Risk Policy Report

January Council Meeting

Webinar

January 29, 2026

New England
Fishery Management
Council

Today's Presentation

- Work Plan and goals for 2026, and outlook for use of Risk Policy.
- Overview of expected adjustments to Risk Policy Concept.

- No Action Required.

2025 Focus of Risk Policy and Working Group

- New Risk Policy became effective on January 1, 2025.
- Two phases (use and development) are happening concurrently.

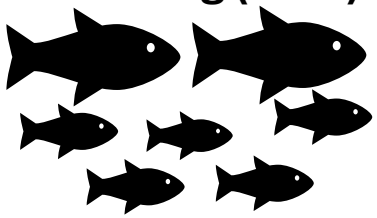
- Alpha Phase (Use): Risk policy matrix, qualitative application.
- Beta Phase: Simulation testing, weightings exercise, incorporate input and revise concept. Connection to HCRs. Quantitative application.

Risk Policy Concept + ABC Control Rules

1. Global Weighting

Weights apply to all stocks

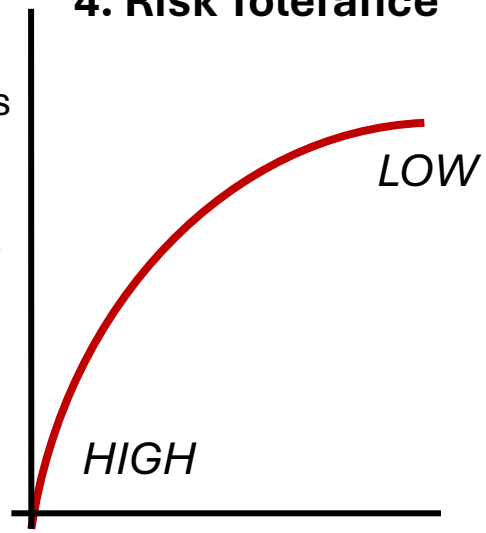
2. Scoring (data)



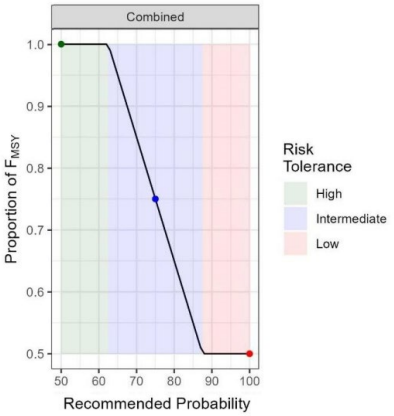
3. Z-Score

Combination of weights and scores. Conditions that require increased caution produce higher values, implying a greater need to ensure that overfishing is avoided.

4. Risk Tolerance



5. Set ABC using Risk Policy + HCR (TBD, being developed)



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Risk Policy Workplan Overview (Beta Phase)

- Deliverable: Updated Risk Policy Concept Document.
  - Procedural document that outlines what the Risk Policy is, and how to apply it.
- Target Date: 2026 June Council meeting.
  - Enough time for PDTs, SSC to apply the Risk Policy in upcoming specification setting.
- Description: Add/change/revise the concept document based on results of simulation testing and other feedback.

Risk Policy Workplan Details (Beta Phase)

	January	February	March	April	May	June
Meetings – Input - Decisions						
RPWG: Confirm Factors w/ goal/intent	Jan 23rd					
NEFMC January	Update					
RPWG: Refining Concept			March 9th			
SSC: Check-in			30th			
NEFMC: Check-in, feedback						
RPWG: Refining Concept, Prepare June					TBD	
NEFMC June: Approval, weightings						Decision
Work – Refinement – Implementation						
Support Factor Development • Scoring and Data • Accessibility • Process		**RPWG members and Implementation Team:** Applegate, Miller, Garrison, Peros, O'Keefe				Approval of Concept document
Refine Risk Policy Mechanics • Shape of Curve • Range of Scores • Scaling		**Risk Policy Mechanics sub-group:** Kerr, McNamee, Lawson, Peros, Ware, Brothers				Approval of Concept document
Prepare for Weightings exercise						Weightings

Overview of Factors, Recommendations

	Factor	RPWG Recommendation	Keep for 2026?
Stock Status and Uncertainty	**Biomass/Stock Status**	Use in 2026. No changes proposed at this time.	✓
	Recruitment	Use in 2026. Adjustments to how factor is scored.	✓
	Assessment Type and Uncertainty	Remove for 2026 and catalogue. Revisit later this year, form sub-group.	✗
Climate and Ecosystem Considerations	**Climate Vulnerability**	Use in 2026. No change proposed at this time.	✓
	Fish Condition	Remove for 2026 and catalogue. Revisit later this year, support for ecosystem characterization factor.	✗
Economic and Community Importance	**Commercial Fishery**	Use in 2026. Changes to scoring questions, AP input.	✓
	Recreational Fishery	Use in 2026. Updates to scoring questions, AP input.	✓

