SAFMC MRIP REVISION ASSESSMENT CANDIDATES

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May 19, 2016

The Marine Recreational Information Program (MRIP) is changing the effort estimation process, used with the Access Point Angler Intercept Survey (APAIS) for developing recreational catch estimates, from a telephone survey to a mail survey. From 2015-2017 both approaches are being conducted, and during 2017 a calibration method will be developed to adjust prior estimates for any changes attributable to the change in survey methods. The transition plan for the new survey method indicates that revised catch estimates will be available for use in stock assessments beginning in June 2017, and that the telephone survey will not be conducted after 2017.

To efficiently address the impact of these recreational data changes on SEDAR assessments, the SEDAR Steering Committee has recommended temporarily creating a revision assessment category. Revision assessments will update the recreational data time series included in the prior assessment with the calibrated, revised recreational catch estimates. No other data sources will be updated, and the terminal year of the assessment will not be advanced. In the Southeast the revised data will include the private and charterboat components, as the headboat estimates are provided by the separate Southeast Region Headboat Survey and are not impacted by this change in MRIP methods. Abundance indices incorporating the MRIP data will likely require updates as well. It is unclear at this time if MRIP length composition information will require revision.

The SEDAR Steering Committee has set a placeholder in the 2017-2018 assessment plan for conducting these revision assessments. Identification of specific stocks to address through revision assessments is desired for the September 2016 Steering Committee meeting. Initial priorities were suggested by the MRIP Transition Team, and work is underway now in several regions to evaluate the impact of changes in recreational catch on existing assessments.

An exploratory prioritization of SAFMC stocks prepared in Fall 2015 considered factors such as assessment age, stock status, transition team priority and recreational catch contribution. (Note: The transition team is a group convened by NMFS to develop the transition plan for the revised effort survey). Only assessed stocks were included because the intent was to identify assessed stocks that are potential revision assessment

candidates, rather than providing a general prioritization of managed stocks. Multiple scoring metrics were selected to provide resolution in prioritizing stocks that may have similar recreational components and to aid in determining what type of assessment may be best for each stock. For example, a revision may be appropriate for a stock having a relatively recent assessment and terminal year, while a regular update may be a better choice for a stock with an older assessment and earlier terminal year. This was not pursued further, as during the October 2015 SEDAR Steering Committee meeting the SEFSC committed to developing revision assessment stock priorities for review in Spring 2016.

A preliminary list of MRIP revision stocks for the GMFMC was provided at the May 2016 SEDAR Steering Committee meeting, and the SEFSC provided the Council a table of priorities based on recreational catch contributions the following week. The SEFSC priority list is based on the proportion of total catch, in weight, taken by the recreational fishery from 2010-2014. Several variants of the recreational catch proportion were considered and averaged to provide a priority ranking, summarized here in Table 1. These statistics included "% rec wgt", the percentage of the catch, in weight, taken by the recreational fishery based on the average of the last 5 years (2010-2014); that percentage times 5 (metric 1); and the log of the recreational catch rescaled to a maximum of 5.0 (metric 2). "Score", used to rank priority, is the average of metrics 1 and 2.

To provide an alternative ranking, the 2015 evaluation approach noted above was updated to include the recreational catch percentages provided in the SEFSC table, as well as recent changes in stock status and assessment timing (Table 2). The additional metrics used in this approach, described in detail below, were selected and configured to give priority to relatively recent assessments based on the assumption that 'older' assessments are better suited to a regular SEDAR update or standard approach that will advance their terminal year. This approach also considers status, as stocks experiencing overfishing or in rebuilding plans typically generate increased concern from the Council. Recent recreational landings (%rec5) was used as the measure of the recreational fishery, consistent with the SEFSC approach, rather than the recreational allocation specified by the Council. What is actually landed in recent years will provide a better indication of how influential changes in the recreational data will be to the overall assessment than the intended allocation.

Scoring Metrics:

TY:           Terminal data year of the prior stock assessment. Includes information for
              assessments planned through 2017 (e.g., Blueline Tilefish and Red Grouper)

Age17:     Age of the prior assessment in 2017, based on the terminal data year. For an assessment with a terminal data year of 2014, Age17=3. 2017 was chosen to indicate the age at the time revision assessment will be conducted.

