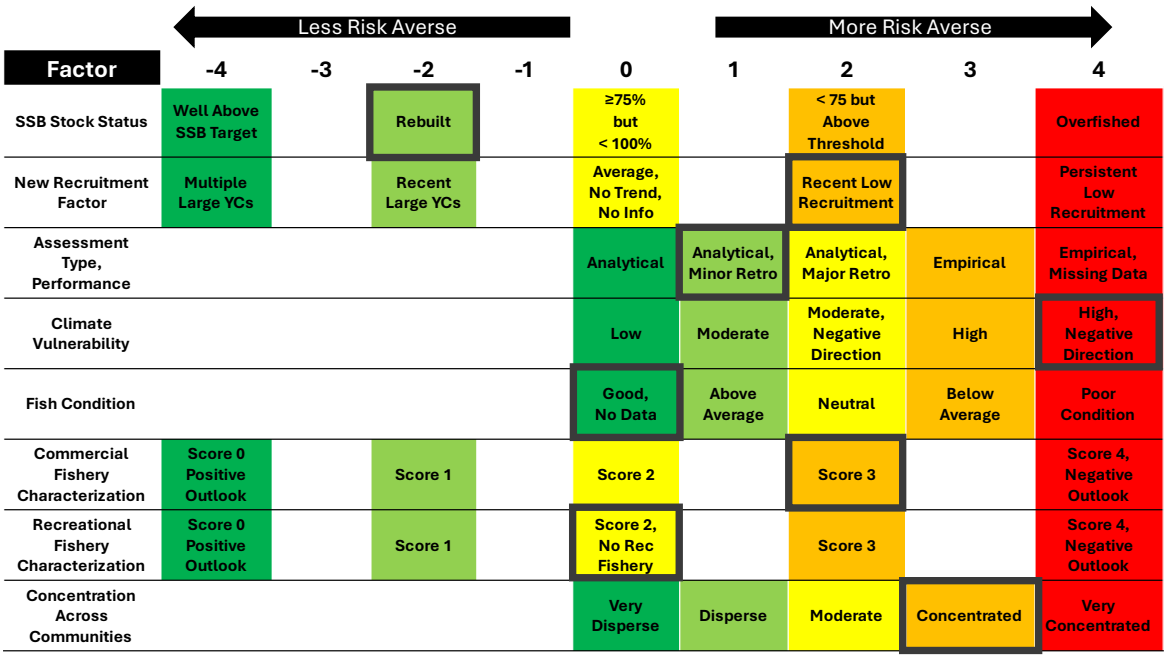
Following this discussion, Mr. Peros presented the Atlantic sea scallop example, focusing on scoring factors, and the interpretation of the scores, weights, and application to management/catch setting. Mr. Ware had updated the descriptions and guidelines for scoring factors based on input at the August 2, 2024 RPWG meeting (new text in red). Following the presentation, the working group discussed several of the comments and questions the Mr. Peros raised in the example. This discussion led the group to update its scoring guidance, which is contained in Section 5.1 of the Risk Policy Statement and Concept (2024). The working group addressed situations where no data, or only older data is available, and ultimately recommended removing the factor using revenue "concentration across communities" because the main source of data was duplicative to the commercial fishery characterization factor. The group also discussed the directionality of some of the scores, and recommended working with the NEFSC's ecosystem group in the future on climate vulnerability data and products. Mr. Dan Salerno shared his experience with scoring groundfish stocks and the potential for overlap between recruitment and SSB factors.

Next, Mr. Peros shared possible interpretations of the Risk Policy process. Utilizing the scores and weights for scallops, he explained the range of possible scores for each factor, and later organized factors based on scores from least risk averse to more risk averse.

The RPWG discussed different potential starting points along the logistic curve for scallops, with staff noting that the ABC is set at a F rate with a 75% chance of being below the OFL. In other examples the group has explored, the starting probability of management success was set at 50%. Dr. Jason McNamee explained that the starting point on the logistic curve is determined by the factor a in the logistic equation, and the group discussed how changing the a value impacts the final Z-score and measure of risk aversion.

