7. SEDAR 60 RED PORGY ASSESSMENT REVIEW

7.1. Documents

Attachment 12. SEDAR 60 Assessment Report
Attachment 13. SEDAR 60 Assessment Presentation*
Attachment 14. MARMAP Supporting Document*

7.2. Presentation

SEDAR 60 Assessment Overview: Dr. Nikolai Klibansky, SEFSC

7.3. Overview

The Committee is asked to review the Red Porgy Standard assessment prepared through SEDAR 60 and provide fishing level recommendations (Attachment 12). Red Porgy was last assessed during the 2012 Update to SEDAR 1, where the stock was found to be overfished but not undergoing overfishing. There had been very little recovery in the stock due to what was thought to be a recruitment failure. The major reasons for performing a Standard assessment were due to the length of time between the last benchmark assessment and this one. There have been many advances in assessment science since SEDAR 1 was performed, as well as the development of a potential new index in the SERFS video fishery independent index of abundance.

7.4. Public Comment

7.5. Action

- Review assessment
  - Does the assessment address the ToRs to the SSCs satisfaction?
    - ➢ ***The SSC agrees that the assessment addresses the ToRs to their satisfaction.***
  - Does the assessment represent Best Scientific Information Available?
    - ➢ ***The SSC agrees that the assessment represents BSIA.***
  - Does the assessment provide an adequate basis for determining stock status and supporting fishing level recommendations?
    - ➢ ***The SSC agrees that the assessment provides an adequate basis for determining stock status and for supporting fishing level recommendations.***
- Identify, summarize, and discuss assessment uncertainties
  - Review, summarize, and discuss the factors of this assessment that affect the reliability of estimates of stock status and fishing level recommendations.
    - ➢ *The recruitment pattern used in the projections has a large effect on the projected catches and rebuilding status.*
    - ➢ *Fishery-dependent and -independent data have shown there to be fluctuations in age/size at maturity and growth rate, which can constrain the ability of the stock to rebuild.*
    - ➢ *The assessment is robust to the uncertainties explored in the sensitivity analyses.*
  - Describe the risks and consequences of the assessment uncertainties with regard to status and fishing level recommendations.
    - ➢ *The status of the terminal recruitment (lowest on record), the terminal SSB (lowest on record), and the current F (above F_{MSY}) from the assessment are robust to all of the uncertainties explored.*

- Are methods of addressing uncertainty consistent with SSC expectations and the available information?

  ➢ ***The SSC agrees that the methods of addressing uncertainty are consistent with their expectations and the available data.***

- 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 greatest contributor to risk for this assessment is recruitment and the uncertainty surrounding future recruitment values. Status determination is unlikely to be affected by this recruitment uncertainty [still likely to be overfished], but the potential for future yield will be impacted by the recruitment time series.*

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

    ➢ *The SSC requested additional projections be run using a recruitment level equal to the average recruitment from the last 3 assessment years at F = 0, F = F_{MSY}, and F = 75% F_{MSY}, which the SSC deems to be a possible outcome given the current age composition data supplied by SERFS.*

    - *The F = 0 scenario would allow the SSC to evaluate the extent of rebuilding that can occur under this scenario and should be run until the stock is rebuilt with a 50% probability.*
    - *The SSC recommends the F = F_{MSY} scenario be used to set the OFL and should be run out to 2026.*
    - *The SSC recommends the F = 75% F_{MSY} scenario be used to set the ABC and should be run out to 2026.*

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

    ➢ *The SSC had a difficult time implementing the ABC control rule because Red Porgy is under a rebuilding plan, which has made little to no progress given low recruitment in recent years.*

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

    ➢ *Rebuilding progress has been stifled by a steady decline in recruitment since the early 1990's.*

    ➢ *Projections provided at the SSC's request using recent (2015-2017) mean recruitment suggest the probability of rebuilding is zero even if fishing mortality is reduced to zero. Although reducing directed fishing*

and minimizing discards may not guarantee rebuilding, it would allow the stock maximum rebuilding potential should conditions improve.

