6. SEDAR 56 BLACK SEA BASS ASSESSMENT REVIEW

6.1 Documents

Attachment 9. SEDAR 56 SAR, Black Sea Bass
Attachment 10. Assessment Overview Presentation

6.2 Presentation

Assessment Overview: Dr. Katie Siegfried, SEFSC

6.3 Overview

The Committee is asked to review the Black Sea Bass Standard assessment prepared through SEDAR 56 and provide fishing level recommendations (Attachment 9). Black Sea Bass was last assessed in the 2013 Update to SEDAR 25, where the stock was found to have been recovered from a previously determined overfished state and not undergoing overfishing. The major reasons for performing a Standard assessment were to consider using a new distribution for fitting age and length comps, known as the Dirichlet Multinomial, to incorporate new information on discard mortality, and to include the new SERFS video fishery independent index of abundance.

6.4 Action

- Review assessment
  - Does the assessment address the ToRs to the SSCs satisfaction?
    - *The SSC agrees that the SEDAR 56 assessment addresses the ToRs to its satisfaction.*
  - Does the assessment represent Best Scientific Information Available?
    - *The SSC agrees that the SEDAR 56 assessment represents BSIA and is useable for management.*
  - Does the assessment provide an adequate basis for determining stock status and supporting fishing level recommendations?

- *The SSC agrees that the SEDAR 56 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 steepness profile was flat; therefore, steepness was fixed in base run.*
    - *Using the estimated recruitment (R) from the Stock-Recruitment (S-R) relationship in the projections, rather than using an average of recruitment in recent years, increases uncertainty. The estimated recruitment from the S-R relationship is considerably higher than estimated annual recruitment in the last several years.*
    - *The SSC advises that future stock biomass and landings projections will not be realized Need to caveat if the current trend of low recruitment continues.*
    - *The SSC requested additional projections using (1) the R pattern from 1991 to the terminal year and (2) the R pattern in the last 4 years of the assessment (2013-2016).*
      - *Scenario 1 will be used for the ABC recommendation.*
      - *Scenario 2 will be used to investigate the effect of low near-term recruitment levels on stock biomass and stock status.*
    - *There is increased concern regarding the trend in estimated R and the R used in projections because SSB in the terminal year of the assessment was only slightly above MSST.*
    - *Low R could be caused by emigration or species interactions, such as increased predation on young individuals by species such as Lionfish and Red Snapper.*
    - *In the most recent year (2016), the total fishing mortality of all fleets had a selectivity pattern that differed from all other years in the time series with apical F at age 3. This is a significantly lower age at apical F than any other year in the time series.*
      - *Looking at a different F metric, other than apical F, may give a very different picture of what is happening in this fishery. Apical F changes to different ages as selectivity changes through time. An F metric that is insensitive to changes in selectivity may show a different pattern in the exploitation history of this fishery than what is seen by using Apical F.*
    - *The stock is apparently responding strongly to recruitment trends observed over the past 10-15 years. This is suggested by the conflicting trends in stock size and fishing mortality.*

- *Trends in natural mortality (M) could also explain the conflicting trends in stock size and fishing mortality. Increased M, due to higher predation, especially on recruits, could also create this pattern.*

➢ *All fishery-dependent indices are absent during the last part of the time series where the fishery-independent index indicates that the largest changes have occurred in population size.*

- *Fishery dependent indices could indicate whether these large changes were accompanied by changes in fishing effort, which may account for some of the change, or if the dependent indices corroborate the trend seen in the independent index.*

➢ *The selectivity of the Chevron trap vs. the video index may differ, especially under situations of high R.*

➢ *Recent observations from winter tagging off of NC confirm the CVID index in the last several years.*

- Describe the risks and consequences of the assessment uncertainties with regard to status and fishing level recommendations.

➢ *See bullets above.*

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

➢ *Yes.*

- 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 bullets above describe the Committee's assessment of risk and uncertainty.*

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

➢ *ABC Control Rule*

- *Dimension I Assessment Information: Tier 2 (2.5%)*
- *Dimension II Uncertainty Characterization: Tier 2 (2.5%)*
- *Dimension III Stock Status: Tier 2 (2.5%)*
- *Dimension IV Risk Analysis: Tier 2 (5%)*
- *Correction Factor: 12.5%*
- *P* = 37.5%*

- *These projections should use the estimated recruitment time series from 1991 to the terminal year of the assessment. See the discussion above.*
- *Projections should be run for 3 years (to 2021).*

➢ *Although BSB is not under rebuilding, the MCB phase plot shows that ~25% of runs indicate that the stock is overfished.*

➢ *There is also an overall negative trend in R that should be considered.*

➢ *The biomass is trending downward in recent years.*

➢ *These factors should be taken into account when determining the risk tolerance.*

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

➢ *For Dimension III Stock Status, recommend Tier 2 given recent trend in estimated R.*

➢ *Dimension IV Risk Analysis – The SSC reviewed the PSA score and recommend using the same score that was used in previous ABC recommendations.*

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

➢ *Black Sea Bass is not currently in a rebuilding plan.*

- 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?

➢ *Recruitment via age and length comps.*

➢ *CVID index.*

➢ *Monitor discards for spikes, possibly indicating a pulse of recruitment coming through fishery.*

➢ *Monitor the fishery to evaluate if catches continue to be well below the ACL.*

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

➢ *Look for persistence in recruitment trend and CVID index.*

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

- *Investigate age and size dependent reproductive parameters.*
- *Study the feasibility of an empirical R index.*
- *Evaluate potential shifts in sex ratio.*

- Provide guidance on the next assessment, addressing its timing and type.
  - *The SSC recommends a benchmark assessment in 3 years.*

SSC RECOMMENDATION:

Table 2. Black Sea Bass Recommendations

Criteria	**Deterministic**			**Probabilistic**
SSB/SSB_{MSY}	0.71			0.71
Overfished evaluation (SSB/MSST)	1.15			1.16
Overfishing evaluation	0.64			0.58
MFMT (F_{MSY})	0.31			0.34
SSB_{MSY} (Units)	300			304
MSST (Units)	186			186
MSY (1000 lbs.)	935			968
Y at 75% F_{MSY} (1000 lbs.)	701.25			943.10
ABC Control Rule Adjustment	12.5%			
P-Star	37.5%			
M	0.38			
OFL RECOMMENDATIONS				
Year	Landed LBS	Discard LBS	Landed Number	Discard Number
2019	818,000	462,000	605,000	929,000
2020	718,000	612,000	573,000	1,178,000
2021	703,000	645,000	601,000	1,221,000
ABC RECOMMENDATIONS				
Year	Landed LBS	Discard LBS	Landed Number	Discard Number
2019	760,000	410,000	559,000	798,000
2020	669,000	486,000	523,000	925,000
2021	643,000	501,000	530,000	942,000