Commercial Discard Length Composition for Gulf of Mexico Vermilion Snapper

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Commercial Discard Length Composition for Gulf of Mexico Vermilion Snapper

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Introduction

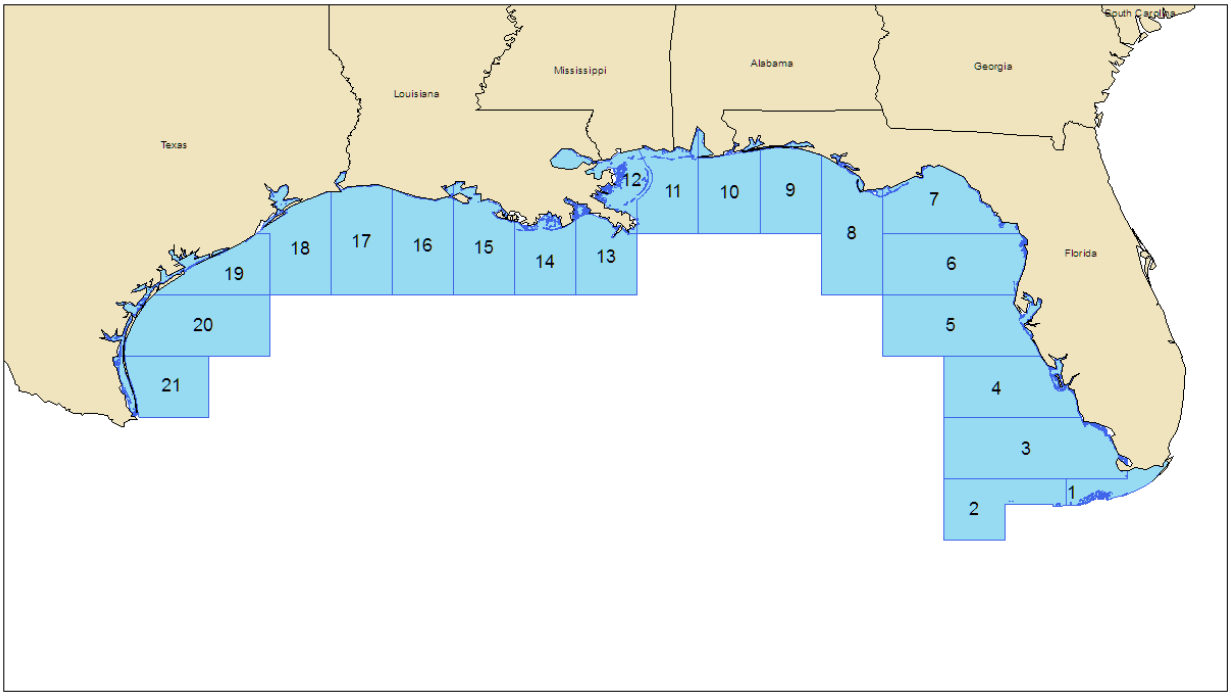
The Southeast Fisheries Science Center (SEFSC) manages the commercial Reef Fish Observer Program (RFOP) and Shark Observer Program (SOP). Data from those two programs were used to compile length compositions and information on immediate release mortality for vermilion snapper. The RFOP was implemented as a mandatory program for the Gulf of Mexico commercial fishery in July 2006. Primary gears observed in this program are bottom longline and vertical line (bandit or handline). The observer program covers about 4 percent of the commercial bottom longline vessels in the Gulf of Mexico (hereafter, the Gulf). The vertical line fishery has about 2 percent observer coverage. The shark observer program became mandatory in January 2002 in both the South Atlantic and Gulf for bottom longline vessels that hold shark permits. Bottom longline SOP data were available since 2005. The SOP database also includes voluntary observer data for the snapper-grouper vertical line fishery from North Carolina to Western Florida. Those vertical line observer data were collected in six non-consecutive years from 2010 to present for 37 unique vessels.

Methods

Data were obtained from both the Reef Fish Observer Program and Shark Observer Program databases. The RFOP and SOP Gulf data were reported as Coastal Fisheries Statistical Areas. Those statistical areas were used to describe observer spatial coverage and to designate regions (Figure 1). Data included for this analysis are statistical areas 1 through 12 to represent the eastern Gulf and grids 13 through 21 to represent the western Gulf.

At sea observers provide information on the condition of a fish when hauled onboard a vessel (alive, dead, barotrauma), disposition (kept, discarded dead, discarded alive, etc.), whether the fish was vented before release, and length of vermilion snapper. Lengths were converted to fork length (cm) and those lengths were assigned to 3 cm bins.

Figure 1. Gulf of Mexico map of data coverage (provided by Beth M. Wrege).



Results and Discussion

The observer data were categorized by data source, region, and gear type. Table 1 summarizes the number of observations available to determine adequate sample size and coverage. All SOP vertical line trips were excluded because of a lack of spatial and temporal coverage in the Gulf. Due to insufficient data for bottom longline trips, all RFOP and SOP data will be combined regionally. RFOP vertical line trips will be summarized for the Eastern and Western Gulf zones. Table 1 also includes the average, minimum, and maximum fork lengths by data source, region, and gear type.

The length composition for bottom longline trips can be seen in Figure 2 by disposition for each data source. The vermilion snapper minimum size limit changed during the time series from 11 inches to 10 inches in 2008. For the reef fish bottom longline data, 57 percent of the discards were a result of minimum size restrictions and 62 percent of the discards from the shark observer data were because of size limits.