- ➢ *Note that while the SSC recommends an ABC based on F=75%Fmsy to end overfishing, projections indicate this ABC will have only a very minor impact on stock rebuilding.*
- ➢ *If recruitment continues to be low, we will need to reevaluate the productivity of the stock and the benchmark reference points.*

- Provide advice on monitoring the stock until the next assessment
  - What indicators or metrics should the council monitor and could the SSC use to evaluate the stock until the next assessment?
    - ➢ *Monitor the SERFS video/trap survey index and the age comps annually.*
  - Is there a recommended trigger level for these metrics? How should the Council respond if a trigger is activated?
    - ➢ *An indication of a change in recruitment could be a trigger for a new assessment.*
- Provide research recommendations and guidance on the next assessment
  - Review the included research recommendations and indicate those most likely to reduce risk and uncertainty in the next assessment.
    - ➢ *Investigate temporal trends in growth, sex at age, and female maturity at age. In the previous assessments, female maturity at age was estimated for several time blocks and included in the model as a time-varying relationship. During the current assessment process, the basis for modeling only female maturity as time varying was called into question, given that life history parameters are often linked. The decision was made to use only a single female maturity at age relationship. However, the panel judged this to be an important area of future research.*
  - Provide any additional research recommendations the SSC believes will improve future stock assessments.
    - ➢ *Investigate potential factors that may be contributing to the continued low recruitment of Red Porgy, including egg production, egg quality, fertilization rate, juvenile survival, sex ratio, and size/age of sex transition.*
    - ➢ *Investigate whether Red Porgy males establish and maintain territories as part of their spawning behavior (although territorial behavior has not previously been observed, the SSC deemed the question worthy of further investigation).*
    - ➢ *Investigate the potential impact(s) on Red Porgy of increased abundance of Red Lionfish and Red Snapper (or other piscivores found to have recent increased abundance) in the South Atlantic, including:*

- *predation of juvenile Red Porgy by Red Lionfish and Red Snapper and its potential impact on the apparent recruitment failure of Red Porgy*
- *competition for prey between Red Snapper and Red Porgy (e.g., diet composition and size range overlaps)*
- *exploring to what extent the resurgence in the Red Snapper South Atlantic population co-occurred with the decline in the South Atlantic Red Porgy population.*

- Provide guidance on the next assessment, addressing its timing and type.
  - ➢ *The SSC recommends an Operational Assessment within the next 5 years.*

SSC RECOMMENDATION:

Table 5. Red Porgy Recommendations

Criteria	Deterministic	Probabilistic
Overfished evaluation (SSB/SSB_{MSY})	0.271	0.285
Overfishing evaluation	1.730	1.664
MFMT (F_{MSY})	0.18	0.18
SSB_{MSY} (mt)	2,883.7	2,902.6
MSST (mt)	2,162.8	2,177.0
MSY (1000 lbs.)	531.4	538.2
Y at 75% F_{MSY} (1000 lbs.)	515.7	521.9
ABC Control Rule Adjustment	See text above.	
P-Star		
M (Charnov scalar)	0.22	

OFL RECOMMENDATIONS				
Year	Landed LBS	Discard LBS	Landed Number	Discard Number
2021	103,000	24,000	64,000	20,000
2022	106,000	25,000	66,000	20,000
2023	109,000	25,000	69,000	21,000
2024	112,000	25,000	70,000	21,000
2025	114,000	26,000	71,000	21,000
2026	116,000	26,000	72,000	21,000

ABC RECOMMENDATIONS				
Year	Landed LBS	Discard LBS	Landed Number	Discard Number
2021	78,000	18,000	49,000	15,000
2022	84,000	19,000	52,000	16,000
2023	88,000	20,000	55,000	16,000
2024	92,000	20,000	57,000	16,000
2025	96,000	21,000	59,000	17,000
2026	98,000	21,000	60,000	17,000