

7. SEDAR 71 GAG GROUPER PROJECTIONS REVIEW

7.1. Documents

*Attachment 7a. SEDAR 71 Gag New Projections Presentation
Attachment 7b. SEDAR 71 Gag New Projections Report

7.2. Presentation

SEDAR 71 Gag Projections – Dr. Erik Williams, SEFSC

7.3. Overview

The SSC is asked to review the new SEDAR 71 Gag catch and rebuilding projections requested by the SAFMC at the September Council meeting (Attachment 7) and provide fishing level recommendations. Gag was last assessed during the SEDAR 71 in 2021, where the stock was found to be overfished and undergoing overfishing. The terminal (2019) base-run estimate of spawning stock was below the minimum stock size threshold ($SSB_{2019}/MSST=0.20$), indicating that the stock is overfished, and the estimated terminal fishing rate based on a three-year geometric mean is above F_{msy} ($F_{2017-2019}/F_{msy}=2.15$), indicating overfishing is occurring. The new projection requests include additional catch projections for Gag at average and recent low recruitment scenarios and with 70% and 50% probabilities of rebuilding in 10 years. These new projections will be reviewed by the SAFMC at the December 2021 Council meeting. The Council will need to select a rebuilding plan for the stock and the two probability rebuilding scenarios have been selected by the Council in past to rebuild stocks.

7.4. Public Comment

Public comment was provided. See meeting minutes.

7.5. Action

- Provide fishing level recommendations
 - *The SSC recommended that the ABC be set with a $P_{Rebuild}$ of 70% using projections that incorporate recruitment estimates from the stock-recruitment curve. If the Council selects a $P_{Rebuild}$ of 50%, the SSC would add an*

- additional ad-hoc buffer to its recommended ABC to account for scientific uncertainty in recruitment.*
- *The SSC emphasizes that significant reductions in fishing mortality need to occur for stock rebuilding. Other management actions may have little impact if a reduction in fishing mortality is not achieved.*
 - *The SSC recommends that the Council set the ACL lower than the recommended ABC to account for management uncertainty (e.g., discard).*
- Comment on any difficulties encountered in applying the Control Rule, including any required information that is not available.
 - *There is considerable uncertainty in recruitment for this assessment. The stock-recruitment curve appears to overestimate recruitment at low stock size. Theoretically, the stock-recruitment relationship should provide sufficient information to inform short-term projections; however, recent recruitment estimates are lower than the long-term stock-recruitment curve predictions.*
 - *There is a lack of fishery-independent information on recent recruitment to compare with model-estimated trends in recruitment. The SSC noted, though, that a new MARFIN study being conducted by SCDNR should provide an additional, fishery-independent index of recruitment in future assessments (beyond the next Operational Assessment).*
 - *Given uncertainty in recruitment, the SSC recommends that the Council ensure the next assessment stay on schedule for 2025 to determine if the stock is showing signs of rebuilding or other trends in recruitment and to determine if recruitment is still being overestimated by the stock-recruitment curve at low stock size.*
 - *The SSC also recommends that the Council and SEFSC prioritize the research recommendations highlighted in our April 2021 meeting report to identify recruitment and stock biomass trends. In particular, the SSC recommends: (a) further exploration of length and age data in the Chevron trap survey, (b) development of an estuarine recruitment index using fall catch of age-0 gag in MRIP inland B2s, and (c) exploration of Cape Fear River larval impingement data as potential index of spawning stock biomass.*

Table 1. **Provisional** Gag recommendations, assuming Council adoption of $P_{\text{Rebuild}} = 70\%$. Landings and discards are expressed in both numbers (1,000s of fish) and gutted weight (1,000s of lbs).

Criteria	Deterministic		Probabilistic	
Overfished evaluation (SSB/SSB _{MSY})	0.15		0.14	
Overfishing evaluation	2.15		2.27	
MFMT (F _{MSY})	0.37		0.35	
SSB _{MSY} (Units)	1563.9		1659.4	
MSST (Units)	1172.9		1244.5	
MSY (1000 lbs.)	1455.1		1453.5	
Y at 75% F _{MSY} (1000 lbs.)				
ABC Control Rule Adjustment	20%			
P-Star	30%			
SSC recommended P_{Rebuild}	70%			
M	0.15			
OFL RECOMMENDATIONS				
Year	Landed LBS	Discard LBS	Landed Number	Discard Number
2023	367	42	36	10
2024	494	48	45	11
2025	605	54	53	13
2026	706	60	60	14
2027	808	64	68	15
ABC RECOMMENDATIONS				
Year	Landed LBS	Discard LBS	Landed Number	Discard Number
2023	176	19	17	5
2024	262	22	23	5
2025	348	26	29	6
2026	435	29	35	7
2027	525	32	41	7