

# Recreational Harvest Control Rule Draft Addenda/Framework

Council and ASMFC Policy Board Meeting  
June 7, 2022



- Review
  - Framework/addenda options
  - Comments received during addenda comment period
  - SSC input
  - Advisory Panel recommendations
  - FMAT/PDT recommendations
  - Council staff recommendations
- Consider taking final action

Establish process for setting recreational measures that:

- prevents overfishing,
- is reflective of stock status,
- appropriately accounts for uncertainty in the recreational data,
- takes into consideration angler preferences, and
- provides an appropriate level of stability and predictability in changes from year to year.



- 5 approaches for setting bag, size, season limits.
- Key differences include:
  - Information explicitly considered when setting measures
  - Circumstances under which measures would change
- Each option defines a process for setting measures.
- None of the options implement specific measures. Measures would be established and modified through separate future specifications actions.
- None of the options change the process for setting OFLs, ABCs, ACLs, ACTs, commercial quotas, or RHLs.

- **Option A: No Action**
- **Option B: Percent Change**
- **Option C: Fishery Score**
- **Option D: Biological Reference Point**
- **Option E: Biomass Based Matrix**

## Information Used:

Expected harvest	Stock Biomass	Fishing mortality	Recruitment	Biomass trend
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- Expected harvest under status quo measures compared to future recreational harvest limits

Measures reviewed annually

## Information Used:

Expected harvest	Stock Biomass	Fishing mortality	Recruitment	Biomass trend
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- Expected harvest under status quo measures compared to future recreational harvest limits
- Stock size (biomass relative to biomass target)

Measures set for two years

# Percent Change Approach

Row	Future RHL vs Harvest Estimate	B/B <sub>MSY</sub>	Change in Harvest	
A	Future 2-year avg. RHL greater than upper bound of harvest estimate CI	> 1.5	<b>B-1A:</b> Liberalization % = difference between harvest estimate and 2-year avg. RHL	<b>B-1B:</b> 40% Liberalization
		1 – 1.5	<b>B-1A:</b> Liberalization % = difference between harvest estimate and 2-year avg. RHL	<b>B-1B:</b> 20% Liberalization
		< 1	<b>B-2A:</b> 10% Liberalization	<b>B-2B:</b> 0%
B	Future 2-YR avg. RHL within CI of harvest estimate	> 1.5	10% Liberalization	
		1-1.5	0%	
		< 1	10% Reduction	
C	Future 2-YR avg. RHL less than lower bound of harvest estimate CI	> 1.5	<b>B-2A:</b> 10% Reduction	<b>B-2B:</b> 0%
		1-1.5	<b>B-1A:</b> Reduction % = difference between harvest estimate and 2-year avg. RHL	<b>B-1B:</b> 20% Reduction
		< 1	<b>B-1A:</b> Reduction % = difference between harvest estimate and 2-year avg. RHL	<b>B-1B:</b> 40% Reduction



Combine four metrics into one fishery score:

Expected harvest	Stock Biomass	Fishing mortality	Recruitment	Biomass trend
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- Expected harvest under status quo measures compared to future recreational harvest limits
- Stock size
- Fishing mortality
- Recent recruitment

Each metric weighted depending on importance.

Measures set for two years and predetermined

Bin	Fishery Score	Stock Status and Fishery Performance Outlook	Measures
1	4-5	Good	Most Liberal
2	3-3.99	Moderate	Liberal
3	2-2.99	Poor	Restrictive
4	1-1.99	Very Poor	Most Restrictive

## Information Used:

Expected harvest	Stock Biomass	Fishing mortality	Recruitment	Biomass trend
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### Primary information used:

- Stock size; i.e., biomass relative to biomass target
- Fishing mortality

### Secondary information used:

- Expected harvest compared to RHL
- Recent recruitment
- Biomass trend

# Option D: Biological Reference Point Approach

Stock Biomass Compared to Target Level	Overfishing is Not Occurring Fish are being harvested sustainably	Overfishing is Occurring Too many fish are being removed through fishing																								
<p><b>Very High</b> At least 150% of the target stock size</p>	<p style="text-align: center;">R↑      R↓</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>B↑</td> <td style="background-color: #008000; color: white;">liberal</td> <td style="background-color: #008000; color: white;">liberal</td> </tr> <tr> <td>B↓</td> <td style="background-color: #008000; color: white;">default</td> <td style="background-color: #008000; color: white;">default</td> </tr> </table> <p style="text-align: right;">1</p>	B↑	liberal	liberal	B↓	default	default	<table border="1" style="width: 100%; text-align: center;"> <tr> <td colspan="2"></td> <td>R↑</td> <td>R↓</td> </tr> <tr> <td>Recent harvest limits <b>have not</b> been exceeded</td> <td>B↑</td> <td>default</td> <td>restrictive</td> </tr> <tr> <td></td> <td>B↓</td> <td>restrictive</td> <td>restrictive</td> </tr> <tr> <td>Recent harvest limits <b>have</b> been exceeded</td> <td>B↑</td> <td colspan="2" rowspan="2" style="background-color: #FFA500;">restrictive and re-evaluate measures</td> </tr> <tr> <td></td> <td>B↓</td> </tr> </table> <p style="text-align: right;">4</p>			R↑	R↓	Recent harvest limits <b>have not</b> been exceeded	B↑	default	restrictive		B↓	restrictive	restrictive	Recent harvest limits <b>have</b> been exceeded	B↑	restrictive and re-evaluate measures			B↓
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<p><b>Overfished (Too Low)</b> Less than 50% of the target stock size</p>	<p><b>MOST RESTRICTIVE/REBUILDING PLAN</b></p>																									

## Information Used:

Expected harvest	<b>Stock Biomass</b>	Fishing mortality	Recruitment	<b>Biomass trend</b>
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- Stock size; i.e., biomass relative to biomass target
- Stock size (biomass) trend

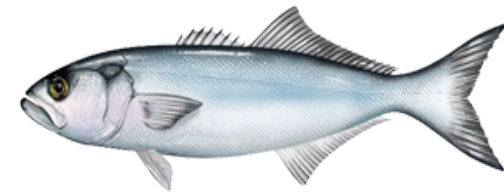
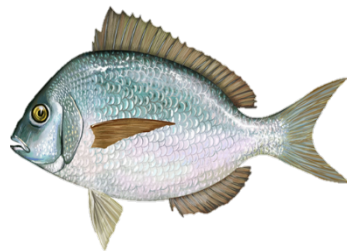
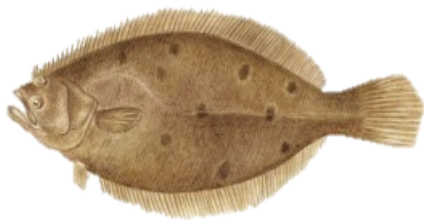
Measures set for two years

Measures would be pre-determined

Stock Size (i.e., biomass compared to target)	Stock Size (Biomass) Trend		
	Increasing	Stable	Decreasing
<b>Very High:</b> At least 150% of target stock size	Bin 1		
<b>High:</b> Above the target, but below 150% target stock size	Bin 1	Bin 2	
<b>Low:</b> Below the target stock size, but more than 50% of the target stock size	Bin 3	Bin 4	
<b>Overfished (Too Low):</b> Less than 50% of the target stock size	Bin 5	Bin 6	

