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

MEETING SUMMARY

Risk Policy Working Group

March 9, 2026

11:00 a.m. Webinar

The New England Fishery Management Council's (NEFMC) Risk Policy Working Group (RPWG) met by webinar on March 9, 2026 to: 1) review input and recommendations from technical sub-group on mechanics of the Risk Policy; 2) review input on and guidance documents for Risk Policy factors and data scoring; 3) recommend further refinements to Risk Policy Concept, including the mechanics of the Risk Policy and application of the Risk Policy by Plan Development Teams (PDT) and the Scientific and Statistical Committee (SSC); and 4) discuss other business.

MEETING ATTENDANCE

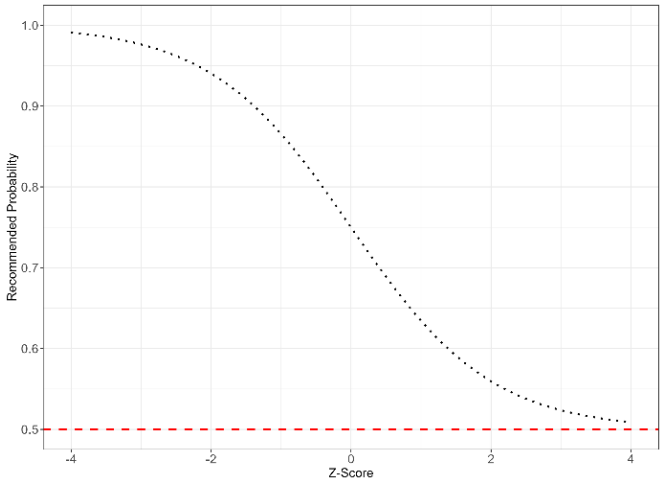
Megan Ware (Chair), Dan Salerno (Vice-Chair), Jonathon Peros (Council Staff), Dr. Jason McNamee, Dr. Jonaton Deroba, Dr. Naresh Pradhan (Council Staff), Mitch McDonald (NOAA General Counsel), Dr. Lisa Kerr, Melanie Griffin, Moira Kelly, Geoff Smith, Bill Lucey, Dr. Kevin St. Martin, Dr. Gareth Lawson, 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 recommended:
  - Mechanics (Figure 1):
    - Adopting an inverted S-shaped curve constrained between 0.5 and 1
    - Inverting rubric scores for each factor to better align with intuitive communication
  - SSC Use:
    - Proposing straw person approaches #3 through #5 at the upcoming SSC meeting to seek input from SSC members on how they would like to interact with the Risk Policy
    - Seeking feedback from the SSC regarding the incorporation of data updates into Risk Policy versus harvest control rules

    - Factor Scoring and Data:
        - Scoring the Climate Vulnerability factor at a species level baseline but allow for stock-level scoring with strong supporting literature and justification
        - Developing questions around quota utilization and keeping the PSE and uncertainty attribute at a higher level to support characterizing the Recreational Fishery Characterization factor
- The working group will draft a Risk Policy Catalog that includes:
    - Decisions and rationale for the recommended factors and the factors that will need additional development beyond the June target date
    - Data needs for future iterations and evolutions of the risk policy
    - Identification of additional attributes such as participation, engagement, and choke stocks dynamics for further development of the Recreational Fishery Characterization factor
- A meeting with working group members will be held prior to the April Council meeting to finalize questions for the Commercial Fishery Characterization factor.



	Lower Risk Tolerance						Higher Risk Tolerance		
FACTOR	-4	-3	-2	-1	0	1	2	3	4
SSB / Stock Status	Below threshold		<75% but above Threshold		Neutral		Rebuilt		Well Above Target
Recruitment	Persistent Low Recruitment		Recent Low Recruitment		Average, No Trend		Recent Large Year Classes		Multiple Large Year Classes
Climate Vulnerability	High Negative Direction	High	Moderate, Negative Direction	Moderate	Low				
Commercial Fishery Characterization					Minimal stress	Low stress	Moderate stress	Elevated stress	High stress
Recreational Fishery Characterization					Minimal stress	Low stress	Moderate stress	Elevated stress	High stress

Figure 1. Recommended inverted S-shape logistic curve and scoring rubric

The meeting began at 11:00 a.m.

WELCOME AND INTRODUCTIONS

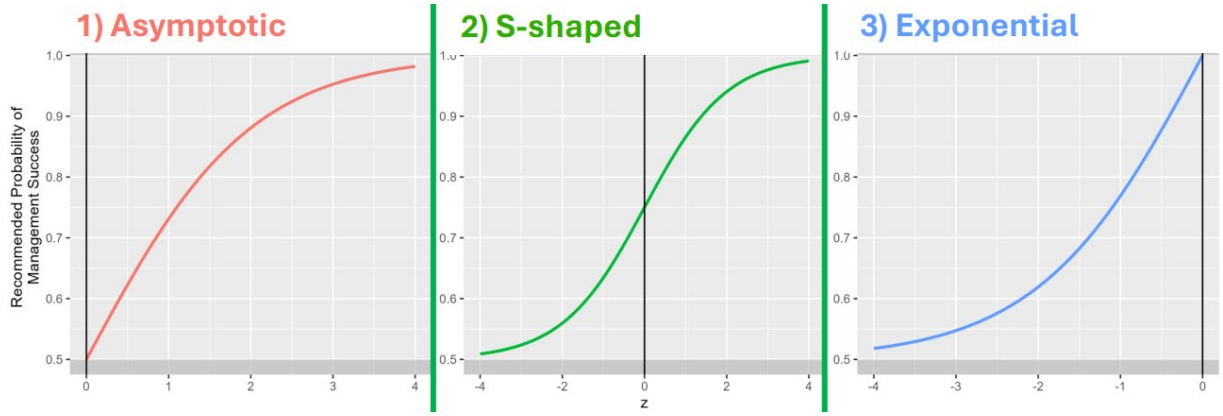
Mr. Peros opened the meeting with a roll call and Ms. Ware provided an overview of the agenda and logistics for the meeting.

