

Gulf of Mexico Gag Recreational Closure Analysis

Estimates of recreational landings during closed months were necessary to make predictions of closure dates. This was difficult because the Gulf of Mexico gag fishery has experienced numerous closures over the past 10 years. Data from the 2009 were used as a proxy for future recreational landings for waves 1 through 3 (January to June). Landings from this year were chosen because this is the most recent year where the recreational sector was open during all three of these waves. Gag was open in Waves 1 through 3 in 2010 but there was a large cold water fish kill event in January of 2010, and a relatively large portion of the Gulf of Mexico was closed in 2010 due to the Deepwater Horizon oil spill. Therefore, 2009 landings were used instead of 2010 landings. Waves 1 and 2 of 2009 were not open the entire wave because of the seasonal closure of February 1st through March 31. Total wave 1 and 2 landings were calculated using the daily landings per day in 2009 from each individual wave, and multiplying it by the number of days in the entire wave. Wave 3 landings in 2009 did not have a closure and were not modified. Data from 2013 were used as a proxy for future recreational landings for waves 4 through 6 (July to December). Landings from this year were chosen because this is the most recent year where the recreational sector was open during all three of these waves. Landings for waves 4 and 5 in 2013 did not have a closure and were not modified. Wave 6 was not open the entire wave because of a closure from December 3rd to December 31st, 2013. Total wave 6 landings were calculated using the daily landings per day in 2013 from each individual wave and multiplying it by the number of days for the entire wave. Figure 1 provides a visual representation of the landings.

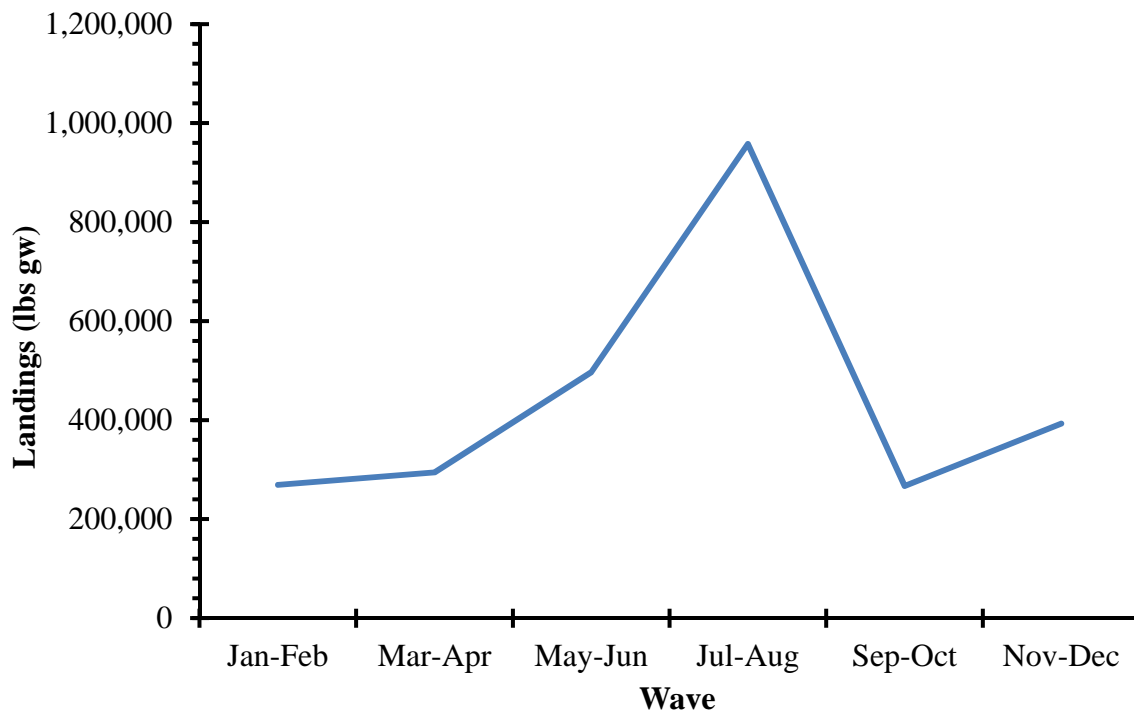


Figure 1. Gulf of Mexico gag recreational landings by wave. Landings for waves 1 through 3 came from 2009 landings data, and landings from waves 4 through 6 came from 2013 landings. Landings are in pounds gutted weight (lbs gw).