# Target Metric for Setting Measures

## Section 3.2

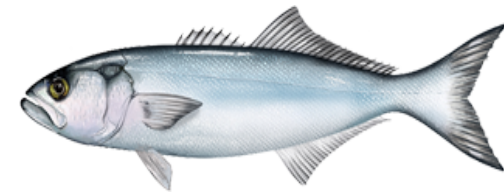
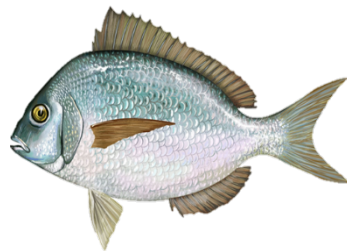
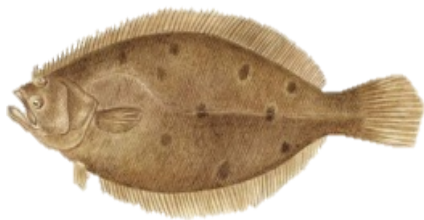


- Relevant to options with bins and associated pre-defined measures.
- Specify whether measures in each bin achieve a target level of:
  - Option 3.2A **Harvest**
  - Option 3.2B **Recreational dead catch** (harvest plus dead discards)
  - Option 3.2C **Fishing mortality**



# Conservation Equivalency

## Section 3.3

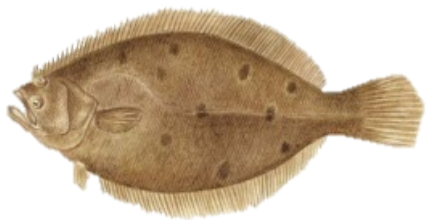


- Defines the level of flexibility states have in proposing alternative measures **after the specifications process**
  - Option 3.3A Allows individual states to adjust measures
  - Option 3.3B Allows grouping of states within a region to adjust measures
  - Option 3.3C Does not allow states or regions to adjust measures
- Under all Harvest Control Rule approaches, states and regions are able to provide input **during the specifications process**

- Fluke: MA, RI, CT-NY, NJ, DE-VA, NC
  - Black Sea Bass: MA-NY, NJ, DE-NC
  - Scup: MA-NY, NJ, DE-NC
  - Bluefish: No established regions
- 
- If Option B selected, Board could specify that regional CE does not apply for bluefish

# Accountability Measures

## Section 3.4



- Accountability measures aim to
  - Prevent catch limit overages
  - Correct or mitigate for overages when they do occur
- Required under the Magnuson-Stevens Act.
- When rec. ACLs have been exceeded, all options require re-evaluation of measures to prevent future overages.
- Some sub-options consider if the response to an overage should be driven by whether or not the overage resulted in overfishing.

**When rec. dead catch exceeds rec. ACL** (single year comparison for bluefish, 3 yr avg for summer flounder, scup, and black sea bass):

- 1. If overfished, under a rebuilding plan, or stock status unknown:** Exact overage amount must be paid back as soon as possible.
- 2. If biomass is above the threshold but below the target, and stock not under a rebuilding plan:**
  - **If only the ACL exceeded:** Adjust bag/size/season, taking into account performance of the measures and conditions that precipitated the overage.
  - **If the ABC also exceeded:** Single year deduction will be made as a payback, scaled based on biomass.
    - $\text{Payback} = (\text{overage amount}) * (B_{msy} - B) / \frac{1}{2} B_{msy}$
- 3. If biomass is above the target:** Adjustments to bag/size/season will be made, taking into account performance of the measures and conditions that precipitated the overage

- Same as current AMs but with paybacks applied equally across two years to facilitate constant measures across two years.
- When a payback is applied, the percent change would be determined based on the reduced RHL.



# Option D: Biological Reference Point Approach AMs



- Reactive AMs are built into the bins to respond to declining stock status and/or overfishing.
- No additional reactive AMs are needed under this approach.