The working group supported bringing the example to upcoming meetings, focusing on the scoring and weighting processes.

Figure 1 - Scoring Range of each Risk Policy Factor, scored for illustrative purposes for Atlantic sea scallops.



PREPARATION FOR UPCOMING MEETINGS

Mr. Megan Ware presented a possible implementation plan for the Risk Policy, noting that the Council is expected to vote on to approve the Risk Policy statement and description of stability in September, along with the overall approach of using factors and weightings to characterize the Council's risk tolerance of a stock. Ms. Ware suggested that simulation would explore variance in both scores and weights, and the performance of the risk policy with ABC control rules. The implementation plan included continued meetings of the RPWG, and noted involvement of the SSC in reviewing the results of simulation testing. An emphasis was placed on stepwise implementation of the risk policy, and that it would be best for the Council to start with qualitative applications first.

Members of the working group expressed support for conducting 'mock trials' for implementation with the SSC and PDTs. The group felt that this would help prepare all groups for implementation using worked examples.

The working group sought confirmation of how the group would continue to operate if the Council approved the Risk Policy at its September meeting. Council staff indicated that there are SOPPs for the RPWG, and that staff can confirm this at a future meeting. The preference was to keep the groups membership the same to keep continuity.

Next, the group discussed preparation for an informational meeting with members of the Council's Advisory Panels and the RPWG's report to the Council. Mr. Peros explained that the concept document would be re-written as a Council document so that it would not be the RPWG recommending things to the Council.

At the end of the meeting, the Chair took public comment:

Ms. Libby Etrie, Conservation Law Foundation

- Ms. Etrie commended the working group for their hard work. Ms. Etrie felt that it is currently unclear how the Risk Policy is would be applicable to management measures such as Groundfish Amendment 23 coverage levels or herring buffer zones. She suggested that the working group address this more directly in the concept document or implementation plan. Ms. Etrie also offered that if the risk policy is only going to apply to catch setting, the document could be explicit in saying that. Ms. Etrie also asked is utilizing an MSE process to see how elements of the current groundfish ABC control rule (#3) would perform with the risk policy.

Dr. Bobby Murphy, Northeast Fisheries Science Center

- Dr. Murphy introduced himself as a social scientist at the Northeast Fisheries Science Center. With regard to technology that could support the weightings process, Dr. Murphy voiced support for the software Qualtrics, and offered feedback and some theory on how the weightings process could be conducted.

No other business was discussed.

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MEETING SUMMARY

Risk Policy Working Group

Webinar

August 2, 2024

The Risk Policy Working Group (RPWG) met by webinar on August 2, 2024 to discuss: 1) Address Term of Reference 2 by continuing to develop a revised Risk Policy Concept and focusing on the weighting of factors and implementation of the Risk Policy; 2) Discuss and respond to input provided by the Council and the Council's Science and Statistical Committee; 3) Discuss other business.

MEETING ATTENDANCE

Risk Policy Working Group: Megan Ware (Chair); Dan Salerno (Vice-Chair), Rick Bellavance, Moira Kelly (GARFO), Melanie Griffin, Dr. Jason McNamee (SSC), Jonathon Peros (Council Staff), Dr. Jonathan Deroba (NEFSC), Dr. Naresh Pradhan (Council Staff), Dr. Lindsey Williams (SSC), Dr. Lisa Kerr (SSC).

Mr. Mitch McDonald (NOAA GC) and several Council members attended, along with members of the public and Council staff.

Materials for the meeting can be accessed at this link.

The meeting started at 9:05 a.m.

RISK POLICY WEIGHTINGS

The working group spent the first part of the morning discussing, refining, and ultimately recommending a list of factors that could be used to assess risk aversion in a revised Risk Policy. Ms. Megan Ware presented a series of questions and strawman answers to spur on discussion. The working group discussed who would complete weightings, how often the Council would review its weightings, and if weightings should be an in-person exercise. The RPWG discussed different ways to weight the factors, which included a polling exercise, a prioritization method, and rankings. Ultimately the working group preferred the polling method, and recommended moving forward with the development of that approach at the next working group meeting.

