Science, Service, Stewardship

Species groupings for management of the SAFMC Snapper-Grouper FMU: *ACL Management Applications*

Dr. Nick Farmer

Southeast Regional Office

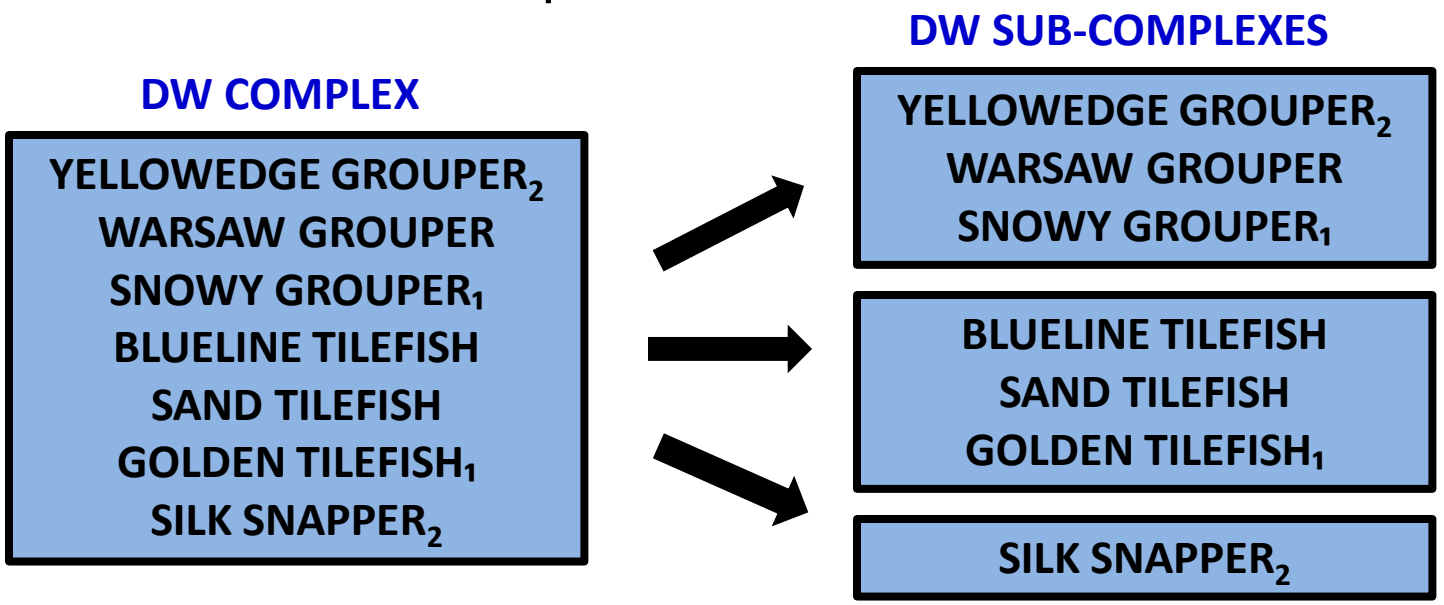
December 7, 2010

NOAA FISHERIES SERVICE

NOAA FISHERIES SERVICE

INTRODUCTION

- Current preferred alternative uses combination of single species ACLs, sub-complex ACLs, and full complex ACLs
- This approach results in 32 ACLs for 42 species
  - 6 complexes, 15 sub-complexes (5 contain one species), and 11 individual species



Complexes: Current Preferred

2a. DW Complex	Sub-Complex
Warsaw grouper$_2$ Yellowedge grouper Snowy grouper$_1$	2a(i)
Blueline tilefish Sand tilefish Golden tilefish$_1$	2a(ii)
Silk snapper	2a(iii)

2b. SWG Complex	Sub-Complex
Gag$_{1,2}$	2b(i)
Red grouper$_1$ Scamp	2b(ii)
Black grouper$_1$	2b(iii)
Yellowfin grouper Speckled hind	2b(iv)

2c. Jacks Complex	Sub-Complex
Greater amberjack$_1$	2c(i)
Almaco jack$_2$ Banded rudderfish Lesser amberjack	2c(ii)

2d. SWS Complex	Sub-Complex
Yellowtail snapper$_1$	2d(i)
Gray snapper$_2$ Lane snapper	2d(ii)
Mutton snapper$_1$ Cubera snapper	2d(iii)