Status:    Stock status. Overfished=1, overfishing=2, neither=3, unknown=4. Unknown carries less weight in this exercise since such a determination implies a high level of uncertainty in the prior assessment and less justification for a revision assessment.

%Rec5:     Percentage of recreational removals, as reported in the SEFSC information (Table 1).

TTScore:   Scoring of this stock by the Transition Team.

%RecScore: Scoring of the percentage of recreational landings. Greater than 50% = 1, 25 to 50%=2, less than 25% = 3.

AgeScore:  Scoring of assessment age. Age 1 to 3 =1, 4 to 6 = 2, and greater than 6 = 3. Shorter ages are given higher priority, since a simple update of one data source is more practical for a recently completed assessment.

Rank:      Sum of TTScore, %RecScore, and AgeScore

RecACL:    Recreational ACL percentage, provided for reference and not used in the ranking scores. Values shown for hogfish are based on the revised ACLs proposed in Snapper-Grouper amendment 37.

The ranking for MRIP revision only considers assessed stocks, which results in some differences compared to the SEFSC table. For example, Dolphin is at the top of the SEFSC table, although it is not a revision assessment candidate because it has not been assessed. If the unassessed stocks are omitted from the SEFSC table, both methods overlap with 6 stocks appearing in the top 10 of each (Table 3, Table 4).

Stocks appearing in the alternative ranking but not in the SEFSC ranking include black grouper, red grouper, blueline tilefish, and red porgy. The recreational component of these stocks represents only about a third of the total, so their elevated ranking is due to the low assessment age expected in 2017 for the groupers and tilefish, and the status score for red porgy. Since it could be several years before these stocks are considered for an assessment update, revision assessments are recommended to alleviate the need to calibrate catch limits (ABC, ACL) to the new MRIP survey estimates over several years. Given the 2011 terminal year of porgy, a revision assessment is not recommended.

Stocks recommended as priorities in both approaches are black sea bass, cobia, FL hogfish, red snapper, snowy grouper, and mutton snapper. Cobia is not recommended for revision, because the Council has expressed interest in a benchmark in 2018. The terminal

year for Mutton snapper is 2011 and for black sea bass is 2012, therefore these stocks should receive full updates or standards rather than revisions.

Consideration should be given to conducting standard approach assessments for a number of stocks that could be otherwise considered for updates due to several changes in available data and assessment methods, as noted by the SSC at their May 2016 meeting in requesting red grouper as a standard. These include an improved fitting method for the BAM model, availability of expanded survey data including video, and a recently published manuscript that changes base natural mortality estimates.

Finally, to address the overall SEDAR workload and assist the Council in establishing priorities beyond the MRIP revisions, potential assessment type and timing was considered for all stocks, based primarily on assessment age (Table 5). A draft schedule was developed based on the current SEDAR workload timing metrics to consider if the proposed type and timing is feasible given available resources (Table 6). Timing and workload metrics used recently by the SEDAR Steering Committee, and followed here, include 4 analysts devoted to the South Atlantic, scheduling by quarterly blocks of which 75% can be allotted to assessments, and assessment timing of 5 quarters for benchmarks, 2 quarters for standards, and 1-2 quarters for updates. This example is provided to illustrate how the overall assessment schedule could appear if these rules were applied over multiple years.

Several critical caveats must be considered along with this schedule:

- **It is highly unlikely that current resources available for critical activities such as evaluating age structures and survey data, and fulfilling assessment data requests are adequate to meet the intensive schedule shown here.**
- **Consideration is not given to specific analyst assignments and ensuring consistency of the analysts addressing subsequent assessments of a given stock.**

Proposed assessment type and timing, addressing all currently assessed stocks in the South Atlantic except wreckfish:

Revision:  red snapper, FL hogfish, red grouper, black grouper, and blueline tilefish.

Update:  vermilion snapper (scheduled 2017), spiny lobster (2019), GA-NC hogfish (2020), Goliath grouper (2021).

Standard:  greater amberjack (2017); black sea bass & red porgy (2018); mutton snapper, gag, snowy grouper & Spanish mackerel (2019), tilefish (2020)

Benchmark: King mackerel (scheduled 2018), cobia & yellowtail snapper (2018).

