SEDAR 67: Gulf of Mexico Vermilion Snapper
Assessment Webinar II – Summary
January 23, 2020, 10:00 AM – 12:00 PM

Data Review

Life history parameters will be modeled as before in SEDAR 45. Commercial landings have been updated to include recent years, an updated age composition, A pre- and post-IFQ selectivity time block, and a revised methodology for discards (commercial discards not included in SEDAR 45). Recreational landings were updated to include recent years and MRIP-FES historical calibrations, updated age composition, and updated recreational discard estimates. Indices were all updated from SEDAR 45, with the SEAMAP Combined Video Survey being used in the SEDAR 67 base model. The terminal year of data is 2017, with shrimp effort back to 1950, commercial data (east and west) back to 1963, and recreational data (MRIP-APAIS/FES, SRHS east and west) back to 1981. Three fishery-independent indices (SEAMAP Larval Survey, SEAMAP Groundfish Survey, SEAMAP Combined Video Survey) are also included. Age-based selectivity is used for the directed fleets, and length-based selectivity for the SEAMAP Trawl and Video surveys. Discard mortality is fixed at 15% across fleets.

Model Transition and MRIP-FES

The base model for SEDAR 67 has been updated from SEDAR 45 (SS version 3.24) to SS version 3.30. This upgrade forecasts divergence in recruitment plots for years not included in SEDAR 45 (2013+), but otherwise shows no ill effects were observed.

Transitioning recreational landings from the Coastal Household Telephone Survey to MRIP-FES showed increased spawning output and age-0 recruits when all stock-recruitment parameters were allowed to be estimated by the model.

Base Model Observations

Prior to approximately 2006, the majority of removals were estimated to be from shrimp discards, followed by the recreational sector. Since 2006, the majority of removals are attributed to the recreational sector, with commensurate removals from the shrimp and commercial fleets. Total removals peaked in 1994, and declined thereafter. Shrimp fleet discards have declined markedly since the mid-1990s. Fits to indices vary, with a good fit shown for the shrimp discards but poor fits to the SEAMAP indices. Fits to commercial indices are mostly within confidence intervals, while recreational data fits (MRIP-FES and SRHS) largely follow trends but can vary outside of confidence intervals. Age composition data fits are generally good; length composition data fits are not quite as good as age composition data, but are still comparatively good.

Truncating the base model commercial IFQ CPUE indices was discussed as a way to deal with behavioral changes for vermilion snapper as a result of the implementation of the re snapper IFQ

program. Generally, removing these post-IFQ indices results in higher estimates of spawning output than those model runs with the post-IFQ index included.

The 2016 video sampling year showed a high estimate of biomass from the SEAMAP combined video survey that is not reflected in the Pascagoula NMFS Lab video survey. Aside from 2016, these indices are in general agreement. The FWC video survey appears to concur with the SEAMAP Combined Video survey. The recent increase in recruitment and subsequent increase in biomass appears to be supported by multiple data sources. The inclusion of the SEAMAP Combined Video survey appears to further corroborate this increase.

Discard Observations

Most discards represent fish below the minimum size limit. Limited data on the length of discards are available. Some concern about the use of vermilion snapper as bait was expressed, but was dispelled by commercial and recreational fishermen on the Panel. Generally, the fraction of fish discarded is much smaller than the fish landed and retained. Based on the minimum size limits, the model appears to be expecting a sizably larger number of discards (several times the landings) for the commercial data, and only somewhat less for the recreational landings. Based on a lack of a commercial trip limit, a healthy recreational bag limit (20 per person per day maximum), and a small minimum size limit (presently 10 inches total length), a large amount of discards for vermilion snapper is unexpected for either fishing sector.

Presently, the inclusion of the discard data prevents the model from fitting the catch data well. Large estimates of coefficients of variance are resulting in poor fits to the discard data for the indices. This is creating issues with estimating fleet selectivities, in that fewer fish are being estimated to be selected by a fishery, and therefore fewer fish are estimated to be discarded. The model then severely underestimates the number of smaller, younger fish in the population, which thereby underestimates recruitment. The analytical team has proposed including the discards, but not forcing the model to fit those data with the same precision as the catch data. Further, vermilion snapper being retained as bait are not being recorded with other discard data.

Fits to Catch Data

When discard data are included in the model, the observed catch is underestimated, especially for the recreational data. Fits to commercial data are better, but the coefficients of variance for the commercial fleets in the eastern and western Gulf are much tighter (0.05) than those used for the recreational fleets (0.15). Getting a better understanding of the discards will be important moving forward. The continuity model did not use the discard data, so ignoring the discards is ne option. Another option is to inflate the discards to account for a bait fishery (currently illegal in the commercial fishery, and a third option is to implement size retention functions without fitting discard observations. The latter will account for mortality due to discards, but will not fit uncertain discard values. ***The AW Panel recommends implementing size retention functions without fitting discard observations***. A research recommendation will be to explore the historical use of vermilion snapper as bait, and to evaluate the capture of discard information by observers.

Assessment Webinar III will be on January 23, 2020 at 10 AM
The completed Assessment Report is due to the Council on March 20, 2020

Participants

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