RISK POLICY MECHANICS, R. BROTHERS

Dr. Brothers presented the subgroup's recommendations to change the risk policy curve shape to an S-shaped logistic curve and invert the scoring rubric directionality to better align management dynamics and intuitive communication of the Risk Policy.

The technical implementation subgroup discussed three types of curves: the current asymptotic curve, an S-shape curve constrained to probabilities between 0.5 and 1 (hereafter "S-shape curve), and an exponential segment. The current curve uses the asymptotic segment of the logistic curve which translates to slower movement at low levels of risk tolerance and quick movement at high levels of risk tolerance. In other words, if stock status is high, changes in scores would lead to larger changes in the risk tolerance level whereas if stock status is low, changes in scores lead to a small change in the risk tolerance level. The S-shaped curve allows risk tolerance to move slowly at the ends of the Z-score scale (high and low risk tolerance), and quicker in between those risk zones. The exponential segment inverts the dynamics of the asymptotic curve which allows slow movement at higher levels of stock status and risk tolerance requiring larger inputs to get to or leave from those areas, and quicker movement at low stock status and low risk tolerance. Dr. Brothers noted that the sub-group's recommendation for the S-shaped curve allows flexibility for management and clarity with the rubric by positioning the factors around zero.

Figure 2 - Potential Risk Policy Curves.



The sub-group also discussed the directionality of the scoring rubric. The current rubric is designed such that high stock status leads to low factor scores and then high risk tolerance, which can lead to communication barriers. The group felt that inverting the rubric (flipping scores around the zero point) may improve clarity and communication so that high stock status or recruitment would lead to high factor scores and high risk tolerance. Dr. Brothers explained that this inversion could be applied to the three curves previously presented, but that it is easier for the S-shape curve due to its symmetry and demonstrated that the inversion would not change the quantitative performance of the values that would come out of the Risk Policy.

Dr. Brothers also provided an example of how the revisions to Risk Policy could be integrated into a control rule using a dynamic buffer approach. There could be a linear relationship such that the recommended probability from the risk policy would translate to a proportion of FMSY. For example, high levels of risk tolerance could equate to an ABC at FMSY versus low levels of risk tolerance would specify an ABC at 50%FMSY. Exploring this translation and integration into control rules is the next step in the process.

The working group generally supported the sub-group's recommendations for the S-shaped curve with some expressing that it addresses stability goals for the risk policy and the inverted scoring rubric. There was a suggestion to adjust the color coding of the rubric to better reflect risk tolerance levels and align with improved communication goals. Dr. Lawson was interested in the potential to compare the different curve options for a worked example, particularly regarding how stocks would move along the curve, but the group agreed to move forward with a single curve option while keeping the possibility of exploring alternative curves open for future consideration. The group agreed to move forward with the technical committee's recommendations, with plans to present to the SSC on March 30th and the full Council in April, aiming for final approval by June.

RISK POLICY CONCEPT – UPDATES AND RECOMMENDED CHANGES, J. PEROS

Mr. Peros provided an overview of tasks and timelines based on the approved recommendations from the previous discussion. The group is anticipating an approval of the revised risk policy concept at the June Council meeting, along with a global weightings exercise. Ms. Griffin recommended including the catalog of decisions and potential future maturations of the risk policy as a key deliverable in the work plan. She also suggested providing an opportunity for outreach and communication about the overall risk policy process for stakeholders and other Council groups following the June Council meeting.

Mr. Peros then reviewed scoring guidance for the five factors that would be provided to PDTs.

SSB/Stock Status Factor

Scoring for this factor focuses on analytical and empirical assessments. However, Mr. Peros highlighted the changes occurring in the types of assessments that the Council receives and the delivery of data updates as a new product in lieu of assessments, which was one of the driving reasons to pause development on the Assessment and Uncertainty factor[1]. There is a potential to include data updates in the factor scoring or in the application of a harvest control rule.

Mr. Peros shared a schematic for an option to incorporate data updates within the risk policy scoring by using the direction of a 5-year linear regressions trend to supplement and ultimately shift an assessment-based score for this factor. Dr. O'Keefe provided clarification that data updates include survey trends and fishery catch trends with some information on survey catch-at-size, and that the Northeast Regional Coordination Committee (NRCC) is discussing requesting additional information across stocks[2].

