

Table 1: Metrics considered when setting recreational measures under each option in this Draft Addendum/Framework. Primary metrics determine which harvest control rule bin a stock is in; secondary metrics are only used if, through the evaluation of the primary metrics, the stock stays in the current bin. Metrics considered through accountability measures may differ from those shown below. See section 3.1 for more details on the options.

Option	Metrics used to set measures					Measures are pre-determined	Expected number of sets pre-determined measures	Measures specified for 1 or 2 years
	Expected harvest*	Biomass compared to target level (B/B _{MSY})	Fishing mortality compared to threshold level (F/F _{MSY})	Recent recruitment	Biomass trend			
No action	Primary					No	N/A	1
Percent change	Primary	Primary				No	N/A	2
Fishery score	Primary**	Primary**	Primary**	Primary**		Yes	4	2
Biological reference point	Only when $F > F_{MSY}$	Primary	Primary	Secondary	Secondary	Yes	13	2
Biomass based matrix		Primary			Primary	Yes	6	2

*Expected harvest refers to expected harvest under status quo measures compared to the upcoming year(s)' RHL and could be based on past MRIP estimates, including consideration of confidence intervals for those estimates, or a model-based estimate of harvest, including considerations related to uncertainty in that estimate.

**As described in the Draft Addendum, the fishery score metrics may not be weighted evenly. The Monitoring/Technical Committees will recommend the appropriate weight for each metric. These weights can be modified through the specifications process.

Percent Change Option

Alternative considers future RHL, recent MRIP time-series average estimate, and the relationship of Biomass to Bmsy to determine what percent change should occur for management measures. Percent changes provide similar consideration for reductions and liberalizations.

① →

RHL compared to MRIP estimate

Determine if the RHL for the upcoming management period is above, below, or within the confidence interval of the most recent MRIP time-series estimate.



② →

Compare Biomass to Bmsy

Compare the Biomass estimate from the stock assessment to the biological reference point (Bmsy). Biomass categories are as follows:

- 150% above Bmsy
- between 100 and 150% Bmsy
- less than 100% of Bmsy



③ →

Find percent change in measures

The RHL and Bmsy comparison determines the appropriate management response. Measures will either be liberalized, restricted, or status quo. There are three different percentages by which measures can be liberalized or reduced.



④ →

Set Management Measures

Management measures are based on pre-defined % changes from the status quo.



Fishery Score Option

This infographic explains how the Fishery Score will function to select the management measure bin for summer flounder, scup, black sea bass, and bluefish

STEP 1

Stock Assessment Results

An updated stock assessment is completed and approved for management use.

STEP 2

Calculate Fishery Score Metrics

Fishing mortality, biomass, recruitment, and fishery performance metrics are drawn from the stock assessment and recent MRIP estimates.

STEP 5

Adapt New Measures if Needed

If the Fishery Score caused the stock to move from one bin to another, then the new pre-determined management measures will be applied. If the stock remains within the same bin, measures will remain the same.

STEP 3

Use Formula to Calculate Fishery Score

Fishery Score metrics are entered in the Fishery Score formula to produce a value ranging from 1 to 5. On this scale, 1 is the lowest possible score and 5 is the highest possible score.

STEP 4

Determine Management Step Based on Fishery Score

Based on the calculated Fishery Score, the stock is placed into one of four bins. Each bin has an associated level of concern, stock status, and a pre-determined set of management measures.

Fishery Score bins and the associated stock status, fishery performance outlook, and measures that are associated with each bin.

