



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).

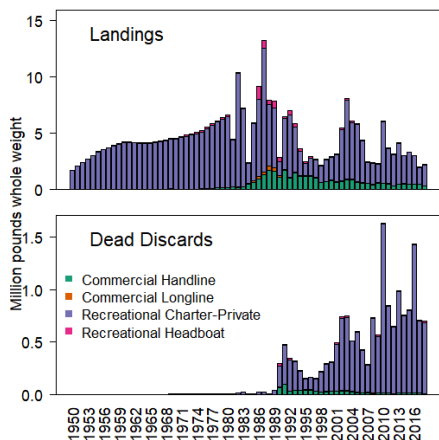


Figure 1: Final landings and dead discard estimates from the SEDAR 70 Operational Assessment model for commercial and recreational fisheries in millions of pounds, 1950-2018.

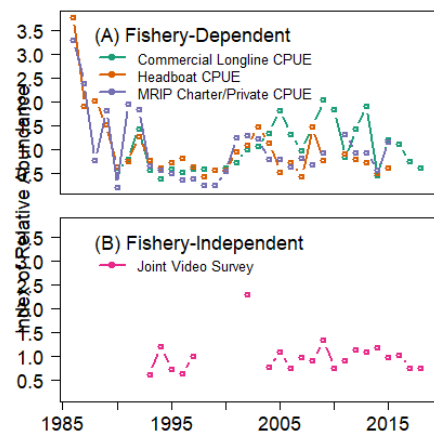


Figure 2: Fishery-dependent (A) and -independent (B) indices of abundance input into the SEDAR 70 Operational Assessment model.

Stock Status

The assessment found that Greater Amberjack in the Gulf is overfished and undergoing overfishing as of 2018 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 70 Operational Assessment model. Spawning Stock Biomass (SSB) = metric tons, F = harvest rate (total biomass killed / total exploitable biomass).

Benchmarks	
Spawner Potential Ratio (SPR)	30%
Natural Mortality Rate (M)	0.28
MFMT = $F_{MSYproxy}$	0.24
$F_{2016-2018} / MFMT$	1.25
Overfishing ($F/MFMT > 1$)?	Yes
$SSB_{MSYproxy}$	5,838
$MSST = (0.5) * SSB_{MSYproxy}$	2,919
$SSB_{2018} / SSB_{Unfished}$	0.1
$SSB_{2018} / MSST$	0.83
Overfished ($SSB/MSST < 1$)?	Yes

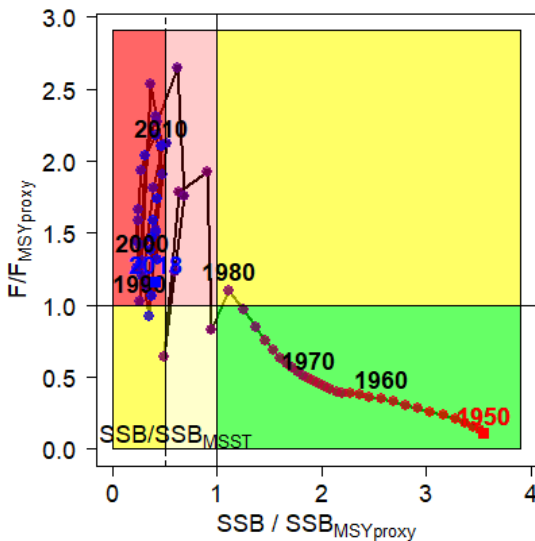


Figure 3: Kobe plot showing the progression of exploitation status of Gulf Greater Amberjack from 1950 (red) to 2018 (blue), with MSST denoted.

Assessment Outcome

The Gulf of Mexico Fishery Management Council's Scientific and Statistical Committee (SSC) accepted the SEDAR 70 Operational 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, using the reported landings for 2019, using the average of 2017-2019 landings for 2020 and 2021 for each fleet, and using sector allocations (80% recreational, 20% commercial). For determining catch advice, the SSC supported using the mean recruitment over the last 10 years, which was below the mean of the time series (Figure 4).

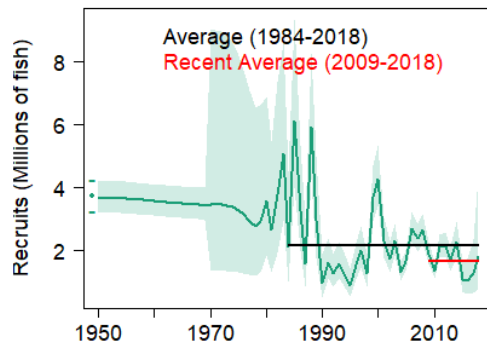


Figure 4: Annual and virgin (dot) recruitments estimated by the SEDAR 70 Operational Assessment model with uncertainty estimates (shading).

Table 2: SSC recommended catch levels for the Overfishing Limit (OFL; yield at FMSYproxy) and the Acceptable Biological Catch (ABC; yield at Frebuild) for 2022+ (shown in Figure 5). Catch units are million pounds whole weight (mp ww).

Yr	OFL	ABC
2022+	2.033	0.505

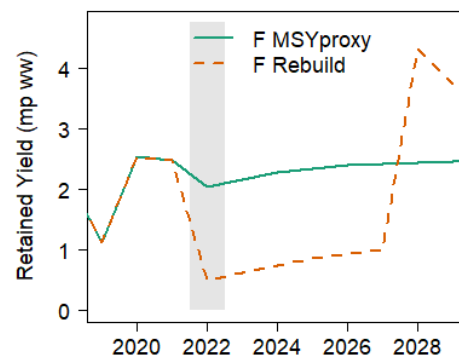


Figure 5: Retained yields from the OFL and ABC projections with the years highlighted (in gray) for catch advice. ABC is based on Frebuild (the F that would rebuild the stock to the level that supports MSY by 2027).