[1] January RPWG Meeting Summary link

[2] NEFMC | Current Stock Assessment Schedules

There were some concerns expressed that using data updates in the scoring process imposes empirical management decisions and potentially complicates the factor scoring by trying to incorporate information that would have been captured by the Assessment and Uncertainty factor. Ms. Griffin supported considering how to include data updates into the overall Risk Policy concept but suggested that this could be a place where the SSC is allowed to fine tune the factor score coming from the PDT. Mr. Lucey emphasized the importance of using the information in the data updates to build trust with the fishing fleet. Ms. Ware clarified that data updates could be incorporated in at least two ways: allowing SSC discretion to be flexible with their interpretation of the Risk Policy if there has been a data update or building it into the rubric for how the SSB factor is scored. Mr. Salerno suggested that both survey and catch trends should be incorporated and considered if this approach is advanced. The group supported maintaining the original factor scoring and bringing the discussion regarding use of data updates to the SSC (alongside SSC use of Risk Policy).

Recruitment

Mr. Peros affirmed that the scoring for this factor will transition to the quantile-based approach that was proposed and supported at the January Risk Policy meeting[3]. He also shared that Council staff are considering ways of scoring this factor when data are not readily available from data updates or an assessment such as leveraging existing age-length keys from the survey to evaluate age-1 indices. Ms. Griffin suggested communicating to the NRCC about the data that will be used and is available, but also the data that the Council would want for implementation and future iterations, which could be included in another catalog as data wants within the Risk Policy Concept document.

Climate Vulnerability

Mr. Peros stated that there were no changes to the scoring for this factor at the species level. A sub-group completed the scoring for all species that are in the Hare et al. (2016) resource due to its static nature and to streamline scoring for PDTs. However, there is a desire from PDTs to have discretion to adjust scores to characterize stock level considerations. This could allow for the use of expert opinion at the PDT level for fine tuning.

Dr. Caracappa noted that adjustments could be applied inconsistently across stocks if they are not using the same framework that the original Climate Vulnerability Assessment (CVA) used in 2016 and recommended postponing that approach until the updated CVA is available which would allow assessing the habitat suitability for each stock due to its spatial analytical approach. Mr. Salerno shared that if the PDT did deviate from the score that it would be beneficial to see clear documentation regarding those decisions including the data that was used to justify the change in score. Ms. Griffin proposed an interim scoring approach that uses a table output from the Northeast Fishery Science Center (NEFSC) of the specific environmental factors that are relevant for each species and crosswalks that with the regional information in the State of the Ecosystem to shift a score from the species-level score coming from the CVA resource. Dr. Kerr supported maintaining the CVA as the baseline and allowing some flexibility to be dynamic and recommended including some terminology about expert opinion and how to use emerging

[3] January RPWG Meeting Summary link

research to document deviations. Mr. Peros shared that Council staff have requested the updated CVA analysis to evaluate NEFMC species at the stock level.

The group supported scoring the factor at the species level and using literature to adjust the score at the stock level if there is strong justification.

Recreational Fishery Characterization

Mr. Peros shared a summary of feedback received from Council members that represent recreational fishery interests such as harmonizing questions between the two fishery factors regarding utilization and quota usage, and incorporating questions around community participation, in-season information, and the availability and precision of the Marine Recreational Information Program (MRIP) data.

Ms. Griffin proposed including any aspects for this characterization that are undefined or in need further development as part of the catalog for follow up beyond the June target date. She also proposed that if uncertainty and PSEs are considered under this factor, then they should be consistent with the level that is utilized in management decisions. Mr. Salerno supported maintaining the PSE characteristic as a part of the factor since its associated uncertainty is around the reliability of the catch accounting and the catch records. Mr. Smith suggested reserving the development of choke stock dynamics as a point for characterization for a future iteration to allow for more time and consideration around how the commercial and recreational fisheries differ in their fishing activity when there are or are not choke stocks. Mr. Salerno transforming the question about consistency of recreational measures to focus more on catch accounting and trends in sub-annual catch limit (ACL) utilization or non-allocated recreational catch. Conversely, Ms. Griffin and Ms. Kelly supported maintaining the question pertaining to consistency in recreational measures to measure stability of the recreational fleet and to improve model outputs that are used to recommend recreational measures.

The group decided to include development of questions around quota utilization and keep the PSE and uncertainty question. Developing questions around participation, engagement, and choke stocks dynamics could be addressed in future iterations.

Commercial Fishery Characterization

Ms. Ware briefly summarized changes to the commercial fishery characterization factor which included the ability to move left or right along the rubric. Mr. Peros also stated that Council staff recommend changing the information used to answer this question to ensure consistency across PDTs and FMPs. For example, one idea is to consider community impacts at the regional level. Dr. Kevin St. Martin expressed his desire to help address this attribute and shared that their Rutgers team also provided some ideas for the State of the Ecosystem which could help provide ways to answer these questions if the data and metrics are standardized.