## Sub-Option C-1 and E-1

**When dead catch exceeds rec. ACL** (single year comparison for bluefish, 3 yr avg for summer flounder, scup, and black sea bass):

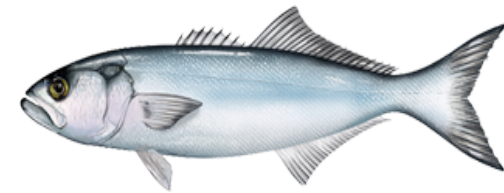
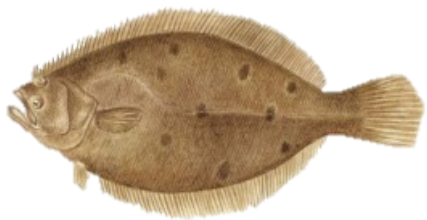
- 1. If the stock is overfished, under a rebuilding plan, or stock status is unknown:** Most restrictive measures implemented. If most restrictive measures were previously implemented or are otherwise expected to continue to result in overages, then they must be further restricted to prevent future overages.
- 2. If biomass is above the threshold but below the target, and the stock is not under a rebuilding plan:**
  - If only the ACL exceeded: Stock remains in current bin, but measures associated with all bins are re-evaluated to prevent future ACL overages.
  - If the ABC (3.4 Option A) or  $F_{MSY}$  (3.4 Option B) is also exceeded: Stock drops down a bin and measures associated with all bins are re-evaluated with to prevent future ACL overages. However, an additional step down is not need if the stock steps down due to a decrease in biomass.
- 3. If biomass is above the target:** Measures for all bins will be adjusted, taking into account the performance of the measures and the conditions that precipitated the overage.

Blue = change from current regs.

## Sub-Option C-2 & E-2

If the rec. ACL comparison shows an overage and overfishing is occurring ( $F$  is greater than  $F_{MSY}$ ), measures for all bins will be re-evaluated and modified as needed to appropriately constrain recreational catch and end overfishing.

# Public Comment Summary



- Eight webinar hearings held March 16 - April 13
  - 164 people attended, not including Commission/Council staff
  - 64 people or organizations provided comments or responded to polls
- Written comment accepted March 2 – April 22
  - 458 total written comments
  - 414 form letter comments and 44 individual comments

# Public Comment Summary



Affiliation	Individuals	Organizations	Percent of Total	
<b>Private Angler</b>	429	14	84.9%	
<b>For-hire (Party/Charter)</b>	11	4	2.9%	
<b>Rec. Fishery Supporting Businesses</b>	3	3	1.1%	
<b>Commercial Fishery</b>	3	0	0.6%	
<b>ENGO</b>	0	3	0.6%	
<b>Multiple</b>	1	1	0.4%	
<b>Other</b>	1	2	0.6%	
<b>Did Not Identify</b>	47	0	9.0%	
<b>Total</b>	495	27	522	29

Management Issue		Number of Form Letters/Individuals/Organizations			
		Form Letter	Individuals	Organizations	Grand Total
<b>Section 3.1 – HCR Approach</b>					
<b>A</b>	No Action	0	7	0	7
<b>B</b>	Percent Change Approach	414	31	15	460
<b>C</b>	Fishery Score Approach	0	12	4	16
<b>D</b>	Biological Reference Point Approach	0	13	4	17
<b>E</b>	Biomass Based Matrix Approach	0	18	5	23
<b>Opposed to no action on this issue</b>		414	13	8	435
<b>Opposed to sub-option B-2B</b>		0	0	1	1

Section 3.2 - Target Metric for Setting Measures		Form Letter	Individuals	Organizations	Grand Total
<b>A</b>	Rec. Harvest	0	0	0	0
<b>B</b>	Rec. Dead Catch	0	0	7	7
<b>C</b>	Fishing Mortality	0	0	6	6

Section 3.3 - Conservation Equivalency Policy		Form Letter	Individuals	Organizations	Grand Total
<b>A</b>	No Action	0	28	12	40
<b>B</b>	Regional CE allowed	0	23	5	28
<b>C</b>	CE is disallowed	0	3	2	5



Section 3.4 - Accountability Measures Comparisons		Form Letter	Individuals	Organizations	Grand Total
<b>A</b>	No Action - Catch compared to ABC	0	0	0	0
<b>B</b>	Fishing mortality compared to an F threshold	0	0	7	7