Biomass (SSB) / Stock Status

- **Risk associated** with current productivity of the stock
- **Relationship to Risk:** As status (SSB/SSBMSY) increases, risk tolerance increases
- **Use in 2026,** no changes to scoring proposed.
- **Directionality:** Two way, can increase and decrease risk tolerance

Higher Risk Tolerance ← → **Lower Risk Tolerance**

FACTOR	-4	-3	-2	-1	0	1	2	3	4
SSB/Stock Status	Well Above SSB Target		Rebuilt		SSB ≥75% but < 100%		< 75% but above Threshold		Overfished

Recruitment

- **Risk associated** with future productivity of the stock
- **Relationship to Risk:** As recruitment increases, risk tolerance increases
- **Use in 2026,** changes to how factor is scored (quantiles)
- **Directionality:** Two way, can increase and decrease risk tolerance

Higher Risk Tolerance ← → Lower Risk Tolerance

FACTOR	-4	-3	-2	-1	0	1	2	3	4
Recruitment	Multiple Large Year Classes		Recent Large Year Class		Average, No Trend		Recent Low Recruitment		Persistent Low Recruitment

Recruitment – Initial Scoring Difficulties

There are aspects of the current rubric that are open to interpretation.

- What does “multiple” large year classes mean? How far above or below the mean is considered “large” or “small?”
- What is appropriate time frame to characterize "average"? What do you do when conditions for multiple scores are met simultaneously ?
  - E.g.: 2 years above the mean (Score = -2) and 2 years below the mean (Score = 2).

Recommend changing the scoring approach to address ambiguity of initial guidance.

Score	-4	-2	0	2	4
	Multiple Large Year Classes	Recent Large Year Class	Average, No Trend	Recent Low Recruitment	Persistent Low Recruitment
Description	There have been multiple large (meaning above average) recruitment events in the last five years 3+ years >mean	There has been two large (meaning above average) recruitment events in the last five years 2 years >mean	Recruitment in the last five years is average **OR** recent changes in recruitment have been accounted for in reference points and/or stock projections	Low (meaning below average) recruitment in at least two of the last five years **OR** there is no information on recruitment 4+ years < mean	Persistent low (meaning below average) recruitment for more than five years 6 years < mean

Quantile-Based Approach To Recruitment Scoring

- Previously characterized recruitment as high, average, low
- Now recommend a quantile approach based on time series of recruitment estimates

    1. **Below-average recruitment**: recruitment < 25th percentile
    2. **Average recruitment**: between 25th and 75th percentiles
    3. **Above-average recruitment**: recruitment > 75th percentile

- Assign most recent five years to one of these categories and score accordingly
- If no recruitment information, score as a neutral state (score = 0)

Assessment Type / Uncertainty

- **Risk associated** with stock assessment performance and uncertainties
- **Relationship to Risk:**
  - As assessment uncertainties increase, risk tolerance decreases.
- **Remove and catalogue for 2026.** Continue refining.
  - Forming sub-group: Deroba, Kerr, Lawson
- **Directionality:** One way, only decreases risk tolerance

Higher Risk Tolerance ← → **Lower Risk Tolerance**

FACTOR	-4	-3	-2	-1	0	1	2	3	4
Assessment Type & Uncertainty					Analytical	Analytical, Minor Retro	Analytical, Major Retro	Empirical	Empirical, Missing Data

Discussion and Recommendations

- Included to differentiate between analytical and empirical assessments while also considering uncertainty from retrospective patterns and missing survey data.
- Recommend dropping the stock assessment factor (for June 2026), continue to develop this factor for future use.
  - Instability in stock assessment products, including quantity.
  - No research track assessments right now, could get stuck in a score.
  - Need to better understand WHAM outputs as it relates to uncertainty, retrospective, etc.
- Stock assessments are still an important criteria.
  - Revised risk tables capture some of the stock assessment characteristics, keep!
  - Will catalogue efforts to-date in concept document so progress not lost.
  - Sub-group forming to work on this factor as there is greater clarity on future of stock assessment products.

Fish Condition

- **Risk associated** with ecosystem productivity
- **Relationship to Risk:** As fish condition decreases, risk tolerance decreases
- **Remove and catalogue for 2026.** Focus on ecosystem characterization and risks related to changes in habitat and trophic relationships not address in stock assessments
- **Directionality:** One way, can only decrease risk tolerance

Higher Risk Tolerance ← → Lower Risk Tolerance

FACTOR	-4	-3	-2	-1	0	1	2	3	4
Fish Condition					Good	Above Average	Neutral	Below Average	Poor Condition

Discussion and Recommendations

- Recommend dropping fish condition as a factor (for June 2026):
  - Correlation with other factors such as recruitment (a separate factor).
  - Concerns about fish condition being a strong proxy for capturing risks related to environmental and habitat change.
- An ecosystem characterization factor should capture risks related to changes in habitat, current habitat conditions, and trophic relationships that are not addressed in other assessment processes (i.e., stock assessments or climate vulnerability assessments).
  - Support for ecosystem characterization as a factor of the Risk Policy. Include in future.
- Other factor ideas that were discussed and could be developed:
  - Forage index, primary predator/biomass, and productivity anomaly (R/SSB).