RISK POLICY GUIDANCE DOCUMENTS AND SSC USE, J. PEROS

Mr. Peros presented five potential approaches the SSC could interact with the Risk Policy ranging from strict application to advisory roles: 1) “Strict Application” is the most limited role for the SSC where they would only confirm if the Risk Policy process was followed or not; 2) “Adjustment of Scores” would adjust scores of individual factors impacting the x-axis value and

thereby the position on the curve; 3) "Adjustments of 'Probability of Success', unconstrained" would allow movement along the curve in terms of the y-axis and probability of success; 4) "Adjustments of 'Probability of Success' within Risk Zones" would allow for movement along the curve but constrained to the implicit risk zones or areas of inflection of the S-shaped curve; and 5) "Advisory ABC" where the z-score from Risk Policy is a discussion starter that could be layered with additional information for decision making.

The group generally supported approaches #3 through #5 and to carry them forward to the SSC at the March 30th meeting for additional feedback. Council staff emphasized that SSC "adjustments to scores" (#2) represented a way capture the SSC input directly into a Z-score, which is important because that output includes the Council's policy decisions from weightings. Dr. Kerr felt that approach #2 would require either more preparation or additional meetings for the SSC to justify individual score adjustments and that the potential risk zones demonstrated in approach #4 could interact with harvest control rules depending on how they are defined. Dr. Lawson felt that approach #5 was the most interesting because the risk policy affords the SSC a signal from the Council on their overall risk, but in applying a control rule, the SSC would want discretion to consider other forms of scientific uncertainty such as what projections or the associated quota change model show under different control rule outputs. Dr. St. Martin expressed his interest in recognizing and formally bringing socio-economic concerns prior to or in tandem with setting acceptable biological catch (ABCs) and an interest in an approach that would provide flexibility to the SSC but also stability to the industry.

RISK POLICY TOOLKIT, A. MILLER

Ms. Miller presented a new risk policy toolkit that includes three forms for council staff to input data, which is then displayed in a central risk policy application that automatically generates and streamlines the calculation of the z-score and recommended probabilities for each FMP and stock. Working group members noted the need to refine some of the applications in response to the recommendations from the meeting and supported the ability to use the application to engage with risk factors ahead of SSC meetings.

OTHER BUSINESS

No other business was discussed.

The meeting ended at 3:00PM.

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MEETING SUMMARY

Risk Policy Working Group

January 23, 2026

12:00 p.m. Webinar

The New England Fishery Management Council's (NEFMC) Risk Policy Working Group (RPWG) met by webinar on January 23, 2026 to: 1) continue to refine elements of the Risk Policy Concept for future use, focusing on risk factors; 3) Review and apply 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. Jonaton Deroba, Dr. Naresh Pradhan (Council Staff), Melanie Griffin, Moira Kelly, Geoff Smith, Bill Lucey, Dr. Kevin St. Martin, Dr. Gareth Lawson, 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 recommends refining the number of factors that will be used in the Risk Policy in 2026. The recommendations are summarized below:

Factor	Include in 2026?	Rationale, Next steps
Biomass / Stock Status	Yes	No changes proposed at this time.
Recruitment	Yes	Simplify to a quantile-based approach; adjust data evaluation and factor scoring
Stock Assessment & Uncertainty	No	Remove for now; adjust stability definition in the concept document
Climate Vulnerability	Yes	No changes proposed at this time.
Fish Condition	No	Remove for now; consider ways to reintroduce a factor that considers ecosystem productivity

Factor	Include in 2026?	Rationale, Next steps
Commercial Fishery Characterization	Yes	Simplify to five inputs; consider redundancy between questions 1 and 4, definitions of primary and secondary ports, and whether there is a potential to move in the positive direction; future iterations should consider leasing.
Recreational Fishery Characterization	Yes	Add a RAP-like question; reword question 4 and consider two-way directionality in the score.

- The working group supported convening a subgroup to develop and evaluate the technical mechanics of the risk policy.

The meeting began at 12:00 p.m.

WELCOME AND INTRODUCTIONS

Ms. Ware opened the meeting with a roll call and logistics updates. She acknowledged the new working group members Gareth Lawswon. Ms. Ware reviewed the agenda for the working group and acknowledged the need to finalize decisions on the factors to develop and the goals associated with those factors, all of which would be considered for approval at the June 2026 Council meeting.

RISK POLICY OUTLOOK FOR 2026 AND OTHER UPDATES

Mr. Peros provided a reminder of the risk policy work conducted through the alpha and beta phases to revise and refine the 2025 approved risk policy. The target for June is to coalesce all 5 steps of the risk policy workflow which includes: 1) global weightings applied to all stocks; 2) factor scoring developed by each plan development team (PDT); 3) calculating a Z-score; 4) recommending a risk tolerance level; and 5) setting an acceptable biological catch (ABC) based on the recommended risk tolerance and respective harvest control rules. The short-term focus of the work has been on how the risk policy will interface with harvest control rules.

To meet the approval milestone of the beta phase of the risk policy by June 2026, the working group will update the risk policy concept to include the results of the simulation testing conducted under the Inflation Reduction Act Initiative #1 by the University of Maine (UMaine) and the final decisions on factors from this meeting. This will guide how the Council will select their weightings, the PDTs will score the factors, and how the risk policy will be used by other technical groups such as the Scientific and Statistical Committee (SSC).

