6.   SEDAR 59 GREATER AMBERJACK ASSESSMENT REVIEW

6.1. Documents

Attachment 10. SEDAR 59 Assessment Report
Attachment 11. SEDAR 59 Assessment Presentation*

6.2. Presentation

SEDAR 59 Assessment Overview: Dr. Kevin Craig, SEFSC

6.3. Overview

The Committee is asked to review the Greater Amberjack Standard assessment prepared through SEDAR 59 and provide fishing level recommendations (Attachment 10). Greater Amberjack was last assessed in 2008 during SEDAR 15, where the stock was found to have not been overfished and not undergoing overfishing. The major reasons for performing a Standard assessment were due to the length of time between the last assessment and this one. There have been many

advances in assessment science since SEDAR 15 was performed, as well as the development of a potential new index in the SERFS video fishery independent index of abundance.

6.4. <u>Public Comment</u>

6.5. <u>Action</u>

- Review assessment
  - o Does the assessment address the ToRs to the SSCs satisfaction?
    - ➢ ***The SSC agrees that the assessment appropriately addresses the ToRs.***
  - o Does the assessment represent Best Scientific Information Available?
    - ➢ ***The SSC considers this assessment as BSIA.***
  - o Does the assessment provide an adequate basis for determining stock status and supporting fishing level recommendations?
    - ➢ ***The SSC considers the assessment an adequate basis for determining stock status and supporting fishing level recommendations.***
- Identify, summarize, and discuss assessment uncertainties
  - o Review, summarize, and discuss the factors of this assessment that affect the reliability of estimates of stock status and fishing level recommendations.
    - ➢ *Sensitivity analyses indicated that the model was most sensitive to M.*
    - ➢ *The choice of Charnov M over Lorenzen M had a large impact on the stock status results of the assessment, as was shown by the sensitivity runs.*
  - o Describe the risks and consequences of the assessment uncertainties with regard to status and fishing level recommendations.
    - ➢ *The SSC considers the Charnov method an appropriate method for estimating M in this assessment. The likelihood profile over the Charnov M scalar suggests M is likely to be higher than the Lorenzen M and perhaps even higher than the Charnov M.*
      - ▪ *The SSC notes that if the Lorenzen method was used, the biomass status and exploitation status would be much closer to or beyond their benchmark limits for much of the time series.*
  - o Are methods of addressing uncertainty consistent with SSC expectations and the available information?
    - ➢ *The SSC considers the methods of addressing uncertainty consistent with their expectations and the available information.*
  - o List (in order of the greatest contribution to risk and overall assessment uncertainty) and comment on the effects of those assessment factors that most

contribute to risk and impact status determinations and future yield predictions.

> ➤ *The method chosen to estimate M in the assessment has a significant impact on stock status determination and future yield projections.*

> ➤ *Projected catch and ABC values are dependent on the assumption about future recruitment. The projections assumed that the estimated level of recruitment applies in the future. In this assessment, recruitment was above average for most years since the mid-2000s but has declined to near average recruitment in the last three years. If this decline continues to recruitment levels characteristic of the 1990s and early 2000s, then stock projections may be overly optimistic.*

- Provide fishing level recommendations
  - o Apply the ABC control rule and complete the fishing level recommendations table.

    > ➤ *Tier I: 2 (2.5%)*
    > ➤ *Tier II: 2 (2.5%)*
    > ➤ *Tier III: 1 (0%)*
    > ➤ *Tier IV: 1 (0%)*
    > ➤ *Adjustment: 5%*
    > ➤ *P* = 45%*
    > ➤ ***The SSC recommends projections at P*=50% for the OFL and P*=45% for the ABC for Greater Amberjack.***

  - o Comment on any difficulties encountered in applying the Control Rule, including any required information that is not available.

    > ➤ *Since the MRAG PSA was conducted for the South Atlantic, new life history estimation techniques and additional sampling suggest the productivity of Greater Amberjack is greater than previously thought, warranting a decrease in the PSA risk score. Specifically, the estimate of M used in the assessment has increased and the estimated age at maturity has decreased. Therefore, the stock is likely more productive than the MRAG report reflects and the SSC recommended Tier IV be low risk instead of medium.*

  - o Is adequate rebuilding progress being made? Comment on reasons why progress differs from projections.

    > ➤ *N/A.*

- Provide advice on monitoring the stock until the next assessment
  - o What indicators or metrics should the council monitor and could the SSC use to evaluate the stock until the next assessment?

    > ➤ *Measure and monitor Greater Amberjack lengths in the SERFS video survey and strengthen support for fishery independent surveys that*

collect data on Greater Amberjack (SERFS video survey, short and long bottom longline surveys).

- o Is there a recommended trigger level for these metrics? How should the Council respond if a trigger is activated?

  - ➤ *No recommendation.*

- Provide research recommendations and guidance on the next assessment

  - o Review the included research recommendations and indicate those most likely to reduce risk and uncertainty in the next assessment.

    - ➤ *Develop methods to characterize length and age composition of Greater Amberjack observed on videos from the SERFS fishery-independent survey. Trap sampling of Greater Amberjack was limited and potentially biased due to size selectivity of the gear.*

    - ➤ *Implement a systematic age sampling program for both the general recreational and commercial sectors. Age samples were important in this assessment for identifying strong year classes, but sample sizes were relatively small and disparate in time and space.*

    - ➤ *Better characterize reproductive parameters including age at maturity, batch fecundity, spawning seasonality, and spawning frequency. Mature female biomass was the measure of reproductive potential for Greater Amberjack in the assessment but may be biased if reproductive parameters vary significantly with size or age.*

    - ➤ *Age-dependent natural mortality was estimated by indirect methods for this assessment of Greater Amberjack. Telemetry- and conventional-tag programs may be possible for greater amberjack to improve estimates of mortality.*

    - ➤ *Better characterize the migratory dynamics of the stock and the potential for distribution shifts.*

  - o Provide any additional research recommendations the SSC believes will improve future stock assessments.

    - ➤ *The SSC recommends the investigation of the use of* Sargassum *spp. by juvenile Greater Amberjack as a nursery habitat and the relationship between the areal extent of* Sargassum *and Greater Amberjack recruitment.*

    - ➤ *The SSC recommends the investigation of the association between Greater Amberjack and reef habitat, whether natural or man-made, with respect to the degree of dependency on such reefs for spawning, shelter, and foraging use.*

    ➢ *Given the progress made in mapping benthic habitats within the South Atlantic, the SSC recommends that the next assessment investigate the potential for developing a habitat/production relationship for Greater Amberjack, should it be determined that the species life history is clearly dependent upon Sargassum spp. for juvenile recruitment, and upon reef habitat for adult shelter, foraging and/or spawning use.*

    ➢ *The SSC recommends that the findings of the South Atlantic Climate Vulnerability Assessment for Greater Amberjack be taken into consideration during the next assessment, with respect to whether anticipated climate change impacts could affect recruitment, timing of migration, and distribution of all life stages of the species within the South Atlantic and beyond.*

o   Provide guidance on the next assessment, addressing its timing and type.

    ➢ *Operational Assessment in 3-5 years.*