**Table 1. SEFSC MRIP revision assessment prioritization. % Rec Wgt is based on 2010-2014; metric 1 is this value multiplied by 5; metric 2 is the log of recreational catch rescaled to 5, and score is the average of metrics 1 and 2.**

| Stock | % Rec wgt | Metric 1 | Metric 2 | Score |
|---|---|---|---|---|
| Cobia | 88.8% | 4.4 | 4.5 | 4.5 |
| FLK/EFL Hogfish | 93.4% | 4.7 | 3.9 | 4.3 |
| Mutton Snapper | 86.4% | 4.3 | 4.2 | 4.3 |
| Red Snapper | 72.0% | 3.6 | 4.2 | 3.9 |
| Black Sea Bass | 57.5% | 2.9 | 4.3 | 3.6 |
| King Mackerel | 43.4% | 2.2 | 4.5 | 3.4 |
| Greater Amberjack | 42.4% | 2.1 | 4.3 | 3.2 |
| Yellowtail Snapper | 33.3% | 1.7 | 4.3 | 3.0 |
| Spanish Mackerel | 26.7% | 1.3 | 4.5 | 2.9 |
| Snowy Grouper | 39.6% | 2.0 | 3.5 | 2.8 |
| Blueline Tilefish | 33.9% | 1.7 | 3.8 | 2.8 |
| Gag | 31.2% | 1.6 | 3.9 | 2.7 |
| Red Grouper | 31.5% | 1.6 | 3.7 | 2.6 |
| Goliath Grouper | 99.9% | 5.0 | 0.0 | 2.5 |
| Black Grouper | 37.6% | 1.9 | 3.4 | 2.6 |
| Red Porgy | 31.6% | 1.6 | 3.6 | 2.6 |
| Vermilion Snapper | 21.8% | 1.1 | 4.0 | 2.6 |
| GA-NC Hogfish | 20.0% | 1.0 | 2.8 | 1.9 |
| Tilefish | 2.3% | 0.1 | 3.0 | 1.6 |
| Wreckfish | 0.1% | 0.0 | 1.8 | 0.9 |
| Representative Unassessed Stocks | | | | |
| Dolphin | 88.8% | 4.4 | 5.0 | 4.7 |
| Lane Snapper | 95.5% | 4.8 | 3.5 | 4.2 |
| White Grunt | 74.0% | 3.7 | 4.0 | 3.9 |
| Warsaw Grouper | 94.4% | 4.7 | 2.6 | 3.7 |
| Gray Triggerfish | 52.3% | 2.6 | 4.1 | 3.4 |
| Knobbed Porgy | 43.5% | 2.2 | 3.2 | 2.7 |
| Almaco Jack | 27.8% | 1.4 | 3.6 | 2.5 |
| Scamp | 23.9% | 1.2 | 3.5 | 2.4 |
| Silk Snapper | 21.1% | 1.1 | 2.5 | 1.8 |
| Red Hind | 15.7% | 0.8 | 2.2 | 1.5 |
| Speckled Hind | 17.8% | 0.9 | 1.8 | 1.3 |

**Table 2. Alternative ranking of stocks for revision assessments.** Sorted in descending order of priority for MRIP revision assessments (Rank). TY is the terminal data year of the prior assessment. Age17 is the elapsed years between the terminal year and 2017. Status reflects stock status. %Rec is the percentage of recreational removals provided by the SEFSC (Table 1). See the text for categories used for the Score variables.

