

SEDAR 62 Assessment Webinar VI
Gulf of Mexico Gray Triggerfish
January 13, 2020 from 10:00 AM to 12:00 PM
Summary Report

Model Issues

The majority of the directed harvest of gray triggerfish is in the eastern Gulf (east of the Mississippi River), while the majority of removals in the western Gulf are predicted to come from shrimp trawl bycatch. Due to the variability of shrimp bycatch estimates and regulatory changes, the aforementioned super-year approach has been used to fix shrimp discard mortality across three time blocks. The stark disparity between the eastern and western Gulf has caused the model to demonstrate convergence and stability failures. Further, changes in fisheries management over time have had a disproportionate effect on the eastern Gulf compared to the west. The analytical team is proposing to proceed with an eastern Gulf-only model, and modeling the western Gulf at a later date. Doing so implies that the shrimp bycatch in the western Gulf has little effect on the stock in the eastern Gulf. The conflicts between the eastern and western Gulf data confound the common pool of biomass (this model uses a single area approach), making it difficult to surmise the true stock status from the combined model. The proposed model excludes all western Gulf fishery-dependent indices of abundance and all SEAMAP Trawl surveys. Steepness is fixed at 1, the model is forced to fit the externally-derived age-at-length data from the Patterson Lab, and discard mortality is fixed at 25%. In total, the changes deemed necessary to move forward with the assessment have gone far beyond that prescribed by the original scope of work for the assessment, but have not violated those terms of reference.

The Panel was asked why the problem between the sides of the Gulf have only now arisen. The analytical team recalled the troubles with the review of the last gray triggerfish assessment (SEDAR 43), and added that a much deeper examination of the species has occurred this time around as opposed to during that assessment. The stock recovery in the eastern Gulf is largely negated by the predicted shrimp bycatch in the western Gulf; however, the data do not necessarily support that the shrimp trawl bycatch in the western Gulf is directly affecting recruitment in the eastern Gulf. ***Knowing this, the Panel asked to see more of the data conflicts described by the analytical team.***

The Panel asked about the effects of an eastern Gulf model on the Gulf-wide management of gray triggerfish. The analytical team said that the majority of the removals (recreational and commercial) through time are from the eastern Gulf (approximately 94%), and that NMFS could close the western Gulf once the eastern Gulf catch limit is met. A minimum of six months was anticipated to be necessary to resolve the issues in the western Gulf model.

Model Performance

In the eastern Gulf, the majority of removals are from the recreational fleets, with commercial removals largely limited by the regulatory environment in recent years. Discard fractions predicted in the model fit observed data well. Shrimp discard bycatch estimates have not yet

been re-run for the eastern Gulf; however, the super-year median fit to the data means that the model estimates are unlikely to change for this data input. Fits to length composition data for discards are good. A time-varying catchability coefficient improved the fit to the headboat index greatly. The fits to the recreational MRFSS index from port sampler observations underfits in early years, but improves as time progresses. Fits to the SEAMAP Larval Survey and the Video Survey are good. Overall, fits to the terminal years of the indices are much improved over SEDAR 43.

Diagnostics

Jitter analyses resulted in only a single run which did not converge for the eastern Gulf model (out of 50 repetitions). Likelihood profiling showed steepness as being inestimable, and so it was fixed at 1.0, which assumes no stock-recruit relationship. The ΣR value was estimable at 0.52. Retrospective analyses showed very little pattern by removing successive terminal years of data. Index removal shows that general trends are not impacted by a single index, with some deviation in magnitude when predicted shrimp trawl bycatch is removed from the model.

The Panel discussed whether the proposed eastern Gulf-only approach goes too far beyond the terms of reference for the assessment. SEDAR clarified that it is still largely the SSC's prerogative as to what it reviews. Both the analytical team and the Panel concurred that the proposed model will present challenges to review. Not including the western Gulf makes the model considerably different from SEDAR 43. The Panel recognized the deficiencies with the previous Gulf-wide model, and the merit of the eastern Gulf-only model. An additional review by the Center for Independent Experts was discussed; however, the SSC members on the Panel thought that the SSC was equipped to handle the review.

Discussions of shrimp bycatch noted that the shrimp industry does not often catch gray triggerfish. The model fixed shrimp discards across three time blocks using the super-year approach, and the estimated discards from that fleet are low. The shrimp industry has indicated that bycatch reduction devices markedly reduce bycatch of gray triggerfish, and landing the species at all is an indicator that the net has gone over some sort of reef structure, which represents undesirable trolling bottom for shrimp fishermen.

Sensitivity Runs

Ryan Rindone (Gulf Council staff) will find the contact information for the Texas shrimp trawl discard mortality data discussed at the data scoping phase of SEDAR 62, and work with Jim Tolan (SSC, TPWD) to get the data to the analytical team. A discard mortality sensitivity of 69% based on the work of Erin Bohaboy will be simulated also.

The Panel asked about sargassum coverage and its relationship to gray triggerfish recruitment. The analytical team said that incorporating sargassum as an indicator of recruitment success, or other environmental variables, would be candidate analyses for a future research track assessment. This future research track would need to consider a spatially-explicit model, environmental covariates, further investigation into shrimp bycatch, and other factors. When the

pending research on these topics will be available should weigh heavily on when this future research track assessment for gray triggerfish begins.

The delivery of the completed stock assessment report will likely be delayed.
Assessment Webinar will be held on February 3, 2020 at 2:00 PM eastern time.

Participants:

Beth Wrege
Beverly Sauls
David Hanisko
Dominique Lazarre
Jim Tolan
Jeff Isely
Kai Lorenzen

Leann Bosarge
Michael Drexler
Mike Larkin
Peter Mudrak
Robert Allman
Bob Gill
Ryan Rindone

Shannon Cass-Calay
Skyler Sagarese
Will Patterson
Julie Neer
Katie Siegfried
Nancie Cummings