- A majority of commenters support reevaluation of options C, D, E after models are finalized
- A majority of commenters support using additional data besides MRIP harvest estimates to set bag/size/season limits
- Recruitment, stock biomass, biomass trend, and fishing mortality were considered important metrics by more than double the number of commenters that selected MRIP harvest compared to the RHL

- Between 4 – 6 individuals or organizations supported the following:
  - Postponed action
  - Phasing in implementation of the HCR using black sea bass as a pilot
  - Stability and predictability in setting recreational measures
- 6 individuals or organizations had serious concerns that the HCR options could lead to overfishing

# *Overview of SSC Review of Harvest Control Rule (HCR)*

Paul Rago

Mid-Atlantic Fishery Management Council  
Scientific and Statistical Committee

Presentation to

Mid-Atlantic Fishery Management Council and ASMFC ISFMP Policy Board

June 7, 2022

# *Background*

- Requested by Council for “...qualitative evaluation in time for final action at the June 2022 Council/Policy Board meeting...”
  - Potential effects on setting ABCs
  - Relative risk of overfishing
  - Fishery stability
  - Likelihood of reaching/remaining at ~Bmsy
  - Rank alternatives
- Sub-Committee: Lee Anderson, Cynthia Jones, Tom Miller (chair), Paul Rago, Alexei Sharov + council staff (Brandon Muffley, Julia Beaty)
- Three open webinars 3/25, 4/13, 4/29
- Final revisions/review by SSC at its May 10 meeting.

## *Key Questions*

1. Impact on determination of ABCs?
2. Does the proposed Addendum/Framework represent a Harvest Control Rule?
3. Implications of the HCR?
4. Benefits and challenges of each proposed option?

## *Review: Determination of ABC and RHL*

- SSC considers three primary factors to set ABC
  - Stock assessment results related to abundance, rate of fishing mortality, target biomass and fishing mortality rates. These determine the Overfishing Limit (OFL)
  - Uncertainty factors (9) include data quality, model appropriateness, retrospective pattern, trends in recruitment, & prediction error. These determine the Coefficient of Variation (CV) of OFL.
  - Apply Council Risk Policy to continuously scale risk of overfishing to current and projected stock sizes.
- $ABC = \text{function}(\text{Stock Status, Uncertainty, Risk Policy})$
- Council/ASMFC Technical Teams partition the ABC into commercial quotas and Recreational Harvest Limit (RHL) based on target allocation percentage outlined in FMP.
- Management is a mixture of output and effort controls
- Fishery is a mixture of recreational and commercial harvests. This has implications for comparisons to reference points.

# *1. Impact on Determination of ABCs?*

- ABCs are based on three factors: Status, Uncertainty, and Risk, given current conditions and short-term projections.
- Conclusion—NO impact on current year measures because the Criteria do not presuppose the future consequences of regulatory measures on future assessments
- However, if HCR measures result in improvement or degradation of future assessments then they could influence future decisions regarding CVs.



## *2. Does the proposed Addendum/Framework represent a Harvest Control Rule?*

- In a strict sense, NO. It is closer to a harvest rate control rule
- Underdetermined. Specific measures not presented
  - SSC noted that necessary combinations of size, season and bag limits were not specified and could not be analyzed.
  - Magnitude of change is specified in some options but the basis of these changes are not provided.
- Comparison of target catch limits and resulting catches by species for commercial and recreational sectors imply:
  - Need for improved controls OR
  - Broader acceptance that recreational fisheries cannot achieve the same level of control
- HCR does not solve the problems of recreational fisheries management

### *3. Implications of the HCR?*

- Repeated use of same criteria used to set RHL could increase catch variability. Suggestion—don't double count
- Indirect effects on multi-year ABCs
  - Need to factor in potential for overages during the specification period
- Binned approaches for status and responses
- Time lags in responses
- Angler behavior
- Changes in allocations among sectors (recreational vs commercial)