2e. PGH Complex	Sub-Complex
Whitebone porgy$_2$ Knobbed porgy Jolthead porgy	2e(i)
Red hind Rock hind	2e(ii)
Tomtate White grunt	2e(iii)

2f. TF Complex
Gray triggerfish Ocean triggerfish

2g. Individual ACLs
Red snapper$_1$
Vermilion snapper$_1$
Red porgy$_1$
Goliath grouper$_1$
Black sea bass$_1$
Wreckfish$_1$
Bar jack
Nassau grouper
Hogfish
Atlantic spadefish
Blue runner

42 species,

32 ACLs*

***6 complex + 15 sub-complex**

+ 11 individual ACLs (5 ACL = 0)

NOAA FISHERIES SERVICE

SSC RECOMMENDATION

- The SSC recommended against using species complexes unless they are used to aid with issues of species identification. The SSC feels the single-species approach provides the best solution for unassessed stocks.
- Species-specific ACLs for 42 stocks may be unrealistic due to:
  - Inadequate or insufficient data for monitoring
  - problems with species identification
  - fluctuations in landings through time
  - extra burden on science and enforcement

NOAA FISHERIES SERVICE

SSC Discussion (Negatives)

- Difficult to predict population responses to management due to confounding variables (e.g., management, environmental forcing, ecological niche, market forcing, etc.).
- Catch groups do not necessarily correspond to functional groups; lacks ecosystem context that would give predictive use with regards to population dynamic impacts of change in F upon complex's members.
- May create disincentive for moving species up through the tier system.
- May require an additional buffer for management uncertainty.
- May be harder to economically evaluate impacts.
- SERO analysis should better assess uncertainty.

NOAA FISHERIES SERVICE

SSC Discussion (Positives)

- Useful for mitigating species identification issues.
- Gives guidance as to what species are likely to be impacted by management action upon another species.
- Adds to our understanding of the ecology of the system.
- Fisherman knowledge and behavior are incorporated.
- Well-explained, simple to understand, helpful to the Council and laypersons.
- Useful as guidance for dealing with data-poor species.

NOAA FISHERIES SERVICE

Alternative Approaches

- *Option 1* – Targeted species get individual ACLs, other stocks lumped into major complex with targeted species

- *Option 2* – Targeted species get individual ACLs, other stocks lumped into smaller complexes with each other.

DEEP-WATER GROUPER & TILEFISH

(Option 1)

DWG COMPLEX
YELLOWEDGE GROUPER$_2$
SNOWY GROUPER$_1$
BLUELINE TILEFISH
SAND TILEFISH
GOLDEN TILEFISH$_1$
SILK SNAPPER$_2$

581 TP

GOLDEN TILEFISH$_1$ — 331 TP**

SNOWY GROUPER$_1$ — 103 TP**

WARSAW GROUPER — 0 TP**

WRECKFISH$_1$ — 250 TP^{+}

(Option 2)

YELLOWEDGE GROUPER$_2$
BLUELINE TILEFISH
SAND TILEFISH
SILK SNAPPER$_2$

147 TP**

SNOWY GROUPER$_1$ — 103 TP**

GOLDEN TILEFISH$_1$ — 331 TP**

WARSAW GROUPER — 0 TP**

WRECKFISH$_1$ — 250 TP^{+}

*1 = Assessed species, 2 = Most vulnerable (PSA), + = SSC recommendation for ACL, * = ACL specified in Am. 17A, ** = ACL specified in Am. 17B, *** = ACL specified in Am. 15A, Otherwise, ABC proxy = 75% OFL*

SHALLOW-WATER GROUPER

(Option 1)

SWG COMPLEX
GAG$_{1,2}$
RED GROUPER$_1$
SCAMP
BLACK GROUPER$_1$
YELLOWFIN GROUPER
— 2715 TP

GAG$_{1,2}$ — 950 TP**

RED GROUPER$_1$ — 622 TP **

GOLIATH GROUPER$_1$ — 0 TP+

NASSAU GROUPER — 0 TP+

BLACK SEA BASS$_1$ — 847 TP**

(Option 2)