RISK POLICY FACTORS & DATA

Next, the RPWG discussed feedback provided by the SSC and Council on factors, scoring, and data. Ms. Megan Ware incorporated the input into scoring guidance rubric, and shared comments from both groups with the RPWG. The working group spent some time discussing the assessment diagnostics (Mohn's rho), and felt that further refinement may be warranted. For the commercial and recreational fishery characterization, working group members felt that structuring questions about where there is recent data is important. The working group emphasized the role that simulation testing could play in testing the risk policy.

RISK POLICY IMPLEMENTATION

Next, the RPWG discussed the process for implementing the revised Risk Policy (2024), focusing on when in the calendar year the Council, SSC, PDT, and AP/Committees would interact with it, and how they would participate. The RPWG considered two examples, Atlantic sea scallops and red hake.

The working group noted that the scoring process relies heavily on plan development teams, and it is important that these groups are populated with members who have expertise across all factors. The working group also identified April as a starting point of the Risk Policy process vs. January, and did not think that weightings needed to be done annually. The group discussed developing recommendations on how the Risk Policy could be implemented, and noted that implementation will likely become easier over time.

The working group concluded the meeting with a discussion about the Council considering approval the Risk Policy in September, and implementation. The group recommended that the revised Risk Policy (2024) not take effect this cycle because the current Risk Policy had already been considered in some management actions. The group recommended waiting until January 2025 to begin implementation. The group also recommended revisions to the risk policy matrix as part of the revised risk policy.

The meeting concluded with a planning discussion for the next working group meeting.

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MEETING SUMMARY

Risk Policy Working Group

Webinar

May 15, 2024

The Risk Policy Working Group (RPWG) met by webinar on May 15, 2024 to discuss: 1) Address Term of Reference 2 by continuing to develop a revised Risk Policy Concept; 2) Review and evaluate a comprehensive list of factors that can be considered as part of the Council's revised Risk Policy; 3) Refine the work plan and consider Terms of Reference for the upcoming meeting with the SSC on June 12, 2024; 4) Discuss other business.

MEETING ATTENDANCE

Risk Policy Working Group: Megan Ware (Chair); Dan Salerno (Vice-Chair), Rick Bellavance, Moira Kelly (GARFO), Melanie Griffin, Dr. Jason McNamee (SSC), Jonathon Peros (Council Staff), Dr. Jonathan Deroba (NEFSC), Dr. Naresh Pradhan (Council Staff), Dr. Lindsey Williams (SSC), Dr. Lisa Kerr (SSC), Dr. Kevin St. Martin (SSC).

Several Council members attended, along with members of the public and Council staff.

KEY OUTCOMES

- The RPWG reviewed a comprehensive list of risk factors, and agreed to develop examples of applying the revised Risk Policy for the upcoming June Council meeting by applying the following seven factors in the revised approach. The RPWG binned these factors into three groups, shown in the table below.

Stock Status and Uncertainty	
Biomass/Stock Status	Assessment type and uncertainty
Climate and Ecosystem Considerations	
Climate vulnerability – Hare 2016	Ecosystem Productivity – As Measured by Fish Condition
Economic and Community Importance	
Commercial economic impact	Recreational economic impact and fleet diversity
Concentration of revenue across communities	

- The RPWG recommended that the Hare 2016 vulnerability assessment paper be updated, as it has utility in scoring factors in the Risk Policy.
- The RPWG reviewed draft terms of reference for the upcoming SSC meeting on June 12 and recommended that they focus on the SSC's role in implementing the Risk Policy. The group agreed to finalize recommendations by correspondence.
- The RPWG discussed progress toward each of the TORs, and discussed preparations for the upcoming June Council meeting. The group agreed to develop examples of implementing the Risk Policy for three stocks/complexes: skates, Gulf of Maine haddock, southern red hake.
- The RPWG recommended planning a webinar to present stock/species examples to the Council's Advisory Panels.