Addressing 20 Fathom Closure

The gag grouper recreational fishery has been closed in February 1st to March 31 every year since 2009. However, there was a change to this closure in 2013 where a Framework Action continued a closure of harvest of gag grouper in February 1 through March 31 but only at depths of 20 fathom and deeper. There are no relatively recent landings data to evaluate the impact the 20 fathom closure had on gag landings. However, there was a fisheries dependent study (Sauls et al. 2014) that surveyed Gulf of Mexico recreational fishermen and recorded gag catch by depth. The study collected data from 2009 through 2014 and determined 2.7% of Headboat and 25.4% of Charter gag recreational landings occurred at or deeper than 20 fathoms. No data is available on the Private sector and this sector was assumed to have the same landings as the Charter sector. The impact the 20 fathom closure had on gag landings was addressed by reducing the landings by 2.7% for Headboat and 25.4% for Charter and Private gag landings.

Decision Model

The landings and impact of the 20 Fathom closure were incorporated into a decision model that allows the user to pick closure dates, and then evaluate the landings results. The closure dates is chosen as the day before the landings exceed the annual catch target (ACT). Details of a decision model can be found at SERO-LAPP-2012-03.

Economic Effects

Dynamic economic effects projections are built into the gag recreational decision tool (RDT). The estimates are displayed in 2014 dollars. Baseline economic values for the recreational gag fishery were estimated using the RDT with all options set to current management alternatives. For the recreational sector, economic effects are measured as changes in consumer surplus (CS) from the status quo. The RDT converts estimated pounds (gw) landed to number of fish using mean weights of gag from each wave of data. The number of fish projected to be harvested is then multiplied by the willingness to pay (WTP) to catch and keep an additional grouper¹. This provides an estimate of the CS derived from harvesting gag, as discussed in Section 3.3.2 of the current amendment. The RDT displays the total change in CS from the status quo under any

¹ The WTP value is a scalar and does not depend on the size of each individual fish harvested.

combination of ACT and season closure alternatives². The alternatives considered in this action would increase the season length and/or the ACT for gag, so they would be expected to result in a positive change in CS.

No estimates of producer surplus (PS) for the for-hire component of the recreational sector are provided. It is assumed that gag would be landed in addition to other species on a trip, including other types of grouper, and that the proposed action would have no effect on the number of recreational trips that would be expected to occur under the status quo. Therefore, no change in for-hire PS would be expected. This assumption is supported by analysis of the Marine Recreational Information Program (MRIP) data at the trip level, which shows, on average (2010-2014), one gag and six other fish (including other grouper species) were landed on each trip that harvested gag. If the gag season were shortened, it would be expected that anglers would still fish for these other species, and if it were lengthened, it would be expected that anglers would harvest gag that would have otherwise been discarded.

References

Sauls, B., O. Ayala, and R. Cody. 2014. A directed study of the recreational red snapper fisheries in the Gulf of Mexico along the West Florida Shelf. Florida Fish and Wildlife Research Institute.

SEDAR 33. 2014. Stock assessment report of SEDAR 33: Gulf of Mexico gag. Southeast Data, Assessment and Review. North Charleston, South Carolina.
<http://www.sefsc.noaa.gov/sedar/>.

SERO-LAPP-2012-03. Modeling the combined effects of Gulf Reef Fish Amendment 37 Proposed Management Measures of Gray Triggerfish. Southeast Regional Office. NOAA Fisheries Service.

² Estimates of the change in CS by mode (Private, Headboat, Charter and Shore) are included under the "Economics" tab of the Excel spreadsheet.