SCAMP
BLACK GROUPER$_1$
YELLOWFIN GROUPER
— 603 TP

GAG$_{1,2}$ — 950 TP**

RED GROUPER$_1$ — 622 TP **

GOLIATH GROUPER$_1$ — 0 TP+

NASSAU GROUPER — 0 TP+

BLACK SEA BASS$_1$ — 847 TP**

*1 = Assessed species, 2 = Most vulnerable (PSA), + = SSC recommendation for ACL, * = ACL specified in Am. 17A, ** = ACL specified in Am. 17B, *** = ACL specified in Am. 15A, Otherwise, ABC proxy = 75% OFL*

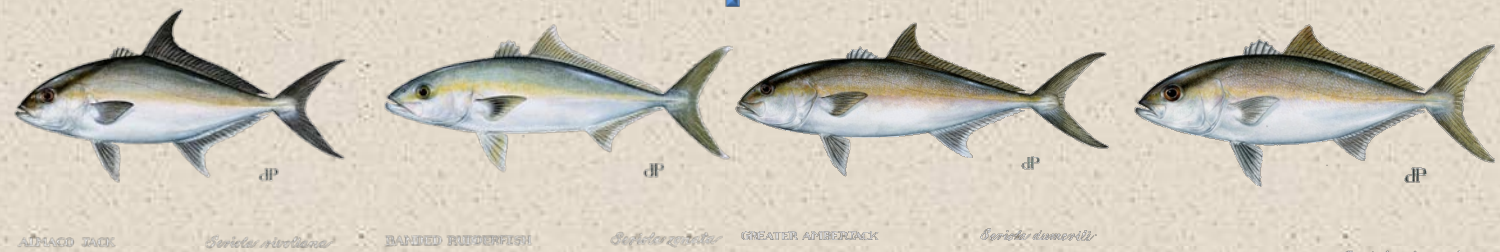
‘JACKS’

(Option 1)

JACKS COMPLEX GREATER AMBERJACK$_1$ ALMACO JACK$_2$ BANDED RUDDERFISH LESSER AMBERJACK	2198 TP
GREATER AMBERJACK$_1$	1968 TP$^+$
BLUE RUNNER	666 TP
BAR JACK	8 TP
ATLANTIC SPADEFISH	167 TP

(Option 2)

ALMACO JACK$_2$ BANDED RUDDERFISH LESSER AMBERJACK	230 TP
GREATER AMBERJACK$_1$	1968 TP$^+$
BLUE RUNNER	666 TP
BAR JACK	8 TP
ATLANTIC SPADEFISH	167 TP



*1 = Assessed species, 2 = Most vulnerable (PSA), + = SSC recommendation for ACL, * = ACL specified in Am. 17A, ** = ACL specified in Am. 17B, *** = ACL specified in Am. 15A, Otherwise, ABC proxy = 75% OFL*

'SNAPPERS'

(Option 1)

SWS COMPLEX
YELLOWTAIL SNAPPER$_1$
GRAY SNAPPER$_2$
LANE SNAPPER
MUTTON SNAPPER$_1$
CUBERA SNAPPER
4735 TP

YELLOWTAIL SNAPPER$_1$ — **2899 TP$^+$**

MUTTON SNAPPER$_1$ — **1155 TP$^+$**

RED SNAPPER$_1$ — **0 TP***

VERMILION SNAPPER$_1$ — **1078 TP****

HOGFISH — **100 TP****

(Option 2)

GRAY SNAPPER$_2$
LANE SNAPPER
CUBERA SNAPPER
682 TP

YELLOWTAIL SNAPPER$_1$ — **2899 TP$^+$**

MUTTON SNAPPER$_1$ — **1155 TP$^+$**

RED SNAPPER$_1$ — **0 TP***

VERMILION SNAPPER$_1$ — **1078 TP****

HOGFISH — **100 TP****

*1 = Assessed species, 2 = Most vulnerable (PSA), + = SSC recommendation for ACL, * = ACL specified in Am. 17A, ** = ACL specified in Am. 17B, *** = ACL specified in Am. 15A, Otherwise, ABC proxy = 75% OFL*

PORGIES, GRUNTS, & HINDS COMPLEX

PGH COMPLEX WHITEBONE PORGY$_2$ KNOBBED PORGY JOLTHEAD PORGY RED HIND ROCK HIND TOMTATE WHITE GRUNT	420 TP
SPECKLED HIND	0 TP**
RED PORGY$_1$	395 TP

*1 = Assessed species, 2 = Most vulnerable (PSA), + = SSC recommendation for ACL, * = ACL specified in Am. 17A, ** = ACL specified in Am. 17B, *** = ACL specified in Am. 15A, Otherwise, ABC proxy = 75% OFL*