## 4. Benefits and Challenges of Each Option

Option	Benefits	Challenges
Status Quo	Immediate corrections; continuous response	Expected vs observed catches; angler perception
% Change	Readily available data; broad bins; understandable; potentially more stable regulations	Duplicating use of B/B <sub>msy</sub> ratio used to set ABC/RHL; Basis for % changes; could induce instability
Fishery Score	Multiple sources of info; use of expert judgement	Applications elsewhere?; difficulty in applying method; correlations among 4 factors
Biological Reference Point	Readily available data from stock assessments	Large number of categories; details of application (e.g., trend determination); effects of strong year classes; possibly duplicative with projection methodology; consider harvest rate rather than catch vs RHL comparisons
Biomass Matrix	Uses existing data for trend and status	Stability concerns; does not consider overfishing potential

## *4a. Benefits and Challenges of Each Option*

Option	Benefits	Challenges
Status Quo	Immediate corrections; continuous response	Expected vs observed catches; angler perception
% Change	Readily available data; broad bins; understandable; potentially more stable regulations	Duplicating use of B/Bmsy ratio used to set ABC/RHL; Basis for % changes; could induce instability
Fishery Score	Multiple sources of info; use of expert judgement	Applications elsewhere?; difficulty in applying method; correlations among 4 factors

## 4b. Benefits and Challenges of Each Option

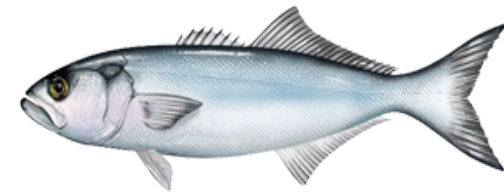
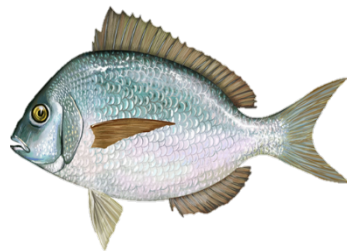
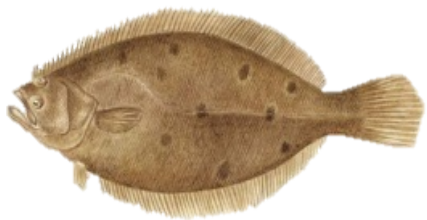
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Biomass Matrix	Uses existing data for trend and status	Stability concerns; does not consider overfishing potential

\*\* *Realized to Target F comparisons must have same basis: e.g. Recr F to Recr F<sub>MSY</sub> proxy*

## *Conclusions and Recommendations*

- Unlikely to affect uncertainty in the OFL and determination of ABC
- Performance of all alternatives will be limited in scope given biennial assessment updates
- Efficacy of options is unknown without more specificity
- Simulation testing of performance should be conducted
- Complexity of some options not commensurate with actual ability to control harvest rates
- Stability of regulations is not equal to stability of catch.

# Advisory Panel Input



# Advisory Panel Input

Options		AP members expressing support	AP members expressing opposition
<b>Section 3.1 - HCR options</b>			
A	No action	3	1
B	Percent Change Approach	4	1
C	Fishery Score	0	4
D	Biological Ref. Point Approach	1	4
E	Biological Reference Point	0	4
<b>Section 3.2 - Target for setting measures</b>			
A	Rec. Harvest	0	0
B	Rec. Dead Catch	1 (if C not ready)	0
C	Fishing Mortality	1	0
<b>Section 3.3 - Conservation equivalency</b>			
A	No action	4	0
B	Regional CE	1	0
<b>Section 3.4 - Accountability measures</b>			
A	No action - Catch vs ABC	0	0
B	F vs FMSY	1	0