Climate Vulnerability

- **Risk associated** with climate change
- **Relationship to Risk:** As climate vulnerability increases, risk tolerance decreases
- **Use in 2026,** no changes to scoring proposed.
  - Vulnerability score and directional effect of climate change (Hare et al)
- **Directionality:** One way, only decreases risk tolerance

Higher Risk Tolerance ← → **Lower Risk Tolerance**

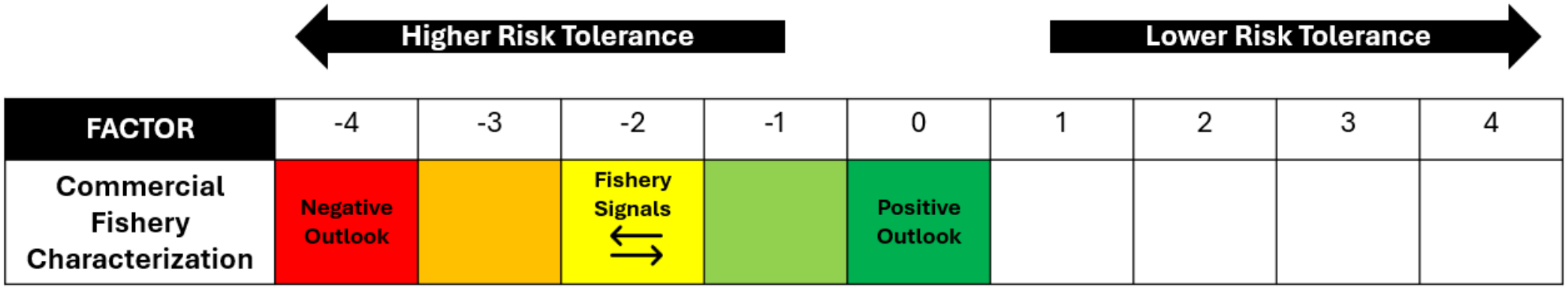
FACTOR	-4	-3	-2	-1	0	1	2	3	4
Climate Vulnerability					Low	Moderate	Moderate, Negative Direction	High	High Negative Direction

Discussion and Recommendation

- Short term, continue to use the climate vulnerability analysis (Hare et al.). Support for using this at full WG, recognition it is becoming dated.
- Final CVA 2.0 product in fall 2026.
  - This could require revisiting the scoring of the climate vulnerability factor.
  - When CVA 2.0 available, check-in on concept of ecosystem characterization factor.

Commercial Fishery Characterization

- **Risk associated** with socioeconomic health of the commercial fishery
- NEW **Relationship to Risk:** As socioeconomic stress increases, risk tolerance increases
- **Use in 2026,** changes to scoring questions, consider AP input
- **Directionality:** One way, can only increase risk tolerance



Lots of Iterations, Feedback

- Socio-economic factors are critical to the risk policy
- Keep it simple, especially with a June 2026 Council vote
- Be clear on how each variable relates to risk tolerance
- How can we consider the most recent data?

Comm Fishery Factor – Proposed Revisions

1. **Quota Usage:** Has greater than 80% of the quota been caught in at least two of the three last years?
2. **Fishing Community:** Has the number of primary and secondary ports declined by any amount over the last five years?
3. **Value:** Has revenue in the fishery (FMP level) had a declining trend over the last five years? For groundfish, instead consider if stock revenue contributes to 10% or more of overall groundfish fishery revenue?
4. **Constraining stock within FMP or on another FMP:** Is quota for this species limiting the execution of other fisheries?
5. **AP Input:** Do comments from the AP within the current fishing year suggest the above trends still hold (no change), socio-economic health in fishery has improved (move one to right), or socio-economic health in fishery has further declined (move one to left)?

*For every "yes" answer, add -1 to the score

Higher Risk Tolerance

Score	-4	-3	-2	-1	0
Stress Increases, Risk Tolerance Increases	**Negative Outlook**				**Positive Outlook**
	Combined tally equals -4 or higher	Combined tally equals -3	Combined tally equals -2	Combined tally equals -1	Combined tally equals 0

Working Group Feedback 1/23/26

Short-term, Address by June

- Make sure we are not double counting for choke stocks and constraining stocks in another fishery
- Don't combine primary and secondary ports – a decline in either is important
- If value is increasing or number of primary ports is increasing, should you move to the right (within the score of –4 and 0)?