Mr. Peros shared a timeline of the meetings related to Risk Policy to occur between January and June 2026 including a check-in and review with the SSC in March and one last update with the Council in April. Implementation would occur in two tracks of work: 1) supporting factor development with regards to scoring and data accessibility to be completed by an internal

implementation team made up of Council staff; and 2) refining risk policy mechanics to understand how changing the shape of the curve would affect the Council's risk tolerance to be completed by a smaller Risk Policy Mechanics subgroup. Work will conclude with a final concept document and a weightings exercise in June upon concept approval.

RISK POLICY CONCEPT – RECOMMENDED CHANGES

Mr. Peros provided an overview of tasks for each factor discussion and a summary of the recommendations to maintain or remove factors received by the smaller risk policy facto sub-groups. For each factor, the working group needed to understand the type of risk or uncertainty that a factor is intended to capture, its relationship to risk tolerance, its directionality relative to neutral levels of risk tolerance, and the conditions that would default or neutralize the risk tolerance. These decisions also aim to inform ongoing work by the UMaine team to evaluate the risk policy's performance and execute simulations

SSB/Stock Status Factor

While there was not a subgroup for the factor, the working group supports inclusion of this factor. Mr. Peros sought to affirm the goal and the scoring rubric for the factor. Mr. Salerno confirmed the presented goals of the factor and commended it for its simplicity.

Recruitment

Mr. Peros introduced the recruitment subgroup (Dr. Lisa Kerry and Dr. Jason McNamee) and their recommended alternative approach. He provided a reminder of the current scoring and potential challenges to characterize recent trends, data availability, and changes in recruitment.

Dr. McNamee and Dr. Kerr presented a refined approach to assess recruitment risk focusing on identifying the risk to the population associated with uncertainty, and its interaction with fisheries. The factor may also identify risk associated with process error, observation error, and future uncertainty, but there is a need to disentangle these proxies to simplify scoring, interpretation, and repeatability. They proposed a simplified quantile-based method where a baseline time series is used to calculate quantile-based categories of recruitment regimes including high, average, or low recruitment. The categories are then assigned to each of the last 5 years of the time series and summarized as a recruitment state based on the rules within a 3-box or 5-box rubric. The 3-box rubric proposes three categories, low recruitment, average recruitment, and high recruitment, and three scores, 4, 0, and -4 respectively. The 5-box rubric proposes using the existing scale but revises the descriptions to include a quantity of years within the 5-year time period that are above or below the average (i.e. if there are 4 years above the mean then this would score higher and result in higher risk tolerance). Finally, they asserted that for scenarios where recruitment is not fitting in the rubric, then the final score would be deferred to expert opinion on the PDTs.

Ms. Ware asked how a score would be determined if the regimes were not the same across all 5 years within the 3-box rubric. Dr. McNamee asserted that similar to the criteria developed for the 5-box rubric, criteria would need to be developed for the 3-box rubric. Dr. Kerr expressed that one intent is to disentangle recruitment from assessment uncertainty is also a main goal. Other

working group members shared their support for the quantile approach as well as the need to consider recent data and the recency of information in future assessments.

Mr. Salerno inquired about the feasibility of implementation of this approach. Dr. McNamee shared that incorporating this information would be a fairly easy lift within an excel spreadsheet that contains a column of the recruitment information and generates the quantiles based on that column.

Ms. Ware supported starting to base the score off the recent 5-year time series of recruitment and shared an example that applying this approach for Atlantic herring based off 5 years of low recruitment would support meaningful risk-adverse decisions for that stock. Dr. Lawson also supported starting to base the score off a 5-year time series and including a placeholder for life history in either direction for long-lived and short-lived stocks.

There were a few questions from the public including if the scoring accounts for catch estimates at the overfishing limit (OFL) derived from projections that include the last 5 years of recruitment, how to score the factor when there is missing data within the 5-year time window and how to use data updates. Dr. Kerr said the intent is to characterize the current state of recruitment to inform risk so that at lower recruitment, the Council is more risk adverse. While projections that include the last 5-years of recruitment derive an OFL, this characterization would translate to moving further away from that derived OFL. However, if there is a lack of trust in the projections, then that is a place that needs further development and integration into the risk policy. Dr. McNamee asserted that there would not typically be a missing year of recruitment since it is estimated in an analytical assessment, but there could be a missing year in an empirical assessment, and it would be important to capture the nuance and deviation.

Assessment Type and Uncertainty

Mr. Salerno reminded the working group that the goal of the factor was to understand the risk associated with stock assessment performance and uncertainties. The subgroup identified that as uncertainty within the stock assessments increases, risk tolerance decreases. They also noted that empirical assessments are less robust leading to less risk tolerance. While the subgroup considers the factor to be very important, they ultimately recommended that the factor be considered for longer term incorporation rather than short term incorporation to meet the June deadline. There are uncertainties around the state of assessment cycles and the data products that would be available. They also recommended to revisit the stability language within the Risk Policy Concept to ensure the definition includes management stability that allows for incremental changes in specification setting based on assessment trends.

Ms. Griffin asked how this factor would be added back into the discussion for refining at a later date after the Risk Policy has been approved. Mr. Salerno stated that the working group would not be operating in perpetuity. As such, additional work on this factor would be conducted by a smaller subgroup including Council staff and Council members but would be worth discussing that future process. Dr. O'Keefe confirmed that when the Council approves the risk policy, the working group efforts would wind down. However, the intent is to use the risk policy to revise

the ABC Control Rules moving forward and thus would be on the table for further discussion on a fairly frequent basis and would remain as a Council priority.