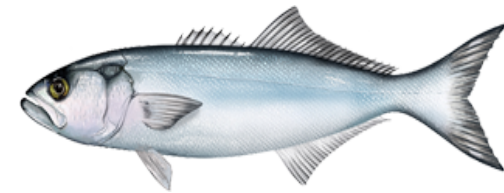
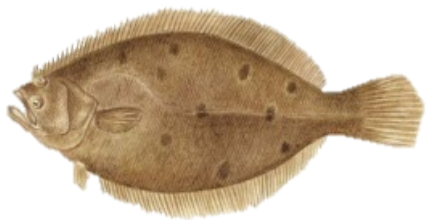
- Two advisors and one member of the public state that if Options B-E are selected, to implement it on a trial basis in 2023 using black sea bass as a pilot.
- Two advisors expressed concerns that Options B-E may not follow the MSA by allowing measures to remain in place for two years
- Four advisors discussed the complexity of this action
  - Three spoke of the need to simplify management, noting the public has become frustrated, overwhelmed, and disconnected with current management
  - One advisor was concerned about noncompliance due to these frustrations

- Two advisors and one member of the public were concerned that Options B-E would negatively impact the commercial sector if recreational harvest repeatedly led to ACL overages
  - A member of the public asked if the Commission and Council would evaluate potential impacts to the commercial sector
  - One advisor was concerned the Draft Addenda/Framework did not contain options addressing increased reporting from the recreational fishery
- One advisor spoke of his concerns that a 3-year timeframe wasn't long enough to determine a trend in recruitment

- Three advisors spoke of the importance of the development of the models, specifically mentioning the Recreational Economic Demand Model
  - One advisor was encouraged that this model addresses angler behavior
- One advisor said he preferred the metrics stock size and biomass trend, with expected harvest as a secondary metric
  - This advisor stated if we don't take trends of the stock into account, we may end up where we are at right now with black sea bass, with high levels of recreational participation and a declining biomass trend
- Another advisor discussed similar issues related to black sea bass: a larger stock size means more fish caught, and with the current harvest rules, the limit will always be exceeded

# FMAT/PDT

## Recommendations for Final Action



## Discussion of SSC Evaluation

- 2 FMAT/PDT members asked if many of SSC's concerns would be addressed by use of models (REDM or RFDM).
  - Response: Cannot draw that conclusion because Council/Policy Board did not request evaluation of models. SSC chose not to rank options. Criticisms of B-E are not an implicit endorsement of A.
  - One FMAT/PDT member viewed lack of consideration of REDM/RFDM as a serious oversight which caused evaluation to be more critical than necessary.
- 1 FMAT/PDT member thought some SSC concerns would be addressed by AM options.

- Different approach for consideration (not within range) suggested by Dr. Rago:
  - Compare recent rec. fishing mortality rate to rec. fishing mortality target (e.g., derived from RHL or ACL) to determine if measures should be adjusted.
- FMAT/PDT recommended further consideration, development, and analysis. Could benefit from additional SSC input.

## Updates on Models

- Recreational Fleet Dynamics Model (RFDM) likely to be available for SF, S, BSB this fall.
- Recreational Economic Demand Model (REDM) likely to be updated with new survey results by Oct. for SF and BSB. May take longer to develop scup model.
- Improvements to both models have been made since Sept 2021 SSC sub-group review.

## Recommendations for Final Action

- 4 FMAT/PDT members did not support No Action. Challenges of focusing on meeting but not exceeding the RHL.
- 1 FMAT/PDT member expressed concern that stakeholders perceive the goal of this action to be to prevent further restrictions and all other options would lead to more liberal measures than No Action.
  - 3 FMAT/PDT members disagreed and said it's more important to improve the process than to focus on the resulting measures.

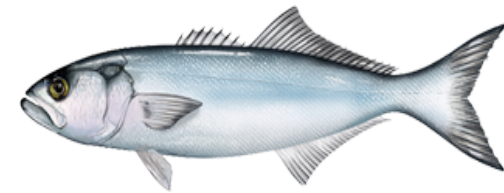
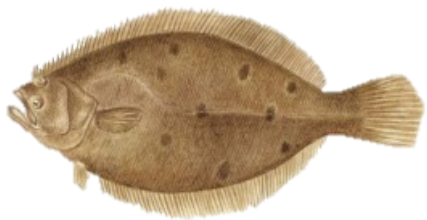


## Recommendations for Final Action

- Conservation equivalency options
  - 4 FMAT/PDT members supported regional CE.
  - 1 FMAT/PDT member said it should be a policy call for Council/Policy Board.
- Fishing mortality target (Option C in Section 3.2) not a feasible option at this time due to modeling capabilities.