Long-Term, Do Not Address By June

- Lease markets

Recreational Fishery Characterization

- **Risk associated** with socioeconomic status of the recreational fishery
- NEW **Relationship to Risk:** As socioeconomic stress increases, risk tolerance increases
- **Use in 2026,** changes to scoring questions, consider AP input
- **Directionality from neutral:** One way, can only increase risk tolerance

Higher Risk Tolerance ← → Lower Risk Tolerance

FACTOR	-4	-3	-2	-1	0	1	2	3	4
Recreational Fishery Characterization	Negative Outlook		Fishery Signals ⟷		Positive Outlook				

Recreational Fishery Factor

1. Is recreational fleet diversity from the SOE report decreasing over last five years?
2. Are the number of angler trips in New England which are not targeting striped bass or tuna decreasing?
3. Is the PSE for total catch consistently below 30 in the last three years?
4. Has there been consistency in recreational regs such that there was no change within the last 12 months that resulted in a 20% or greater increase or decrease in projected catch?

Higher Risk Tolerance

Score	-4	-3	-2	-1	0
Stress Increases, Risk Tolerance Increases	**Negative Outlook**				**Positive Outlook**
	Combined tally equals -4 or higher	Combined tally equals -3	Combined tally equals -2	Combined tally equals -1	Combined tally equals 0

Working Group Feedback 1/23/26

<u>Short-term, Address by June</u>

- Add an AP question – allows for timely data, buy-in, representation, parity with commercial fishery factor
- Simplify consistently in regs to just consider if there has been a change in the last 12 months
- If number of angler trips and fleet diversity is increasing, should you move to the right (within the score of –4 and 0)?

Recommended Five Factor Approach for 2026

Higher Risk Tolerance ← → **Lower Risk Tolerance**

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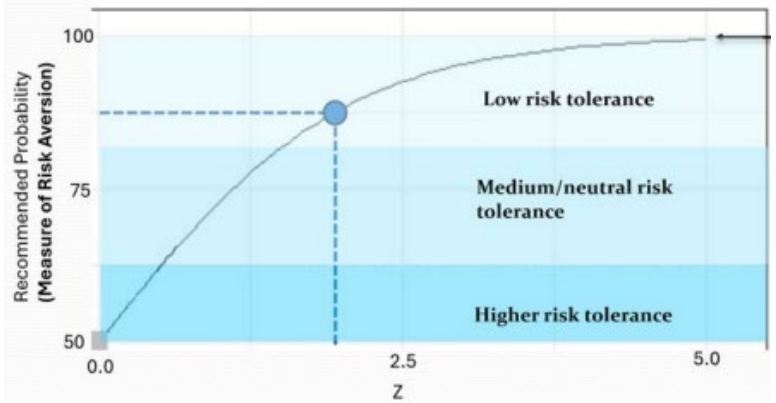
Recruitment	Multiple Large Year Classes		Recent Large Year Class		Average, No Trend		Recent Low Recruitment		Persistent Low Recruitment
Climate Vulnerability					Low	Moderate	Moderate, Negative Direction	High	High Negative Direction
Commercial Fishery Characterization	Negative Outlook		Fishery Signals ⇆		Positive Outlook				
Recreational Fishery Characterization	Negative Outlook		Fishery Signals ⇆		Positive Outlook				

