

Status Determination Criteria and Reference Points

Reef Fish Amendment 48/Red Drum 5



Status Determination Criteria (SDC)

What are they?

- Criteria used to determine condition of fish stocks and the fishery

Why are they important to the Council?

- FMPs must define overfishing and overfished status
- Council must use measurable and objective criteria to do this



What is MSY?

- MSY - Largest long-term average catch or yield that can be taken from a stock or stock complex.
- “Maximum” is rarely known with certainty due to lack of data, uncertainty, and poor spawner-recruit relationship.
- MSY is difficult to estimate because it depends upon a reliable stock-recruitment relationship, for which data is often sparse and/or highly variable.



Action 1: Revisions

- Sub-Actions 1.1 – 1.3 (MSY Proxies) have been condensed into a single action (Action 1)
 - Fewer decision points
 - Retains use of stock complexes
 - Removes use of indicators for complexes
 - Goliath grouper and red drum addressed as alternatives within Action 1
 - Additional information on red drum escapement rates and the expected relationship to SPR



Action 1 – MSY Proxies for Stock Complexes and Unassessed Stocks

Alternative	Complex	Stock(s)
2	Shallow-water grouper	Scamp, black, yellowmouth, yellowfin
2	Deep-water grouper	Yellowedge, warsaw, snowy groupers, speckled hind
2	Tilefishes	Golden, blueline, goldface tilefish
2	Jacks	Lesser amberjack, almaco jack, banded rudderfish
2	Mid-water snapper	Wenchman, silk, blackfin, queen snapper
2	—	Cubera snapper
2	—	Lane snapper
3	—	Goliath grouper
4	—	Red drum

Action 1 – MSY Proxies for Stock Complexes and Unassessed Stocks

Alternative 1: No action. MSY undefined.

Alternative 2: The MSY proxy is the yield when fishing at:

Option 2a: 20% spawning potential ratio ($F_{20\% \text{ SPR}}$).

Option 2b: 30% spawning potential ratio ($F_{30\% \text{ SPR}}$).*

Option 2c: 40% spawning potential ratio ($F_{40\% \text{ SPR}}$).

*SSC Recommendation



Action 1 – MSY Proxies Cont.

Alternative 3: For goliath grouper, the MSY proxy is the yield when fishing at:

Option 3a: 30% spawning potential ratio ($F_{30\% \text{ SPR}}$).

Option 3b: 40% spawning potential ratio ($F_{40\% \text{ SPR}}$).*

Option 3c: 50% spawning potential ratio ($F_{50\% \text{ SPR}}$).

Goliath grouper is a stock that occurs in both the Gulf and South Atlantic Council's jurisdictions and is assessed as one stock throughout its range. The South Atlantic Council has established an MSY proxy of $F_{\text{SPR } 40\% \text{ SPR}}$ for goliath grouper.

*SSC Recommendation



Action 1 – MSY Proxies Cont.

Alternative 4: For red drum, the MSY proxy is:

Option 4a: the yield that provides for an escapement rate of juvenile fish equivalent to 30% of those that would have escaped had there been no inshore fishery.*

Option 4b: the yield when fishing at 30% spawning potential ratio ($F_{30\% \text{ SPR}}$).

Red Drum Amendment 2 (GMFMC 1988) assumed that a 30% escapement was approximately equivalent to $F_{20\% \text{ SPR}}$, although the relationship between escapement and SPR is not well defined.

*SSC Recommendation



Action 1 – MSY Proxies Cont.

Alternative 5: For future assessments of reef fish stocks and red drum, the MSY proxy equals the yield produced by F_{MSY} or F_{PROXY} recommended by the Council's SSC and subject to approval by the Council through a plan amendment.

- Streamlined procedure to modify the MSY proxy based on new information and a recommendation from the SSC
- Retains Council's discretion to set the MSY proxy
- If multiple MSY proxy recommendations are provided by the SSC, a plan amendment would be necessary to modify the MSY proxy

*SSC Recommendation



Action 1: MSY Proxies for Stock Complexes and Unassessed Stocks

Alt.	Stock or Complex	SPR 20%	SPR 30%	SPR 40%	SPR 50%
2	Shallow-water grouper		*SSC Recommendation		
2	Deep-water grouper				
2	Tilefishes				
2	Jacks				
2	Mid-water snapper				
2	Cubera snapper				
2	Lane snapper				
3	Goliath grouper			*SSC Recommendation	
4	Red drum	~ 30% Escapement; SSC Recommendation			

Action 2 – Defining MFMT

Alternative 1: No action. Maintain current definitions of MFMT. These are $F_{26\%SPR}$ for red and gray snapper, $F_{50\%SPR}$ for goliath grouper, F_{MAX} for gag (where MAX is maximum yield per recruit), and $F_{26\%SPR}$ for all other reef fish stocks and red drum.