Dr. O'Keefe also shared that a new initiative, the Risk / Value Prioritization Process, was announced by NOAA Headquarters. It is an effort to narrow the scope of NOAA science and management, translating into less stocks or managing stock complexes rather than single stocks. There is an interest in understanding how the Risk Policy could inform this initiative and thus is another example as to how the Risk Policy will remain a top priority for the Council.

Dr. Caracappa inquired whether the recommendation is to maintain the factor but default the score to zero until further development or to remove the factor from the list in the concept document altogether. Mr. Salerno stated that the factor would be removed from the list to score and weight as the functional calculation with or without the factor is still plausible. Mr. Peros countered that the seven factors that were initially approved would remain in the document and would be documented as those planned for update with a process to do so. Dr. Caracappa and Mr. Salerno clarified that by removing the factor, the working group maintains it is an important factor but there currently is not a way to measure it and therefore do not want to skew the final weight and score as a result.

Dr. Kerr expressed concern about removing the factor because it is important to include and was part of the motivation for the revision of the Risk Policy. This feature is prominent in other Council's Risk Policies. In lieu of this factor, there would need to be guidance on how to handle or address this in the short term. Ms. Ware also wondered what the qualifying metric would be to reinitiate development of this factor, i.e. stability in the Northeast Region Coordinating Council (NRCC) discussions on assessments and the number the Council would receive. Mr. Salerno agrees there needs to be a metric, but there are too many unknowns and concerns around the capacity available from the Northeast Fisheries Science Center to support development of this factor. Ms. Griffin asserted that cataloging the factor as important but lacks quantitative support allows for the factor to still be used qualitatively.

Mr. Peros expressed concern over the lack of directionality within the factor and the little control that the Council has in terms of the type of data product they are receiving and when they are receiving it to be able to move the score in response.

Fish Condition

The goal of this factor is to assess the risk associated with ecosystem productivity. The subgroup recommended not to use fish condition as a factor. There are concerns that it would not be a strong proxy for measuring environmental and habitat change. Over time, there is potential correlation with this factor and recruitment, as well as others. There is support to have to distinct factors in the Climate and Ecosystem theme; an ecosystem characterization should include habitat changes and trophic relationships which are not already captured in assessment processes. Other ideas were proposed such as a forage field index, a primary predator/biomass ratio, or productivity anomaly. While it is an important characterization, there needs to be additional work for the future incorporation. Dr. Caracappa highlighted that the subgroup aimed to revise the factor because the current indicator in the State of the Ecosystem was not the cleanest indicator

or able to aptly measure stock health, but condition is still important to capture in a revised indicator.

Climate Vulnerability

Overall, there was support to maintain the Climate Vulnerability factor and has been consistent over time. It uses the Hare et. al (2016) paper and recognizes that an updated Climate Vulnerability Assessment is in progress. The final updated Climate Vulnerability Assessment is expected in Fall 2026 and may require revisiting the scoring of the factor.

Commercial Fishery Characterization

The goal of this factor is to identify risk associated with the socioeconomic health of the commercial fishery. Ms. Ware provided a reminder of the first iteration of the factor which included six characterizing questions and the number of yeses to those questions determined the overall score and how much risk tolerance was considered. Feedback regarding this approach included concerns about the number of variables and the connection between consolidation and concentration to risk tolerance and scoring. In response, the subgroup proposed to pare down the inputs to quota usage, fishing community, value, constraining stock within a fishery management plant (FMP) or on another FMP, and advisory panel (AP) Input. The mechanism for scoring though remains the same as the initial iteration. Th quota input would identify chock stocks, availability of stocks, or large impacts from quota reductions, and would need to identify what quota is intended for each fishery. The fishing community input would indicate changes in fishing community health and could be evaluated by data already included in the Human Communities section of the Affected Environment. Value would be evaluated based on revenue of the fishery at the FMP level or in the case of groundfish, based on the revenue a stock contributes to the overall groundfish fishery. The intent is to indicate economic stress, or the economic importance of a stock in the groundfish fishery. A constraining stock input would identify if species were limiting the execution of other fisheries. For this input, the subgroup would recommend developing an initial list of fisheries or stocks that this would apply to and revise as needed. The AP input aims to acknowledge that APs are an important source of information.

Ms. Griffin asked the subgroup to consider if the quota input question was potentially redundant to the constraining stock question if it is evaluated within the FMP and if the subgroup could refocus the constraining question to solely its effect on another FMP. Mr. Salerno provided that the groundfish fishery experiences stocks constraining the persecuting of other stocks within the FMP (i.e. cod quotas constrain haddock catch) but other FMPs experience constraints because of other fisheries (i.e. Skates and Monkfish), and as such it is important to look at the constraint in both respects and is a place where AP input would be valuable. Ms. Griffin also wondered if the value input was potentially missing information for leased fish. Mr. Salerno explained that it is difficult to bring in inter-sector and intra-sector lease information regarding the groundfish fishery. Conversely, Dr. O'Keefe stated that there is also need to recognize the profits being made on lease-only permits or permit banks as revenue within the fishery. Mr. Salerno shared that sector manager reports include value as a part of the leasing component so the information

could be available but would take some effort to differentiate which permits are active and making the revenue.