Mechanics of Risk Policy & Implications

Shape of the Curve



Z-Score Scaling

$$Z = \sum (w_i s_i)$$

Range of Scores

Higher Risk Tolerance ← → Lower Risk Tolerance

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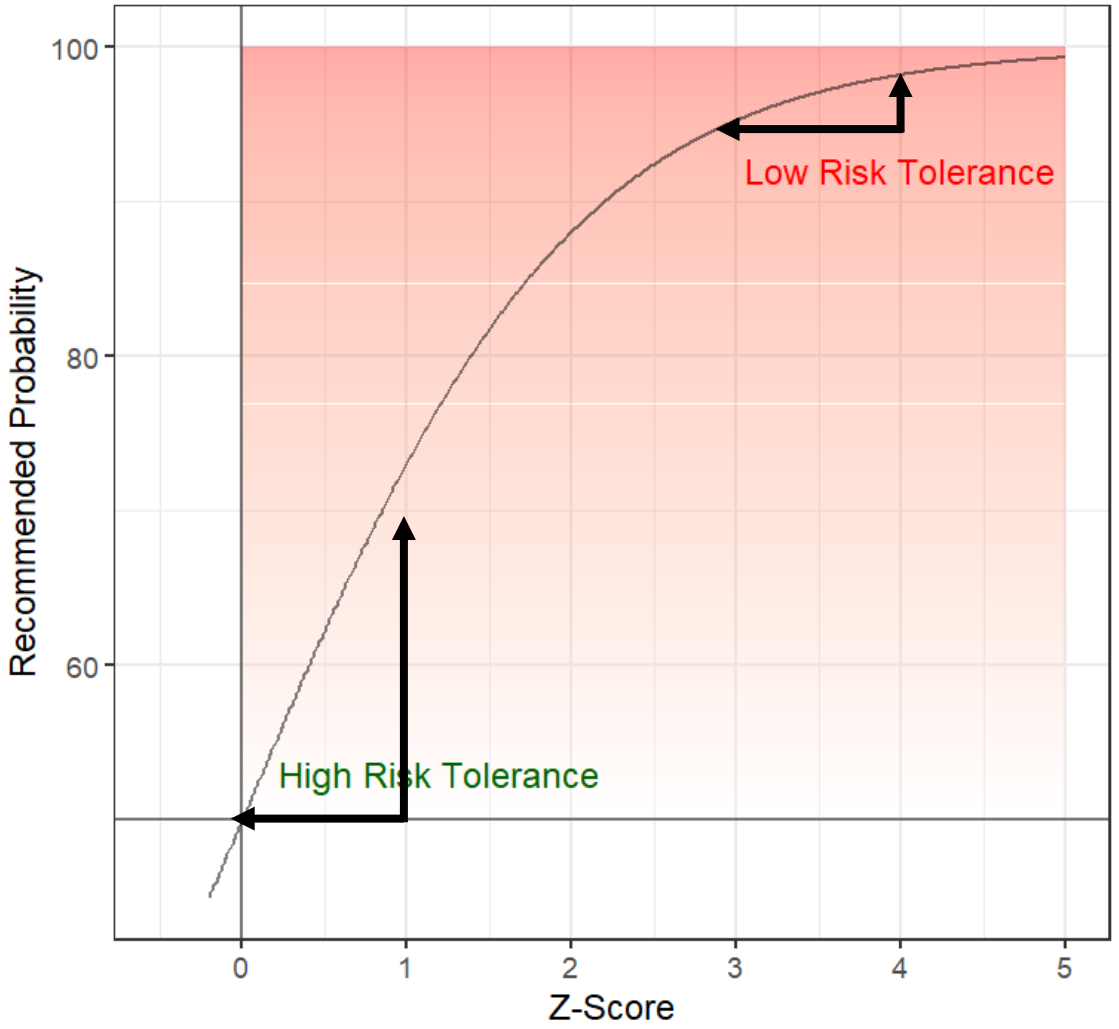
Commercial Fishery Characterization	Negative Outlook		Fishery Signals ⇆		Positive Outlook				
Recreational Fishery Characterization	Negative Outlook		Fishery Signals ⇆		Positive Outlook				

Shape of the Curve

- Currently a logistic function cut off half way because we want at least 50% probability of success
- Curve is steeper at low Z-Scores = more responsive at high risk tolerance
- Curve is at asymptote at high Z-scores = less responsive at low risk tolerance

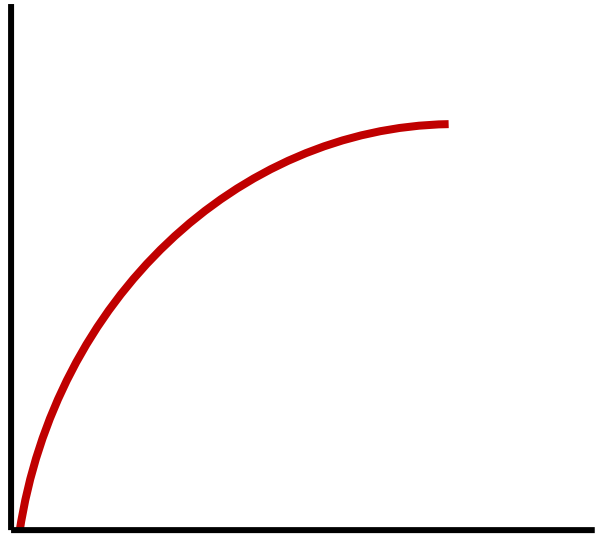
For ABC control rules, this could mean:

