Commercial Landings of Vermillion Snapper (*Rhomboplites aurorubens)* In the Gulf of Mexico

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The SEDAR 67 assessment followed a standard approach and addresses the stock of Gulf of Mexico Vermillion Snapper. Commercial landings for Vermillion Snapper were compiled from records in the NOAA Southeast Fisheries Science Center's (SEFSC) Accumulated Landings System (ALS). The ALS includes landings beginning in 1963 for Vermilion Snapper. The terminal year for the Gulf of Mexico Vermilion Snapper commercial landings of SEDAR 67 was 2018.

Data Sources

Commercial landings of Vermillion Snapper from the Gulf of Mexico (hereafter "Landings") were compiled from multiple recorded sources. Landings 1963 to 1986 were from the Accumulated Landings System (ALS) hosted by NOAA's Southeast Fisheries Science Center (SEFSC).

These landings data sources originated from the following four ALS data tables in ORACLE:

1. ALS.TALS_GCANV6071: Texas to Florida annual landings data from 1963 to 1971
2. ALS.ALS_LANDINGS7278: Texas to Florida annual landings data from 1972 to 1976
3. ALS.ALS_GENERAL_CANVASS (also called the Florida General Canvass): Annual landings data Florida from 1976 – 1985. 1976 data for Florida are duplicates of landings data in table ALS_LANDINGS7278.
4. ALS.ALS_LANDINGS: Monthly landings data for Texas, Louisiana, Mississippi and Alabama from 1977 to present. This is the main ALS table that is still currently in use and new landings data accumulate to this table.

Compilation of Landings followed guidance from the benchmark assessment of SEDAR 9. Decisions made and methods used for SEDAR 9 were followed in the 2012 update of SEDAR 9. The next SEDAR assessment was also a standard assessment, which was SEDAR 45 in 2016. The current assessment, SEDAR 67 is also a standard assessment and therefore there are no significant changes in the methods used. For further details on the history of the SEDAR process for Vermillion Snapper in the Gulf of Mexico, please refer to the commercial landings sections of the SEDAR reports which are available on the public SEDAR website,
SEDAR 9: http://sedarweb.org/docs/sar/SEDAR9_SAR3%20GOM%20VermSnap.pdf and
SEDAR 45: http://sedarweb.org/docs/sar/S45_Final_SAR.pdf.

Proportioning of Landings by Gear and Area

Collection of monthly Landings data in the ALS data base began in 1977, however these monthly Landings often lacked gear and area information. Specifically monthly ALS landing for certain states and time periods had very limited or no information on gears used and area-fished, These were:

- Florida 1977-1996
- Louisiana 1990-1999
- Texas 1990-2011

In SEDAR 9, the decision was made to use logbook data for apportioning Vermillion Snapper Landings to gears used and area-fished. It was determined that the logbook data, which became available in 1992, had higher accuracy for area-fished. This decision was based on the general acceptance that records regarding gear(s) used and area-fished were probably more accurately reported on the fishermen's coastal logbook (CLFP),which are completed by the fishing boat captains or designees rather than on the dealer reported trip tickets, often reported online by secretarial staff. Therefore, annual proportions of commercial Vermillion Snapper Landings by year, gear and area were calculated from the CFLP logbook from 1993 through 2018 and applied to the ALS landings.

Florida 1977-1996. For proportioning the Florida Landings from 1977 - 1996 by gears used and area-fished, i.e. gear-type and water body information, the annual ALS (Florida) General Canvass data table was used. Magnitude of Florida Landings from the annual General Canvass and monthly ALS were identical for those years (1976-1996) but the Florida General Canvass had gears used and area-fished/water body information. A general practice has now become to calculate proportions by gear and area from the annual Florida General Canvass and apply them to the Landings of monthly ALS for the years 1977-1996.

Louisiana and Texas 1990 and forward. As established in SEDAR 9 for Louisiana and Texas which had large gaps in missing gear and area information in their initial State Trip Ticket Programs, average annual proportions of gear and area by state were calculated from the coastal logbook (CLFP)applied for1990-1999 in Louisiana and for 1990-2011 in Texas..

Non-Florida Gulf States 1990 and forward. Logbook proportions for gear and area were also applied to Landings of the other Gulf States, i.e. Alabama. Mississippi and Florida, from 1990 onward, since it was decided by the SEDAR panelists to be more accurate than the dealer reported gear and area information

Gear Groupings

As in SEDAR 45, the workgroup's recommendation was to categorize landings into three gear groups: Handline+ (all gears other than longline are trap also included here), longline, and trap. Longline included vertical longline, trap included all pot and trap gears and handline included all other gears.