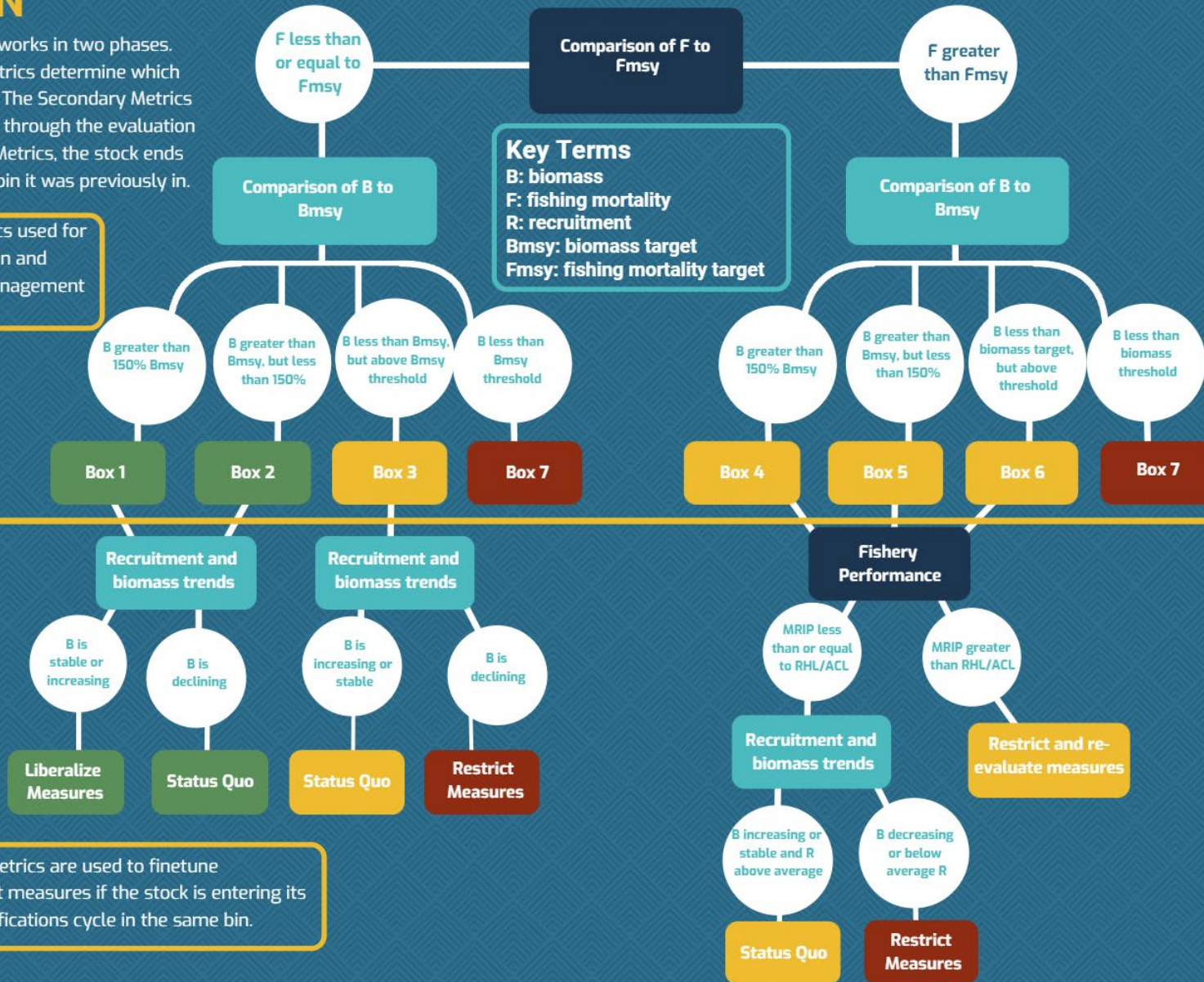
Bin	Fishery Score	Stock Status and Fishery Performance Outlook	Measures
1	4-5	Good	Most Liberal
2	3-3.99	Moderate	Liberal
3	2-2.99	Poor	Restrictive
4	1-1.99	Very Poor	Most Restrictive

BIOLOGICAL REFERENCE POINT OPTION

The BRP option works in two phases. The Primary Metrics determine which bin a stock is in. The Secondary Metrics are only used if, through the evaluation of the Primary Metrics, the stock ends up in the same bin it was previously in.