- Scientific uncertainty buffer changes rapidly when ABC is near the OFL



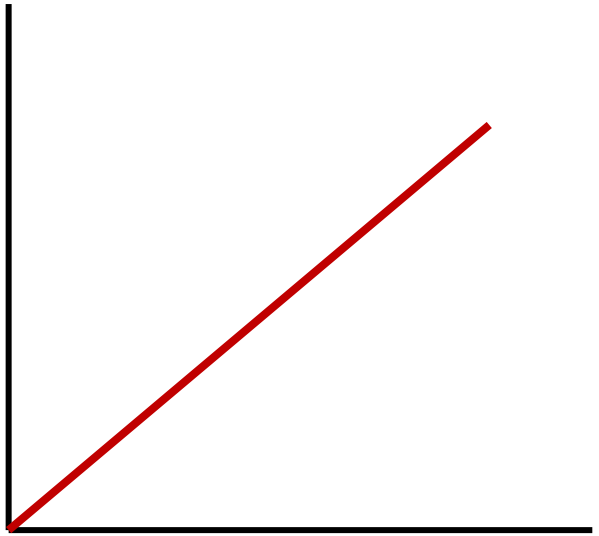
Potential alternative shapes

Current Formulation



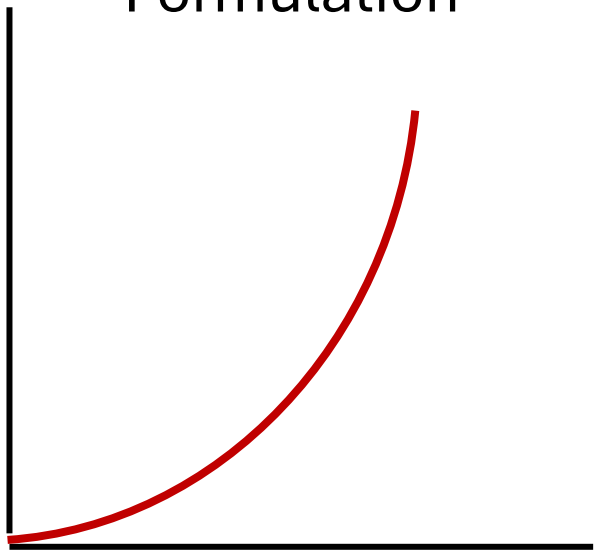
Faster movement in ABC's at low Z-Scores and high risk tolerance

