



Gulf of Mexico Vermilion Snapper (*Rhomboplites aurorubens*)

SouthEast Data, Assessment, and Review (SEDAR) 67 Summary

Gulf SSC Review Completed June 2020

NOAA
FISHERIES



Data Inputs

Recreational and commercial landings and dead discards predicted by the assessment model are shown (Figure 1). Recreational removals were updated using the Fishing Effort Survey. Indices of relative abundance were included from multiple sources (Figure 2).

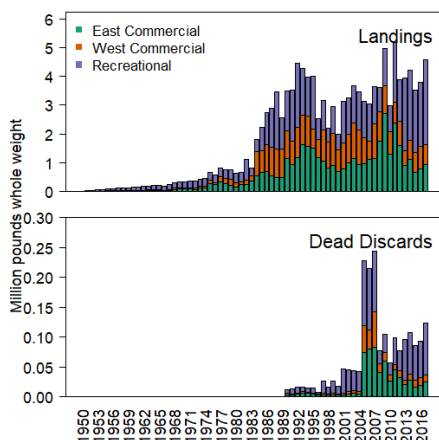


Figure 1: Final landings and dead discard estimates from the SEDAR 67 Standard Assessment model for commercial and recreational fisheries in millions of pounds, 1950-2017.

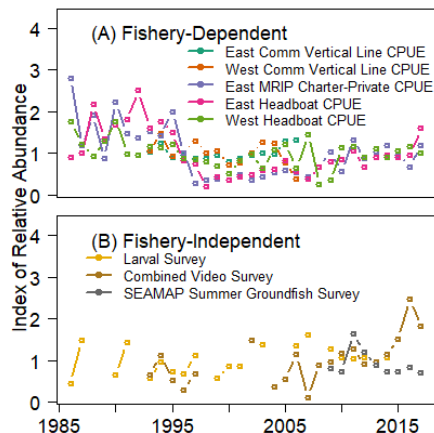


Figure 2: Fishery-dependent (A) and fishery-independent (B) indices of abundance input into the SEDAR 67 Standard Assessment model.

Stock Status

The assessment found that Vermilion Snapper in the Gulf is not overfished and not undergoing overfishing as of 2017 using a Spawner Potential Ratio of 30% (Figure 3). Benchmarks including the Maximum Fishing Mortality Threshold (MFMT) and Minimum Stock Size Threshold (MSST) are defined in Table 1.

Table 1: Benchmarks from the SEDAR 67 Standard Assessment model. Spawning Stock Biomass (SSB) = billions of eggs, F = harvest rate (total numbers killed / total exploitable numbers).

Benchmarks	
Spawner Potential Ratio (SPR)	30%
Natural Mortality Rate (M)	0.25
MFMT = $F_{MSYproxy}$	0.135
$F_{2017}/MFMT$	0.56
Overfishing ($F/MFMT > 1$)?	No
$SSB_{MSYproxy}$	201,747
$MSST = (0.5) * SSB_{MSYproxy}$	100,874
$SSB_{2017}/SSB_{Unfished}$	0.52
$SSB_{2017}/MSST$	3.5
Overfished ($SSB/MSST < 1$)?	No

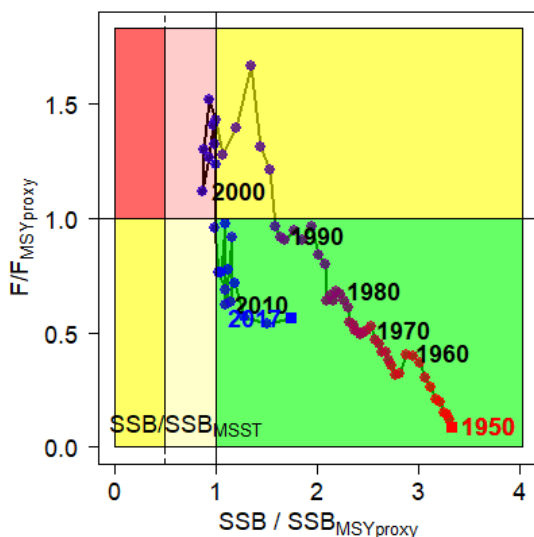


Figure 3: Kobe plot showing the progression of exploitation status of Gulf Vermilion Snapper from 1950 (red) to 2017 (blue), with MSST denoted.

Assessment Outcome

The Gulf of Mexico Fishery Management Council's Scientific and Statistical Committee (SSC) accepted the SEDAR 67 Standard Assessment model as the best scientific information available, and deemed it appropriate for providing management advice (Tables 1-2).

Projections

Final projections were run using an MSYproxy of 30% SPR, the reported landings for 2018, and the average of 2016-2018 landings as the proxy for the interim projection years of 2019 and 2020 for each fleet. For all projection scenarios, the SSC supported using the mean recruitment over the last 10 years where estimated, which was below the mean of the time series (Figure 4).

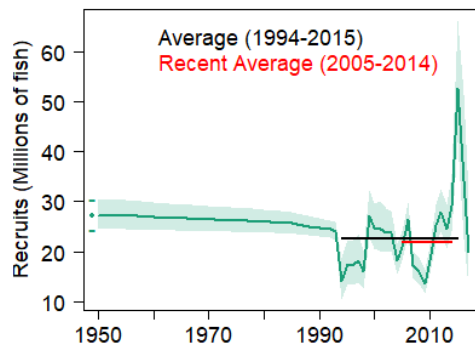


Figure 4: Annual and virgin (dot) recruitments estimated by the SEDAR 67 Standard Assessment model with uncertainty estimates (shading).

Table 2: SSC recommended constant catch levels for the Overfishing Limit (OFL; yield at $F_{MSYproxy}$) and the Acceptable Biological Catch (ABC; yield at 75% $F_{MSYproxy}$) equal to the average of the projected catch for 2021-2025 (shown in Figure 5). Catch units are million pounds whole weight (mp ww).

Yr	OFL	ABC
2021-2025	8.6	7.27

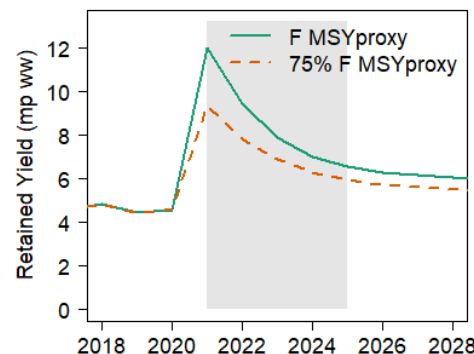


Figure 5: Retained yields from the OFL and ABC projections with the years highlighted (in gray) for catch advice.