- If further development of any options:
  - 3 FMAT/PDT members recommended removal of Fishery Score Option from further consideration.
  - 3 FMAT/PDT members recommended modifying binned approaches so boundaries between bins are triggers for change and measures are not pre-determined.

# Council Staff Recommendations



- Council staff recommendation is **NOT** no action and it is **NOT** status quo. It is an alternative within the existing range.
- Rec. measures must aim to prevent rec. ACL overages in order to proactively prevent overfishing and comply with the MSA given that:
  - None of the FW/addenda options change the fact that we manage with com. ACLs and rec. ACLs.
  - $ABC = \text{com. ACL} + \text{rec. ACL}$ , defined by allocations.
  - Nothing in the FW/addenda is intended to impact commercial fisheries management or the process for setting overall and sector-specific catch and landings limits.
  - Very small buffer between ABC and OFL when biomass is high.
  - Therefore, we are required to set measures to prevent rec. ACL overages.

# Scup Example

- ABC is 98.6% of the overfishing limit.
- $ABC = \text{com. ACL} + \text{rec. ACL}$ .
- 2023 rec. ACL = 10.38 mil lb\*
- Rec. catch has exceeded 10.38 mil lb by 9%-60% since 2013.
- If Percent Change Option requires no more than a 10% reduction, a rec. ACL overage is likely.
- This would require the commercial sector to catch less than their allocation for this option to proactively prevent overfishing and comply with the law.

\*Assuming no changes to previously recommended ABC and applying revised com/rec allocations.

- Council staff recommendation is **NOT** no action and it is **NOT** status quo. It is an alternative within the existing range.
- Council staff recommendation:
  - 1. Set rec. measures for two years at a time.**
    - Align with timing of management track stock assessments.
    - Only change measures in interim year if new data suggest major change in expected impacts of those measures.
  - 2. Use improved statistical methods for predicting impacts of measures on harvest and discards.**
    - Including, but not limited to, REDM and RFDM.
  - 3. Incorporate considerations related to variability and uncertainty in rec. data.**
    - E.g., confidence intervals, outlier adjustments, multi-year averages.
    - Do not require specific methods as this can limit flexibility to adapt to changing circumstances and improved methods.
    - Prioritize completion of previously initiated technical guidance document.

- Why options B-E in 3.1 are not recommended.
  - Reduced flexibility in methods for setting measures to prevent overfishing.
  - Binned options (C-E) greatly increase complexity and lack details on measures setting process.
  - Options B-E could require frequent changes in measures unless managers are willing to set more restrictive measures to achieve stability while preventing ACL and RHL overages.

- Recent improvements:
  - Biennial mgmt. track stock assessments starting 2020.
  - Modified risk policy starting with 2021 ABCs.
  - Greater use of multi-year averages in measure setting.
  - Outlier adjustments.
  - Revised calculations of expected dead discards.
  - PSE considerations for maintaining status quo measures.



- Future management actions:
  - Planned:
    - Technical Guidance Document
    - Amendment for rec. sector separation and rec. catch accounting
  - Potential additional actions:
    - Improvements to measures setting process.
    - Improvements to process for waiving federal waters measures.
    - Consideration of  $F/F_{MSY}$  in AMs for both sectors.
    - Changes in timing of measures setting.

- Council staff recommendation is **NOT** no action and it is **NOT** status quo. It is an alternative within the existing range.
- Builds off previous and ongoing improvements to measures setting process.
- Provides flexibility to set measures to prevent overfishing while adapting to new information and allowing for continued improvements in the process.
- This recommendation will not solve all challenges.
- Council/Policy Board have already planned for continued improvements in upcoming years through other actions.

Objective: Consider final action