Primary Metrics used for determining bin and associated management measures

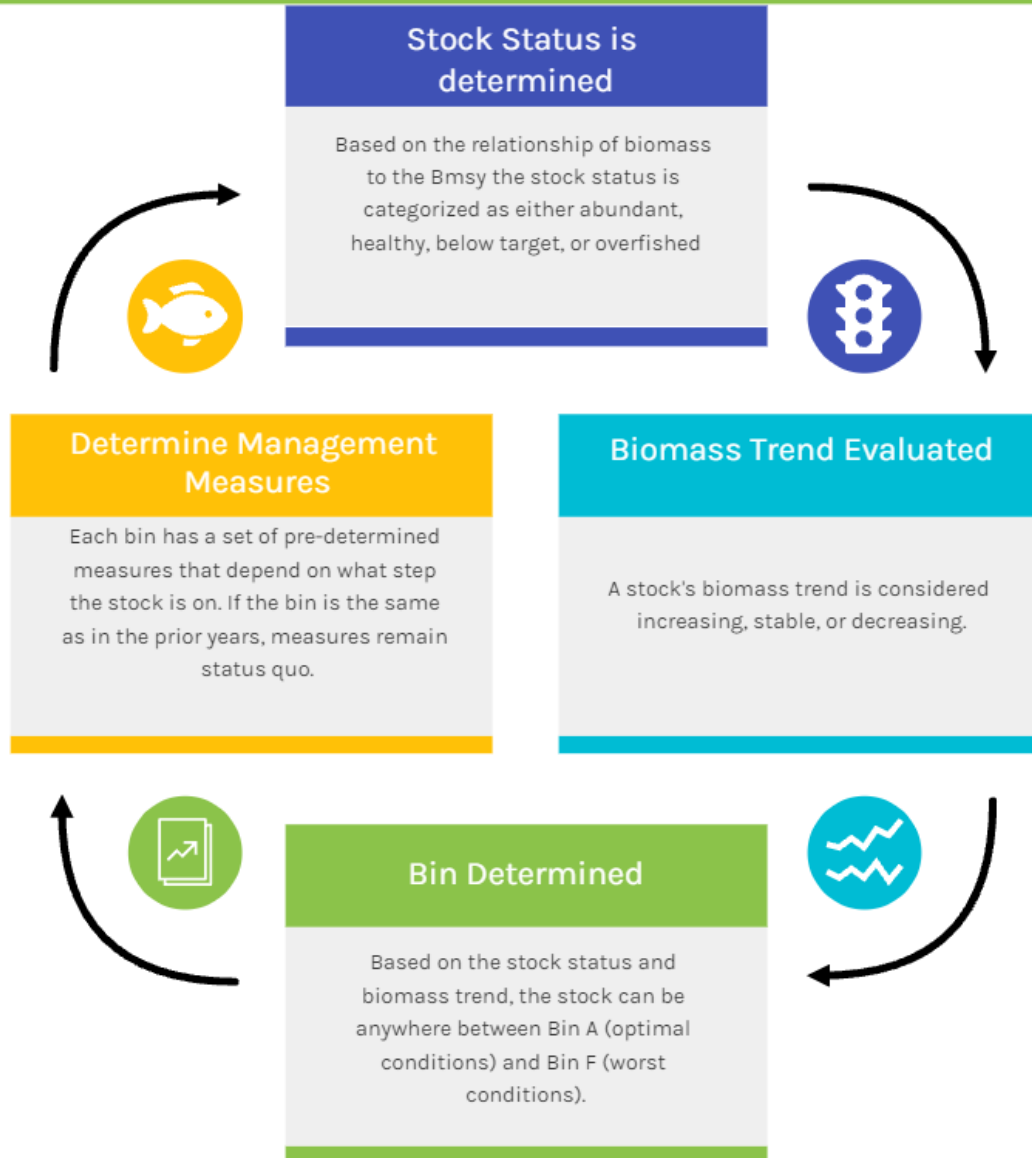
Key Terms
 B: biomass
 F: fishing mortality
 R: recruitment
 Bmsy: biomass target
 Fmsy: fishing mortality target



Secondary Metrics are used to finetune management measures if the stock is entering its second specifications cycle in the same bin.

Biomass Based Matrix Approach

Defines bin conditions based on two factors: stock status (i.e., biomass relative to Bmsy or proxy) and the most recent trend in biomass (increasing, stable, or decreasing). These parameters create a three-by-four matrix to determine which step is appropriate.



Recreational management measure matrix under the Biomass Based Matrix Approach

		Biomass Trend		
		Increasing	Stable	Decreasing
Stock Status	Abundant	Bin A		
	Healthy	Bin A	Bin B	
	Below Target	Bin C	Bin D	
	Overfished	Bin E	Bin F	