RISK POLICY CONCEPT, PROCESS, AND DETERMINING CATEGORIES AND FACTORS

The working group spent the morning discussing, refining, and ultimately recommending a list of factors that could be used to assess risk aversion in a revised Risk Policy. The RPWG reviewed the list of possible factors that had been discussed at previous meetings before reviewing the results of a homework assignment where working group members were asked to rank the eight factors in order of most important (10 to least important (8), and to state if the factor must be included in the Risk Policy, should not be included in the Risk Policy, or it the respondent was neutral on including the factor. The results of the ranking exercise are reported in Table 1. Factors were scored by summing how each respondent ranked the factors, so that the lower the total score, the more important the factor. This was done using 1-8 for Question 1, and 1-3 (Must Include = 1) for Question 2. Overall, working group members prioritized climate impacts, biomass stock status, and community/economic importance as the top three factors.

Table 1 - Results of RPWG Ranking Exercise of Factors

Question 1: Rank the 8 Risk Policy Categories (1-8) in order of most important to least important			Question 2: Rank Risk Policy Factors (Must Include, Neutral, Don't Include)	
FACTORS	Total Score		FACTORS	Total Score
Biomass Stock Status	22		Climate Impacts	12
Climate Impacts	36		Economic Importance	13
Community Dependence	40		Biomass Stock Status	14
Assessment Uncertainty	43		Assessment Uncertainty	17
Economic Importance	49		Community Dependence	17
Fishery Performance	59		Fishery Performance	20
Trophic Considerations	62		Trophic Considerations	21
Time Since Last Assessment	77		Time Since Last Assessment	27

Following the ranking exercise, the RPWG reviewed possible data sources and descriptions that would apply to each factor. The comprehensive list was shared with the RPWG as Document 3 in the meeting materials, and is included as Appendix I in this meeting summary. After reviewing

the list, working group members were asked to identify data descriptions and sources that they felt should be used in examples of applying the Risk Policy to different fish stocks. The RPWG substantially refined the list of data sources / factors, binned the factors into three groups, and agreed to complete examples using the following seven factors:

Stock Status and Uncertainty	
Biomass/Stock Status	Assessment type and uncertainty
Climate and Ecosystem Considerations	
Climate vulnerability – Hare 2016	Ecosystem Productivity – As Measured by Fish Condition
Economic and Community Importance	
Commercial economic impact	Recreational economic impact and fleet diversity
Concentration of revenue across communities	

Working Group Discussion:

Working group members shared the following thoughts on the data descriptions and potential sources of information for the risk policy during a lengthy discussion.

- The working group recognized the need to narrow the list of factors, but remained open to considering additional factors/data sources. The group also acknowledged that data availability is an important issue when considering which factors to use.
- Working group members stressed the importance of including social and economic factors in the Risk Policy, along with factors that address commercial and recreational components.
- The group expressed concern about utilizing outdated risk assessments, and suggested a 2-3 year cycle for data updates.
- The group recommended that the Hare (2016) vulnerability assessment be updated for possible use in the revised Risk Policy.
- The State of the Ecosystem Report was identified as a potential data source that could provide data to support the Council's Risk Policy, particularly for ecosystem considerations. Members liked that the report is produced regularly, and that findings/rankings can be used to score factors.
- A new Climate, Ecosystem, and Fisheries Initiative (CEFI) was highlighted as a possible tool that could produce forecasts that are useful to the revised Risk Policy.

In developing the list of stocks/species to present at the June Council meeting, the group noted that the exercise may reveal approach and/or factors that do not work well within the Risk Policy approach. The group decided to focus on skate, Gulf of Maine haddock, and southern red hake.

TERMS OF REFERENCE FOR THE JUNE 12, 2024 SSC MEETING.