TRIGGERFISH COMPLEX

TRIGGERFISH COMPLEX
GRAY TRIGGERFISH
OCEAN TRIGGERFISH$_2$

215 TP

1 = Assessed species, 2 = Most vulnerable (PSA), + = SSC recommendation for ACL, * = ACL specified in Am. 17A, ** = ACL specified in Am. 17B, *** = ACL specified in Am. 15A, Otherwise, ABC proxy = 75% OFL

NOAA FISHERIES SERVICE

DISCUSSION

- **42** snapper-grouper species requiring ACL management
- Current preferred alternative in Comp. ACL Amendment would monitor these species with **32** ACLs
  - 6 complex + 15 sub-complex
  - 11 individual ACLs (5 ACLs = 0 lbs)
- The alternative grouping approaches described would monitor these species with **26** ACLs
  - 6 complex ACLs
  - 20 species-specific ACLs (5 ACLs = 0 lbs)

NOAA FISHERIES SERVICE

DISCUSSION

Option 1:

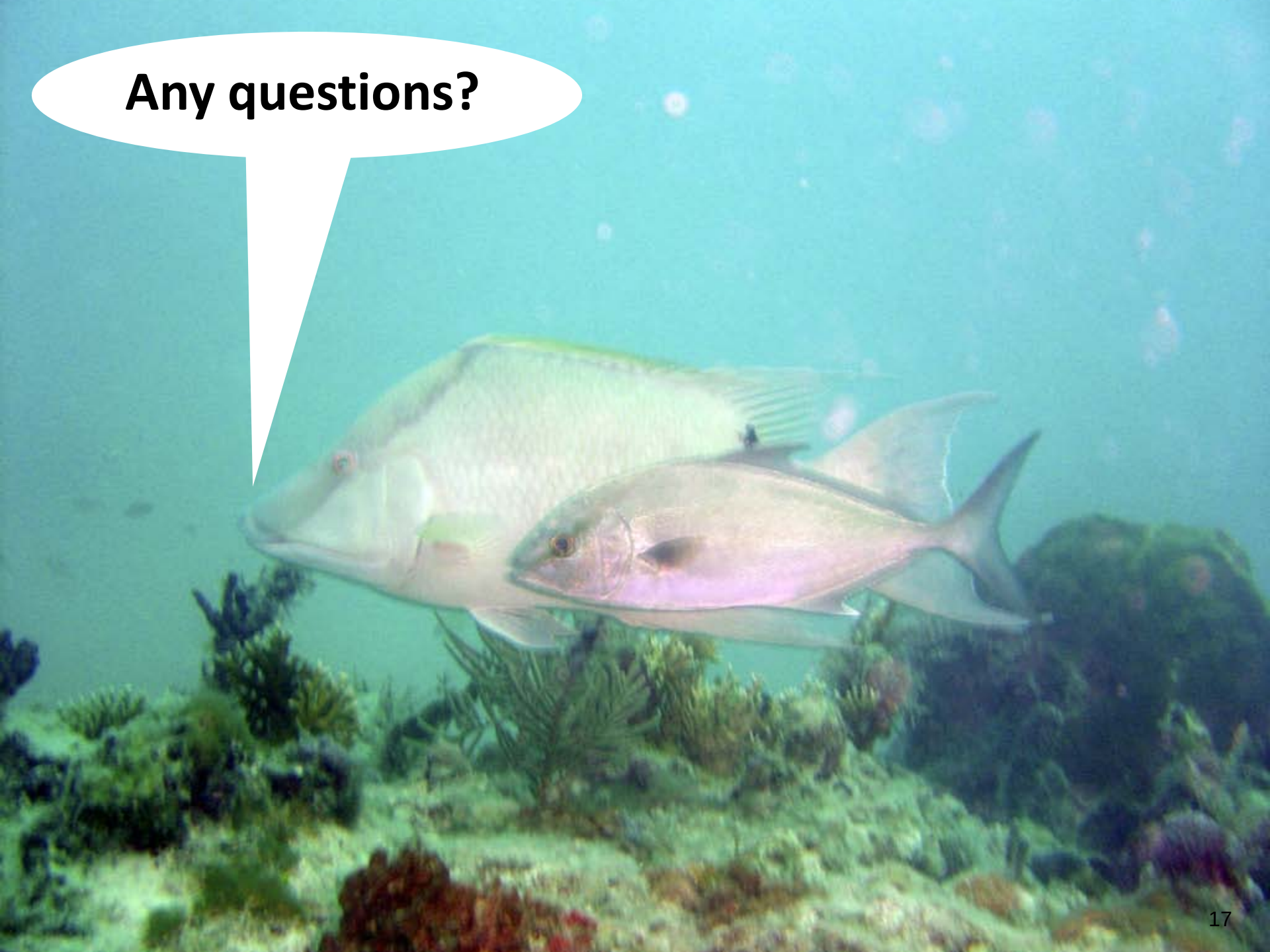
1. Promotes sustainable harvest of highly productive species by separating their ACL from less productive species.
2. Aggregates species whose landings fluctuate widely due to rarity or identification issues into major complexes; similar to using highly productive species as indicator stocks.
3. May allow individual ABC recommendations to be exceeded for stocks in major complex.
4. Primary data collection and enforcement focus on economically-important species
5. Promotes regulations considering multispecies context; prelude to ecosystem-based management