Figure 3 shows the length frequency by disposition for each zone using only RFOP data. For both Gulf zones, 97 percent of discarded vermilion snapper were because they were undersized fish.

Immediate Release Mortality

Immediate release mortality could not be calculated. Due to the nature of snapper fishing trips and the number of fish that each observer needs to process, handling times could not be readily determined, limiting the accuracy of estimated immediate release mortality. Further work is needed to incorporate handling times, as affected by the subsampling of vertical line trips, for the accurate calculation of immediate release mortality using observer data.

Table 1. Summary of Data Available

Data Source	*Gear Type*	*Region*	*Total Trips*	*Trips Caught Vermilion Snapper*	*Number of Measured Vermilion Snapper**	*Minimum Year Data Available*	*Maximum Year Data Available*	*Average FL (cm)*	*Minimum FL (cm)*	*Maximum FL (cm)*
RFOP	Longline	East	387	183	819	2006	2017	31.97	13.5	71.6
RFOP	Longline	West	36	5	31	2009	2016	38.81	19	49.6
RFOP	Vertical Line	East	1077	636	119,987	2006	2017	28.34	10.6	90.6
RFOP	Vertical Line	West	216	131	47,585	2006	2017	30.86	12.2	62.4
SOP	Longline	Gulf of Mexico	305	41	145	2006	2017	31.46	17	49

**Including both kept and discarded fish*

Figure 2. Fork length frequency of vermilion snapper caught on all bottom longline trips for the Reef Fish (RFOP) and Shark (SOP) data. Note the difference in y axis.

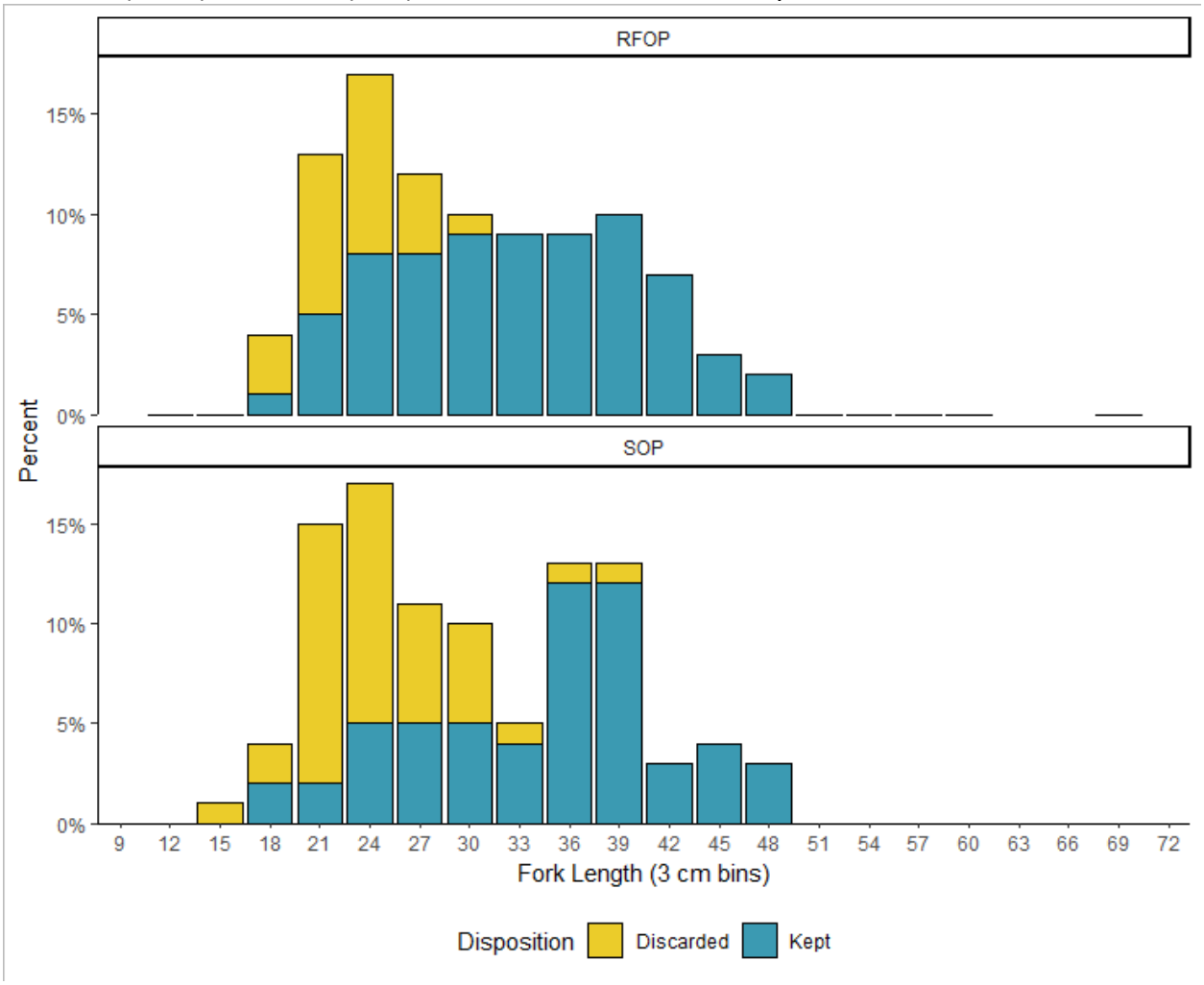


Figure 3. Fork length frequency of vermilion snapper caught on vertical line trips by Gulf zone for Reef Fish Observer Data. Note the difference in y axis.