Council staff presented three draft terms of reference (TORs), and explained that the SSC has a busy agenda on June 12 and the RPWG should assume that the discussion will not exceed 2 hours. Working group members felt that the terms of reference should focus on the SSC's role in a revised risk policy. The group was also interested in hearing A discussion about evaluating factors at the ecosystem level or at a species specific level. The group advised that specific questions should be developed for the SSC to consider. After making changes to the draft terms of reference the working group agreed to finalize their input through correspondence. Council staff recommended that the working group finalized their input by close of business on Friday May 24th.

The working group noted that there is overlap between the working group and the SSC and that this meeting is an opportunity for several members of the working group to present various elements of the revised Risk Policy to the SSC. A working group member felt that it will be important to highlight the ability of the revised risk policy to formally account for community and economic information in the outputs of the risk policy. Others felt that it is important for the group to provide context about the interplay between ABC control rules and the revised risk policy.

PROJECT TIMELINES AND PROGRESS AGAINST TORS

Council staff provided a status update on each element of the three terms of reference. Overall the working group has completed the majority of terms of reference in TOR 1 and 2 and plans to continue work on TOR 3. Staff noted that additional work can be completed for TOR 1c, which involves documenting how the ABC control rules were developed, the rationale for specific control rule choices, and how they performed over time relative to preventing overfishing. Staff also acknowledged that the working group is still in the process of finalizing language around key terms that will be used in the Risk Policy, and outlining how the ABC control rules were developed, the rationale for specific control rule choices, and how they performed over time relative to preventing overfishing.

Following the presentation, the a WG member stated that addressing TOR 2g it is not be necessary (defining tiers and categorizing stocks and species based on how management uncertainty is determined and the probability of overfishing) since the working group is recommending a different approach. The group also acknowledged that the Groundfish Committee has identified using tiers in a revised ABC control rule.

The group revisited an earlier idea about engaging the Council's Advisory Panels in a webinar format that would be open to all AP members. The group felt that this meeting should include stock/species specific examples applying the Risk Policy.

Public Comment:

Libby Etrie, Conservation Law Foundation. Ms. Etrie asked how the revised Risk Policy would to used in the evaluation of management actions? Ms Etrie explained that the RPWG's

documentation specifies that the Council's risk policy would be utilized throughout the Council's decision making process. She stated that she does not see how any of this is applicable to say, how the Council may weigh access to the Northern Edge or Herring Amendment 10 discussions. Ms. Etrie stated that the focus of the work has been on ABC setting and catch setting, and it is unclear what the vision is for applying the risk policy in a qualitative way to management actions. She asked when this linkage to management decisions might be made.

There were no additional comments from the public.

APPENDIX I: Comprehensive List of Categories/Factors (DRAFT)

Category	Data Description	Source of Data
Assessment Uncertainty	Ability (or inability) to estimate recruitment	Use evidence from stock assessment report
	Are ref points estimated in stock assessment?	Stock assessment report, Lisa Kerr presentation
	Magnitude of retrospective pattern	Reported in stock assessment, except in WHAM models and empirical models
	Missing survey data in last 3 years of assessment	Reported in stock assessment, missing suvey data would mean missing a trawl season or data is not usable in assessment due to low completion of survey stations (i.e. only day samples)
	Model Type (empirical vs. analytical)	Reported in stock assessment, Lisa Kerr presentation
	Recruitment assumptions in reference point estimation	Stock assessment report, Lisa Kerr presentation
Biomass Stock Status	Biomass status	Stock assessment report
	Survey trends if status unknown	NEFSC spring/fall survey trends over last five years, presented in stock assessment report
Climate Impacts	Changes in stock productivtiy not reflected in reference points	Look to stock assessment report
	Climate vulnerability from Hare 2016 paper	Hare 2016 et al paper
	Fish condition	State of Ecosystem report (figure 39 in 2024 report)
	Gulf Stream Index Anamoly	State of Ecosystem report (figure 32 in 2024 report) *not species specific
	Number of heat wave days detected in the year	State of Ecosystem report (figure in 2023 report, written description in 2024 report) *not species specific
	Ocean summer length in GOM, GB	State of Ecosystem report (figure 34 in 2024 report) *not species specific but impacts may be species specific
Climate Impacts	Sensitivity of biological processes to enviro impacts (not accounted for in assessment)	Look at uncertainties reported in stock assessment report, literature
	Species distribution change potential	Hare 2016 et al paper
	Total primary production in GOM, GB	State of Ecosystem report, (figure 16 in 2024 report) *not species specific
	Trophic group biomass trend	State of Ecosystem report (figure 6, 7 in 2024 report)