Linear Formulation



Changes in recommended probability and thus ABC are equal across Z-Scores

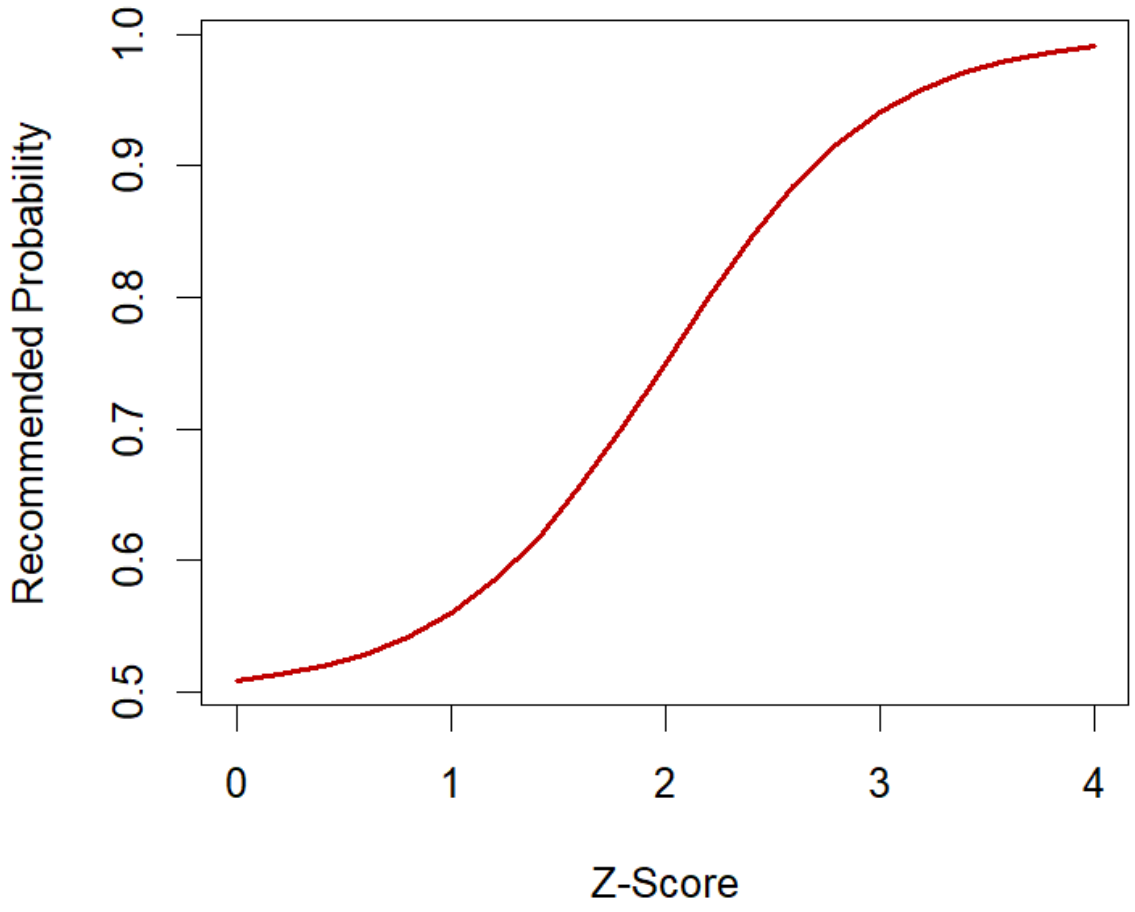
Flipped Formulation



Faster movement in ABC's at high Z-Scores and low risk tolerance

RPWG Recommendation - Full Logistic Curve

- Move quickly at intermediate Z-scores and risk tolerances and moves slowly at high and low risk tolerance
- Logistic function allows us to add/remove factors as the Risk Policy matures
- Formed a sub-group to evaluate implications between now and June, in conjunction with UMaine simulation testing



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Scaling of Scores

FACTORS

(Key elements to characterize risk)

SCORING (based on recent information)	×	**WEIGHTINGS** (level of importance of a factor to the Council)	=	**LEVEL OF RISK** (added up across factors)

- Currently have scores ranging from -4 to 4 (at the extreme)
- But when we are doing calculations for the z-score, those get scaled down to a range of -1 to 1

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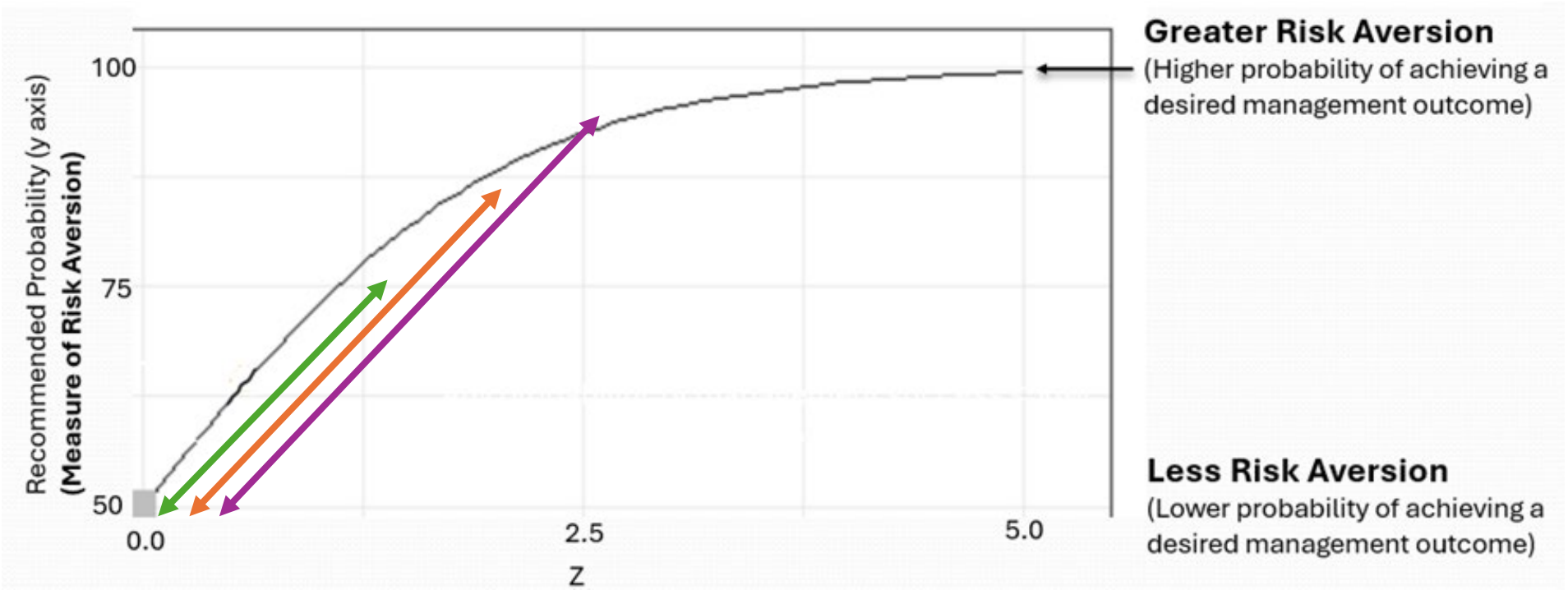
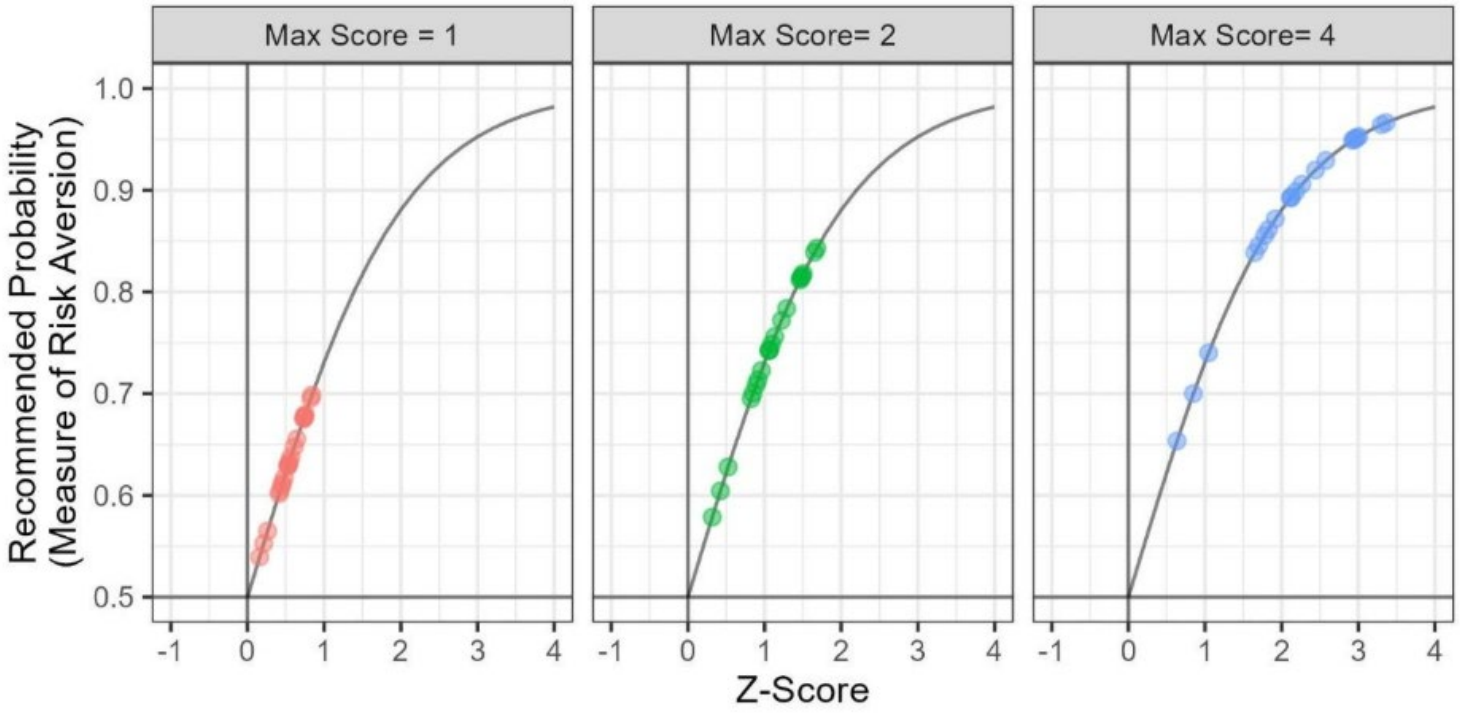
Factor Score Scaling