| Species | TY | Age17 | Status | %Rec | TTScore | %RecScore | AgesSore | Rank | RecACL |
|---------|------|-------|--------|-------|---------|-----------|----------|------|--------|
| Red Snapper | 2014 | 3 | 1 | 72.0% | 1 | 1 | 1 | 4 | 72% |
| Hogfish FLK/EFL | 2012 | 5 | 1 | 93.4% | 1 | 1 | 2 | 5 | 90% |
| Red Grouper | 2015 | 2 | 1 | 31.5% | 2 | 2 | 1 | 6 | 56% |
| Black Grouper | 2014 | 3 | 3 | 37.6% | 1 | 2 | 1 | 7 | 63% |
| Black Sea Bass | 2012 | 5 | 3 | 33.9% | 1 | 1 | 2 | 7 | 57% |
| Blueline Tile | 2015 | 2 | 2 | 88.8% | 2 | 2 | 1 | 7 | 44% |
| Cobia | 2011 | 6 | 3 | 86.4% | 1 | 1 | 2 | 7 | 92% |
| Mutton | 2011 | 6 | 3 | 57.5% | 1 | 1 | 2 | 7 | 83% |
| Red Porgy | 2011 | 6 | 1 | 39.6% | 2 | 2 | 2 | 7 | 50% |
| Snowy Grouper | 2012 | 5 | 1 | 31.6% | 2 | 2 | 2 | 7 | 5% |
| Gag | 2012 | 5 | 3 | 43.4% | 1 | 2 | 2 | 8 | 49% |
| King Mackerel | 2012 | 5 | 3 | 31.2% | 1 | 2 | 2 | 8 | 62% |
| Spanish Mackerel | 2011 | 6 | 3 | 26.7% | 1 | 2 | 2 | 8 | 45% |
| Hogfish GA-NC | 2012 | 5 | 3 | 21.8% | 1 | 3 | 2 | 9 | 31% |
| Vermilion | 2011 | 6 | 3 | 20.0% | 1 | 3 | 2 | 9 | 32% |
| Yellowtail | 2010 | 7 | 3 | 33.3% | 1 | 2 | 3 | 9 | 47% |
| Gr Amberjack | 2006 | 11 | 3 | 42.4% | 2 | 2 | 3 | 10 | 59% |
| Tilefish | 2014 | 3 | 3 | 2.3% | 3 | 3 | 1 | 10 | 3% |
| Spiny Lobster | 2009 | 8 | 3 | 24.4% | 2 | 3 | 3 | 11 | |

**Table 3. Comparison of top ranked assessed stocks by the Alternative and SEFSC approaches.**

| Rank | Alternative | SEFSC |
|------|-------------|-------|
| 1 | Red Snapper | Cobia |
| 2 | Hogfish FLK/EFL | Hogfish FLK/EFL |
| 3 | Red Grouper | Mutton Snapper |
| 4 | Black Grouper | Red Snapper |
| 5 | Blueline Tilefish | Black Sea Bass |
| 6 | Cobia | King Mackerel |
| 7 | Mutton Snapper | Greater Amberjack |
| 8 | Black Sea Bass | Yellowtail Snapper |
| 9 | Snowy Grouper | Spanish Mackerel |
| 10 | Red Porgy | Snowy Grouper |

**Table 4. Stocks appearing in the top 10 of each ranking for assessed stocks.**

| STOCK | SAFMC | SEFSC |
|---|---|---|
| Black Sea Bass | 8 | 5 |
| Cobia | 6 | 1 |
| Hogfish FL | 2 | 2 |
| Red Snapper | 1 | 4 |
| Snowy Grouper | 9 | 10 |
| Mutton Snapper | 7 | 3 |

**Table 5. Proposed assessment type and timing for currently assessed SAFMC stocks, and future priorities for unassessed stocks including white grunt and gray triggerfish. Lead denotes which assessment team conducted the existing assessment: B=SEFSC Beaufort, F=FL FWCC, HM=SEFSC Highly Migratory Species team.**

| Proposed Type and Timing | Lead | Stock | Age in 2017 | Terminal Year |
|---|---|---|---|---|
| R 2017 | B | Red Snapper | 3 | 2014 |
| R 2017 | F | Hogfish Fl | 5 | 2012 |
| R 2017 | B | Red Grouper | 2 | 2015 |
| R 2017 | F | Black Grouper | 3 | 2014 |
| R 2017 | B | Blueline Tile | 2 | 2015 |
| B 2018 | B | Cobia | 6 | 2011 |
| S 2019 | F | Mutton | 6 | 2011 |
| S 2018 | B | Black Sea Bass | 5 | 2012 |
| S 2019 | B | Snowy | 5 | 2012 |
| S 2018 | B | Red Porgy | 6 | 2011 |
| B 2018 | HM | King Mack | 5 | 2012 |
| S 2019 | B | Gag | 5 | 2012 |
| S 2019 | B | Spanish | 6 | 2011 |
| U 2017 | B | Vermilion | 6 | 2011 |
| U 2020 | F | Hogfish N | 5 | 2012 |
| B 2018 | F | Yellowtail | 7 | 2010 |
| S 2020 | B | Tilefish | 3 | 2014 |
| S 2017 | B | Gr Amberjack | 11 | 2006 |
| U 2019 | F | Spiny Lobster | 8 | 2009 |
| U 2021 | F | Goliath | 3 | 2014 |
|  | UNK | Wreckfish | 7 | 2010 |
| B 2020 | B | Gray Triggerfish | NA |  |
| B 2020 | B | White Grunt | NA |  |