Mr. Pradhan asserted that primary and secondary ports are not consistently defined across FMPs, and thus would need to be clarified, as well as what happens when a primary port moves to a secondary port.

Dr. Lawson wondered if there was an ability to move in the positive direction based on responses to the inputs. Dr. Kerr supported this approach and views this as applying expert opinion; she pondered if something similar could be applied to other factors as well such as the assessment factor. Overall, the working group supported incorporating this factor for June as a first iteration.

Recreational Fishery Characterization

The goal of this factor is to identify risk associated with the socioeconomic health of the commercial fishery. Ms. Ware provided a reminder of the first iteration of the factor which included four characterizing questions and the number of yeses to those questions determined the overall score and how much risk tolerance was considered. Feedback regarding this approach noted a desire to reflect fleet diversity and an acknowledgement that tuna and striped bass can overwhelm recreational fishery metrics. In response, the subgroup evaluated how answering yes to the original questions would translate to the socioeconomic health of the recreational fishery. Ultimately, the subgroup found that these results were inverse to the signals of socioeconomic health intended by the commercial fishery factor. In response, they proposed revising the questions to align the signals between the two fishery factors and sought feedback on whether to include a Recreational Advisory Panel (RAP) question to mirror the commercial fishery factor.

Mr. Salerno shared that the original intent behind providing an AP question under the commercial fisher factor was recognizing that some of the other data available may be outdated or stale, whereas with the recreational fishery factor, he wondered if relying on data from the State of the Ecosystem (SOE) could allow for more recent information and therefore lessen the need for RAP input. There is additional concern that by adding a RAP question, it may only be capturing the expert opinion from a single mode based on the typical representation of a RAP rather than the numerous types of modes that are accessed within the recreational fishery. Mr. Peros and Dr. St. Martin support including a RAP question and its importance especially regarding feedback on if a given criteria is useful over time. Dr. O'Keefe suggested, rather than focusing the question on the RAP, including other advisors with recreational interests in the Council system, and Mr. Lucey concurred.

Dr. Lawson suggested finding ways to allow for two-way directionality within the factor similar to the commercial fishery recommendation and asked for clarification on the fourth question regarding consistency in regulations. Ms. Ware explained that the intent was to capture broader swings in projected catch. Overall, the working group supported incorporating this factor for June.

REVIEW RISK POLICY MECHANISMS AND NEXT STEPS

Mr. Peros reviewed the findings of the UMaine team and their request for feedback about the shape of the curve, the z-score scaling, and the range of scores. He shared that the Project

Oversight Team for the UMaine work developed a staff recommendation to form a sub-group to examine the mechanics in more detail, and to assess how changing the shape of the curve to the full logistic curve in the upper quartile would achieve the goal of the Council. The sub-group would aim to report back to the full working group in March and work in parallel to additional development of the factors.

Mr. Peros also reviewed that the motivation behind this evaluation was based on the conclusion that a truncated logistic curve results in low z-scores that are more responsive to higher risk tolerance and high z-scores that are less responsive to low risk tolerance. The focus of the work group would follow up on using the full logistic curve in the calculations and what the real-world implications of a z-score of 2 would be through harvest control rules.

There was feedback from the UMaine team that the scaling of the z-scores and the factors leads to limited access of the full curve and unintended influence on the overall z-score, respectively. The subgroup would thus also evaluate the exact z-score scaling needed to access the full range of the curve and possible revisions to the score ranges.

Ms. Ware asked if the work of the subgroup would be underpinned by simulations or discussion. Mr. Peros clarified that the simulation team would be a part of the conversations and thus could use the results as rationale for the differences in the curve and take the recommendations further than a qualitative discussion.

Dr. Caracappa noted that the choice in the curve is a policy choice. It would then be useful to construct narratives about how the shapes reflect real outcomes in the decision making and what kinds of data would influence that. This would help narrow down what the options mean practically. Dr. Kerr agrees that this would be a useful exercise and could begin by picking three curves and mapping out what that would result in as part of the narrative. Dr. Lawson provided a potential point of consideration for the subgroup is the label with which is being used for the Y-axis, because in practice the resulting Y-value is used to determine how far to back off from FMSY, and it is not the value at which to set the OFL. Therefore, if the subgroup maintains the former, then it could be labelled alternatively, and would not by regulation need to begin at 0.5.

REVIEW PROGRESS AND DISCUSS NEXT STEPS

Mr. Peros reviewed the decisions from the working group. He proposed a timeline to include subgroup meetings and another working group meeting before the SSC Meeting on March 30, 2026. Ms. Ware proposed re-evaluating the risk policy after one year of implementation while Mr. Salerno suggested using the release of the Climate Vulnerability Assessment 2.0 as a trigger to reassess and continue development on risk policy factors.

OTHER BUSINESS

No other business was discussed.

The meeting ended at 4:00PM.

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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.