	Vulnerability of fisheries to climate change as ranked by harvesters	Runnebaum et al 2023
Community Dependence	Concentration of species revenue across ports (i.e. is revenue concentrated in one port, two ports, 10 ports)	Total revenue for a species, and then port level data?
	Diversity of rec catch in New England	State of Ecosystem report (figure 15 in 2024 report) *not species specific
	Ex-vessel value as a % of total ex-vessel value for all species landed in primary ports	Species revenues in frameworks/amendments, total ex-vessel value for a port perhaps in US Fisheries Reports or SOE
	Fisherdays (crew x trip length)	VTR data
	Number of primary ports ranked as high engagement or reliance	State of Ecosystem report (figure 19, 21 in 2024 report)
	Recreational fleet diversity	State of Ecosystem Report (figure 13 in 2024 report) *not species specific
	Species revenue diversity in commercial fishery in New England	State of Ecosystem report (figure 14 in 2024 report) *not species specific
	Trends in the number of primary ports for a species	Info reported in frameworks/amendments
Economic Importance	3-Year average annual revenue for a species or species complex	Reported in frameworks/amendments
	By fish guide, trends in seafood production (i.e. landings) by GOM, GB	State of Ecosystem report (figure 2 in 2024 report)
Economic Importance	By fish guild, changes in price and volume landed compared to long term mean	State of Ecosystem report (figure 11 in 2024 report)
	Commercial revenue by region: GOM, GB	State of Ecoystem Report (figure 9 in 2024 report), *not species specific
	Concentration of species revenue across ports (i.e. is revenue concentrated in one port, two ports, 10 ports)	Total revenue for a species, and then port level data?
	Fisherdays (crew x trip length)	VTR data
	Number of active permits or participants in fishery	Reported in frameworks/amendments
	Number of recreational trips for a species as a proportion of total rec effort in NE	MRIP, State of Ecosystem Report

	Number of recreational trips taken where the species is a primary/secondary target	MRIP
	Species specific comm revenue as a proportion of total comm revenue	Reported in frameworks/State of Ecosystem report
	Total commercial landings by GOM, GB	State of Ecosystem report (figure 1 in 2024 reprt) *not species specific
	Total recerational effort in New England	State of Ecosystem Report (figure 12 in 2024 report) *not species specific
	Total recreational seafood harvest in NE	State of Ecosystem Report (figure 3 in 2024 report) *not species specific
Fishery Performance	Changes in percentage of quota/DAS used	GARFO quota monitoring, past frameworks/amendments
	Changes in seasonanility of catch	GARFO quota monitoring
	Length, weight information from fishery dependent data	Observer data - is this possible to get?, CFRF data, study-fleet data
	Number of active participants	Framework/amendments report this
	Trends in CPUE	PDT calculates this for some species (like scallop LPUE). Might be a new calculation for some species
	Trends of catch in nn-directed fisheries	Look at sub-ACL usage?
Time since last Assessment	Number of years since last assessment	Stock assessment report
Trophic Considerations	Dietary overlap of species	NOAA "Trophic Dynamics of 50 Finfish and 2 Squid Species" paper, technical memo 216
	Fish condition	State of Ecosystem report (figure 39 in 2024 report)
	Forage fish biomass index for GOM, GB	State of Ecosystem report (figure 41 in 2024 report) *not species specific
	Importance of species to endangered/threatened species	literature?
	Small fish to large fish anomaly	State of ecosystem report (figure 36 in 2024 report)
	Total primary production in GOM, GB	State of Ecosystem report, (figure 16 in 2024 report) *not species specific
	Trophic group biomass trend	State of Ecosystem report (figure 6, 7 in 2024 report)