Alternative 2: For stock where an MSY proxy has not been defined, set the MFMT equal to the fishing mortality at the MSY proxy for each stock or stock complex as determined in Action 1.

Alternative 3: If a stock is in a rebuilding plan, set the MFMT equal to the fishing mortality rate that is projected to rebuild the stock to B_{MSY} within the rebuilding time period ($F_{Rebuild}$). After the stock has recovered, the MFMT is equal to the fishing mortality at the stock's MSY proxy.

*SSC Recommendation



Action 3 – Defining MSST

Alternatives apply to stocks and stock complexes in Action 1

Alternative 1: No action. Do not define MSST. Stocks with established MSST will be retained for gag, gray triggerfish, greater amberjack, hogfish, red grouper, red snapper, vermillion snapper, and gray snapper.

Alternative 2: $MSST = (1-M) \cdot B_{MSY \text{ proxy}}$ where M is the natural mortality rate.

Alternative 3: $MSST = 0.75 \cdot B_{MSY \text{ proxy}}$.

Alternative 4: $MSST = 0.50 \cdot B_{MSY \text{ proxy}}$.

Alternative 5: For stocks assessed across the South Atlantic and Gulf Councils' jurisdictions (Goliath grouper, mutton snapper, yellowtail snapper, and black grouper). MSST for these species would use existing definitions of MSST defined by the South Atlantic Council.

Previous analysis by the SEFSC analysis showed that if the stock falls below 75% of B_{MSY} , then overfishing is likely occurring.

*SSC Recommendation



Action 4 – OY Simplified

Alternative 1: No action. Do not define optimum yield (OY) for stocks and stock complexes in Action 1.

Alternative 2: For reef fish stocks where OY is undefined, with the exception of goliath grouper, OY, implicitly accounting for relevant economic, social, or ecological factors, would be the yield from fishing at:

Option 2a. 50% of $F_{\text{MSY proxy}}$.

Option 2b. 75% of $F_{\text{MSY proxy}}$.

Option 2c. 90% of $F_{\text{MSY proxy}}$ *

*SSC Recommendation



Action 4 – OY Simplified

Alternative 3: For goliath grouper, OY, implicitly accounting for relevant economic, social, or ecological factors, would be the yield from fishing at:

Option 2a. 50% of $F_{\text{MSY proxy}}$.

Option 2b. 75% of $F_{\text{MSY proxy}}$.

Option 2c. 90% of $F_{\text{MSY proxy}}$.

Alternative 4: For red drum, OY, implicitly accounting for relevant economic, social, or ecological factors, would be the yield from fishing at:

Option 2a. 50% of $F_{\text{MSY proxy}}$.

Option 2b. 75% of $F_{\text{MSY proxy}}$.

Option 2c. 90% of $F_{\text{MSY proxy}}$.



Action 4 – OY, an Even Simpler Option

Alternative 2: For reef fish stocks and red drum where OY is undefined, OY, implicitly accounting for relevant economic, social, or ecological factors, would be the yield from fishing at:

Option 2a. 50% of $F_{\text{MSY proxy}}$.

Option 2b. 75% of $F_{\text{MSY proxy}}$.

Option 2c. 90% of $F_{\text{MSY proxy}}$.



Action 4 –Another possible OY option

- $OY = (ACL/OFL) * F_{MSY}$ (or proxy)
 - Percentage range from 55.5% to 90.6%.
 - What to do about SWG and red drum?

Species	OFL	ACL	ACL/OFL	notes
Shallow-water grouper	Not defined	710,000		(ABC=ACL)
Deep-water grouper (2016+)	1,220,000	1,105,000	0.906	(OFL>ABC>ACL)
Tilefishes	747,000	608,000	0.814	(ABC=ACL)
Jacks complex	372,000	312,000	0.839	(ABC=ACL)
Mid-water snapper	209,000	116,000	0.555	(ABC=ACL)
Cubera snapper	7,000	5,065	0.724	(ABC=ACL)
Lane snapper	358,000	301,000	0.841	(ABC=ACL)
Goliath grouper	0	0		(OFL=ABC=ACL)
Red drum	0	0		No Fed harvest

Next steps

- Review and revise actions and alternatives based on Council input
- Bring public hearing draft to January Council meeting?