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**Table 6. Potential proposed long-term South Atlantic assessment timing.** Black text represents currently scheduled projects and red, underlined text represents proposed scheduling. Shaded gray boxes represent the 25% of available slots allocated to research and other, non-assessment activities. Species in bold are benchmarks, those in italics are following the standard approach, and those in plain text are following the update approach. Scamp will be prepared through a pilot of the SEDAR research track approach.

**THIS IS AN EXAMPLE FOR ILLUSTRATION AND DISCUSSION. IT SHOULD IN NO WAY BE CONSIDRED AN APPROVED SEDAR ASSESSMENT WORKLOAD SCHEDULE. IT DOES NOT CONSIDER AGE STRUCTURE AND SURVEY DATA AVAILABILITY.**

| Year | Quarter | 1 | 2 | 3 | 4 | FL FWCC | Extra |
|------|---------|------|-------|-------|--------|---------|-------|
| 2016 | 1 | **RSGT** | **RSGT** |  |  |  | SA tile |
|  | 2 | **RSGT** |  |  |  | 1 | SA tile |
|  | 3 | **BL** | **BL** |  | *RG* | GG |  |
|  | 4 | **BL** | **BL** |  | *RG* | GG |  |
| 2017 | 1 | **BL** | **BL** | *GAJ* | *RG* |  |  |
|  | 2 | **BL** | **BL** | *GAJ* |  |  |  |
|  | 3 | **BL** | **BL** |  | VS | **BLG** |  |
|  | 4 |  |  | MRIP | VS | **BLG** |  |
| 2018 | 1 | **S/RT** | **COBIA** | MRIP | *RP* | **BLG** | **KM** |
|  | 2 | **S/RT** | **COBIA** | *BSB* | *RP* | **BLG** | **KM** |
|  | 3 | **S/RT** | **COBIA** | *BSB* |  | **YTS** | **KM** |
|  | 4 | **S/RT** | **COBIA** |  |  | **YTS** | **KM** |
| 2019 | 1 | **S/RT** | **COBIA** |  |  | **YTS** | **KM** |
|  | 2 | **S/RT** |  | *GAG* | *SpMack* | **YTS** |  |
|  | 3 |  |  | *GAG* | *SpMack* |  |  |
|  | 4 |  |  | *SNG* | *Tile* | Hog, N |  |
| 2020 | 1 | **GT** | **WhG** | *SNG* | *Tile* | MS |  |
|  | 2 | **GT** | **WhG** |  |  | MS |  |
|  | 3 | **GT** | **WhG** | RS | RG |  |  |
|  | 4 | **GT** | **WhG** | RS | RG |  |  |