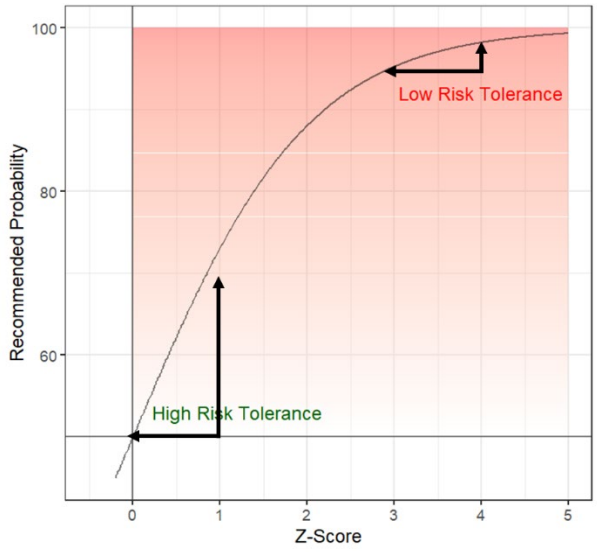
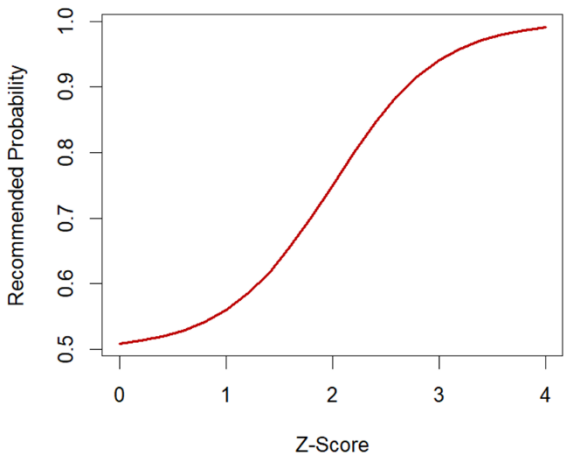
RISK POLICY CONCEPT, MECHANISTIC TOPICS (INPUT FROM UMAINE DEMONSTRATION, DR. ROGER BROTHERS)

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.

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.

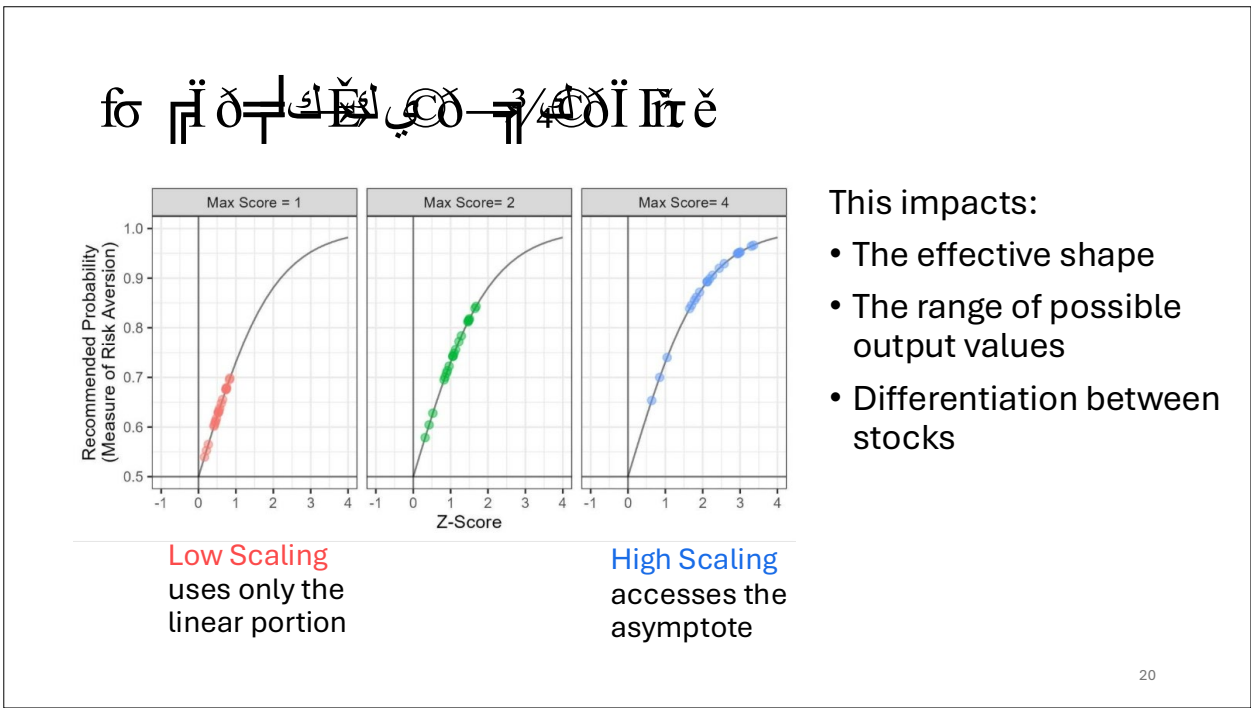
Table 1 - Comparison of current and proposed shape of Risk Policy curves, with notes from R. Brothers presentation (11/14/25).

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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MEETING SUMMARY

Risk Policy Working Group

August 21, 2025

1:00 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. 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.

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 cross-walking 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.

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.