NOAA FISHERIES SERVICE

DISCUSSION

Option 2:

1. Promotes sustainable harvest of highly productive species by separating their ACL from less productive species
2. Aggregates species whose landings fluctuate widely due to rarity or identification issues into sub-complexes
3. Primary data collection and enforcement focus on economically-important species
4. Promotes regulations considering multispecies context; prelude to ecosystem-based management


Any questions?

COMMON NAME	1	2	3	4	5	ASSESSED?	PSA
wreckfish	warsaw grouper	yellowedge grouper	silk snapper	tilefish	snowy grouper	Vaughan et al. 2001	3.64
warsaw grouper	yellowedge grouper	silk snapper	snowy grouper	tilefish	speckled hind		3.83
yellowedge grouper	warsaw grouper	snowy grouper	tilefish	blueline tilefish	silk snapper		3.52
snowy grouper	blueline tilefish	warsaw grouper	yellowedge grouper	tilefish	silk snapper	SEDAR 4 (2004)	3.45
blueline tilefish	snowy grouper	sand tilefish	scamp	yellowedge grouper	tilefish		3.4
sand tilefish	blueline tilefish	jolthead porgy	bar jack	knobbed porgy	nassau grouper		3.37
tilefish	silk snapper	gag	snowy grouper	yellowedge grouper	blueline tilefish	SEDAR 4 (2004)	3.4
silk snapper	tilefish	snowy grouper	yellowfin grouper	wreckfish	warsaw grouper		3.52
goliath grouper	yellowedge grouper	warsaw grouper	wreckfish	silk snapper	snowy grouper	SEDAR 23 (2010)	3.42*
nassau grouper	yellowfin grouper	speckled hind	bar jack	jolthead porgy	knobbed porgy		3.3
speckled hind	yellowfin grouper	nassau grouper	scamp	knobbed porgy	rock hind		3.42
yellowfin grouper	speckled hind	nassau grouper	bar jack	sand tilefish	knobbed porgy		3.39
gag	red grouper	red snapper	gray triggerfish	white grunt	red porgy	SEDAR 10 (2006)	3.52
red grouper	gag	scamp	white grunt	gray snapper	lane snapper	SEDAR 19 (2010)	3.28
scamp	red porgy	red grouper	greater amberjack	blueline tilefish	speckled hind		3.25
black grouper	almaco jack	yellowtail snapper	gray snapper	black sea bass	lane snapper	SEDAR 19 (2010)	3.36
banded rudderfish	almaco jack	red porgy	greater amberjack	gray snapper	yellowtail snapper		3.26
greater amberjack	scamp	red snapper	almaco jack	vermilion snapper	banded rudderfish	SEDAR 15 (2008)	3.07
almaco jack	black grouper	banded rudderfish	greater amberjack	vermilion snapper	gray triggerfish		3.35
red porgy	gray triggerfish	scamp	vermilion snapper	gray snapper	yellowtail snapper	SEDAR 1 Update (2006)	2.93
gray triggerfish	vermilion snapper	gag	lane snapper	red porgy	white grunt		2.46
vermilion snapper	gray triggerfish	tomtate	red porgy	lane snapper	gag	SEDAR 17 (2008)	3.14
red snapper	gag	greater amberjack	vermilion snapper	red porgy	scamp	SEDAR 24 (2010)	3.14
black sea bass	tomtate	knobbed porgy	whitebone porgy	black grouper	vermilion snapper	SEDAR 2 Update (2005)	3.02
red hind	whitebone porgy	tomtate	rock hind	jolthead porgy	red grouper	Potts & Manooch (1995)	3.18
rock hind	knobbed porgy	jolthead porgy	red hind	bar jack	yellowfin grouper	Potts & Manooch (1995)	3.23
knobbed porgy	jolthead porgy	bar jack	rock hind	white grunt	nassau grouper		3.14
whitebone porgy	tomtate	red hind	almaco jack	greater amberjack	banded rudderfish		3.51
jolthead porgy	knobbed porgy	bar jack	sand tilefish	white grunt	rock hind		3.18
tomtate	whitebone porgy	vermilion snapper	red hind	black sea bass	gray triggerfish		2.63
white grunt	jolthead porgy	red grouper	red hind	gray triggerfish	knobbed porgy		2.78
bar jack	jolthead porgy	knobbed porgy	sand tilefish	nassau grouper	red hind		3.33
gray snapper	lane snapper	yellowtail snapper	red porgy	warsaw grouper	silk snapper		3.24
lane snapper	gray snapper	gray triggerfish	vermilion snapper	yellowtail snapper	whitebone porgy		2.92
yellowtail snapper	gray snapper	black grouper	lane snapper	red porgy	sand tilefish	SEDAR 3 (2003)	2.84*