## Addendum 1. SEFSC MRIP Revision Priority Ranking

Data from last 5 years

| Stock | Jurisdiction | Complex | Percent Rec | Log(Rec Catch) | Metric 1 | Metric 2 | Metric 3 | Assessment |
|---|---|---|---|---|---|---|---|---|
| Cobia | SAFMC/GMFMC | Cobia | 88.8% | 6.1 | 4.4 | 4.5 | 4.5 | 4 |
| FLK/EFL Hogfish | SAFMC | Hogfish | 93.4% | 5.2 | 4.7 | 3.9 | 4.3 | 3 |
| Mutton Snapper | SAFMC | Mutton Snapper | 86.4% | 5.7 | 4.3 | 4.2 | 4.3 | 3 |
| Red Snapper | SAFMC | Red Snapper | 72.0% | 5.7 | 3.6 | 4.2 | 3.9 | 4 |
| Black Sea Bass | SAFMC | Black Sea Bass | 57.5% | 5.8 | 2.9 | 4.3 | 3.6 | 4 |
| King Mackerel | SAFMC/GMFMC | King Mackerel | 43.4% | 6.1 | 2.2 | 4.5 | 3.4 | 2 |
| Greater Amberjack | SAFMC | Greater Amberjack | 42.4% | 5.9 | 2.1 | 4.3 | 3.2 | 4 |
| Yellowtail Snapper | SAFMC | Yellowtail Snapper | 33.3% | 5.8 | 1.7 | 4.3 | 3.0 | 3 |
| Spanish Mackerel | SAFMC | Spanish Mackerel | 26.7% | 6.1 | 1.3 | 4.5 | 2.9 | 4 |
| Snowy Grouper | SAFMC | Snowy Grouper | 39.6% | 4.8 | 2.0 | 3.5 | 2.8 | 4 |
| Blueline Tilefish | SAFMC | Blueline Tilefish | 33.9% | 5.1 | 1.7 | 3.8 | 2.8 | 4 |
| Gag | SAFMC | Gag | 31.2% | 5.3 | 1.6 | 3.9 | 2.7 | 4 |
| Red Grouper | SAFMC | Red Grouper | 31.5% | 5.0 | 1.6 | 3.7 | 2.6 | 4 |
| Black Grouper | SAFMC | Black Grouper | 37.6% | 4.5 | 1.9 | 3.4 | 2.6 | 3 |
| Red Porgy | SAFMC | Red Porgy | 31.6% | 4.9 | 1.6 | 3.6 | 2.6 | 4 |
| Vermilion Snapper | SAFMC | Vermilion Snapper | 21.8% | 5.4 | 1.1 | 4.0 | 2.6 | 4 |
| GA-NC Hogfish | SAFMC | Hogfish | 20.0% | 3.8 | 1.0 | 2.8 | 1.9 | 3 |
| Tilefish | SAFMC | Tilefish | 2.3% | 4.1 | 0.1 | 3.0 | 1.6 | 4 |
| Wreckfish | SAFMC | Wreckfish | 0.1% | 2.4 | 0.0 | 1.8 | 0.9 | 1 |
| Dolphin | SAFMC | Dolphin | 88.8% | 6.8 | 4.4 | 5.0 | 4.7 | 0 |
| Lane Snapper | SAFMC | Snappers | 95.5% | 4.8 | 4.8 | 3.5 | 4.2 | 0 |
| White Grunt | SAFMC | Grunts | 74.0% | 5.5 | 3.7 | 4.0 | 3.9 | 0 |
| Warsaw Grouper | SAFMC | Warsaw Grouper | 94.4% | 3.5 | 4.7 | 2.6 | 3.7 | 0 |
| Gray Triggerfish | SAFMC | Gray Triggerfish | 52.3% | 5.6 | 2.6 | 4.1 | 3.4 | 0 |
| Knobbed Porgy | SAFMC | Porgies | 43.5% | 4.3 | 2.2 | 3.2 | 2.7 | 0 |
| Almaco Jack | SAFMC | Jacks | 27.8% | 4.9 | 1.4 | 3.6 | 2.5 | 0 |
| Goliath Grouper | SAFMC | Goliath Grouper | 99.9% | 0.0 | 5.0 | 0.0 | 2.5 | 0 |
| Scamp | SAFMC | Scamp | 23.9% | 4.7 | 1.2 | 3.5 | 2.4 | 0 |
| Silk Snapper | SAFMC | Deepwater | 21.1% | 3.4 | 1.1 | 2.5 | 1.8 | 0 |
| Red Hind | SAFMC | Shallow Water Grouper | 15.7% | 3.0 | 0.8 | 2.2 | 1.5 | 0 |
| Speckled Hind | SAFMC | Speckled Hind | 17.8% | 2.4 | 0.9 | 1.8 | 1.3 | 0 |

Recreational importance factor used in stock prioritization.  The scale of this factor is from 0 to 5.0.  Metrics are as follows:

Metric 1 - Percent recreational catch (wgt) times 5.0

Metric 2 - Log(catch) rescaled to a maximum of 5.0

Metric 3 - Average of Metric 1 and 2. (*currently being used*)

Assessment field indicates who or if assessment was conducted, as follows:

1 - 3rd party assessment

2 - Miami

3 - FWC

4 - Beaufort

0 - No assessment