- Scaling can influence the range of z-scores we can achieve
- Will consider changes: scaling to 2, or keeping it at 4.



Z-Score Scaling



Low Scaling
uses only the linear portion

High Scaling
accesses the asymptote

This impacts:

- The effective shape
- The range of possible output values
- Differentiation between stocks

Discussion and Recommendation

- Z-Score scaling should be high enough to access a broad range of “recommended probabilities,” effectively using the shape of the preferred curve and increasing differentiation between stocks.
- Consider revising the possible score ranges, in concert with revisions to Z-score scaling.
- Doesn't impact the scores of factors Council members have seen to-date.
- Impacts the background math that produces the Z-score.

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Next Steps for Risk Policy:

- Risk Policy Working Group meeting on March 9, 2026.
  - Consider refinements to the five (5) recommended factors.
  - Consider recommendations for changes to Risk Policy mechanics.
  - Plan sub-group meetings. Implementation team convene.
- Check-in with the SSC (March 30, 2026) and Council (April 2026).
- Begin revising the Risk Policy Concept document.
- June: Approve revised Concept document, weight factors.
- Continue to collaborate with other ongoing Council initiatives (e.g. IRA work).

Questions?

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Z-Score Scaling and Factor Score Ranges

Mechanics	Information Considered	Working Group Input To-Date
Z-Score Scaling	Low scaling restricts the logistic curve to the linear portion and higher scaling allows access to the asymptote.	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.
Factor Score Ranges & Scaling	Scaling can influence the range of z-scores we can achieve, and some factors have different score ranges. This determines the possible Z-scores and recommended probabilities, and unequal score ranges lead to implicit weightings.	Consider revising the possible score ranges, in concert with revisions to Z-score scaling.