DRAFT: Table of SAFMC Snapper-Grouper FMU species, indicating species with completed or pending assessments and top five most associated species, by species, per weighted mean cluster association index. Productivity-Susceptibility Analysis (PSA) scores of overall risk from MRAG Americas South Atlantic Final Report provided when available (MRAG 2009a,b). Color-coding denotes associations; dashed lines denote distinct life histories between associated species.

NOAA FISHERIES SERVICE

OFL/ABC/ACL Specifications in Amendment 17B

Table S-1. Overfishing Level (OFL) and Acceptable Biological Catch (ABC) Recommendations from SSC, Including the Annual Catch Limits In Place and Proposed In Amendment 17B.

Species	OFL Recommendation from SSC	ABC Recommendation from SSC	ACLs In Place	ACLs In Preferred Alternatives in 17B
Black grouper	None specified	None specified	None in place	Comm Aggregate ACL (black, red, & gag) = 662,403 lbs gw Rec Aggregate ACL = 648,663 lbs gw
Black sea bass	OFL = Yield at MFMT	ABC = rebuilding plan = 847,000 lbs ww or 717,797 lbs gw	309,000 lbs gw (comm.) 409,000 lbs gw (rec.)	No change proposed
Gag	OFL = Yield at MFMT	805,000 lbs gw (landed catch); 885,000 lbs gw (total kill)	353,940 lbs gw (comm.) 340,060 lbs gw (rec.)	KEEP 353,940 lbs gw (comm.) 340,060 lbs gw (rec.) IN ADDITION Comm Aggregate ACL (black, red, & gag) = 662,403 lbs gw Rec Aggregate ACL = 648,663 lbs gw
Golden tilefish	None specified	None specified	331,000 lbs ww (comm.) 295,000 lbs gw (comm..) (F_{MSY} level)	282,819 lbs gw (comm.) 1,578 fish (rec)
Red grouper	None specified	None specified	None in place	Comm Aggregate ACL (black, red, & gag) = 662,403 lbs gw Rec Aggregate ACL = 648,663 lbs gw
Snowy grouper	OFL = Yield at MFMT	ABC = rebuilding plan = 102,960 lbs ww or 87,254 lbs gw	82,900 lbs gw (comm.) 523 fish (rec)	No change proposed
Speckled hind	SSC Recommendation=Unknown	0 (landings only)	None in place	0 (landings only) comm. and rec.
Vermilion snapper	None specified	1,078,000 lbs ww (landed catch); 1,109,000 lbs ww (total kill)	315,523 lb gw (Jan-June) (comm.) 302,523 lbs gw (July-Dec) (comm.) 307,315 lbs gw (rec.)=TOTAL **925,361 lbs gw**	No change proposed
Warsaw grouper	SSC Recommendation=Unknown	0 (landings only)	None in place	0 (landings only) comm. and rec.