Table 1. ALS Gear Groupings used in SEDAR 67

NMFS	Code Description	Group
600	Troll & Hand Lines Combined	Handline+
610	Lines Hand, Other	Handline+
611	Rod and Reel	Handline+
612	Reel, Manual	Handline+
613	Reel, Electric or Hydraulic	Handline+
616	Rod and Reel, Electric (Hand)	Handline+
614	Long Line, Vertical	Longline
675	Lines Long Set With Hooks	Longline
676	Lines Long, Reef Fish	Longline
677	Lines Long, Shark	Longline
300	Pots and Traps, Combined	Trap
325-387	Pots and Traps, (20 different)	Trap
388	Pots, unclassified	Trap
All other codes		Handline+

Regions and Area of Commercial Landings

Figure 1 shows the regions and area commercial landings. For landings from 1992-2004 gear and statistical area were assigned from logbooks by year and state. The eastern and western regions were separated at approximately the Mississippi River with east including statistical areas 1-12 and the west including areas 13-21.

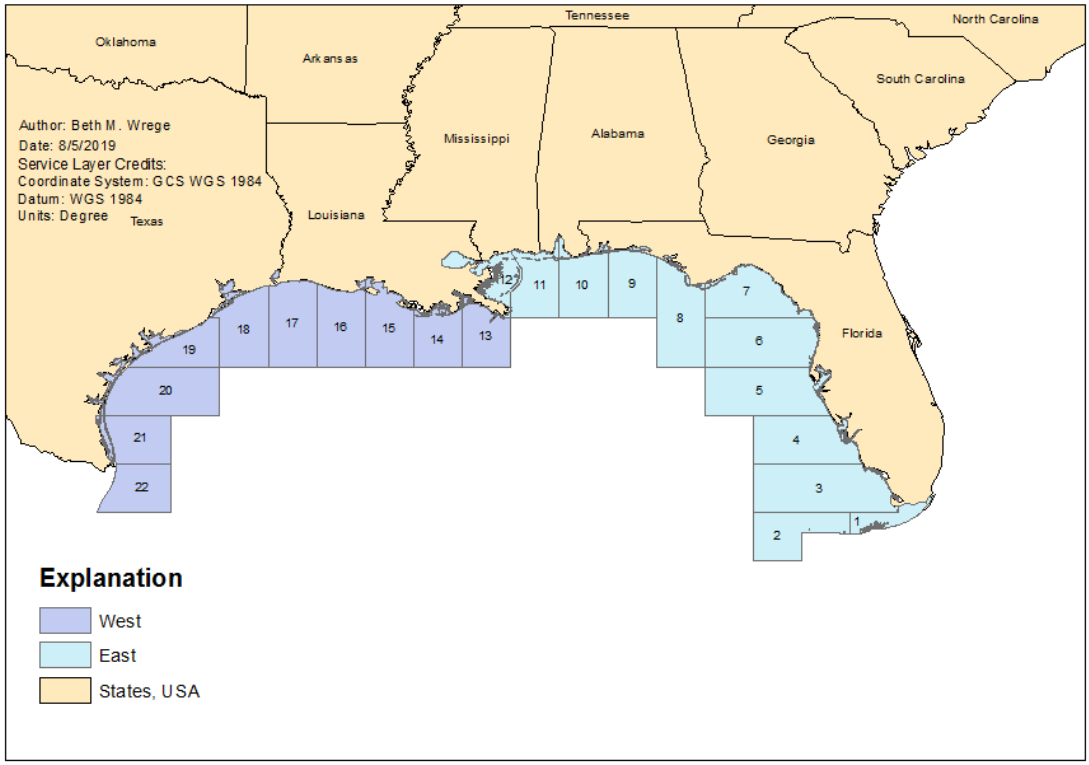

Figure 1.Map showing the NMFS statistical areas 1-21 from Key West at the Southern tip of Florida to the Texas/Mexico border.Eastern region are NMFS statistical 1-12 and NMFS statistical areas 12-21 delineate the Western Region.

Table 2. Commercial landings of Vermillion Snapper in the Gulf of Mexico 1963 to 2018 in pounds whole weight. (landings with * redacted due to confidentiality).

	Eastern US Gulf of Mexico			Western US Gulf of Mexico		
Year	Handline+	Longline	Trap	Handline+	Longline	Trap
1963	30,747			22,533		
1964	33,633			23,532		
1965	33,411			20,757		
1966	17,427			6,660		
1967	35,298			15,762		
1968	70,152			50,283		
1969	89,355			27,084		
1970	83,361			44,400		
1971	91,020			48,063		
1972	80,364			46,509		
1973	135,531			54,945		
1974	128,649			66,822		
1975	279,942			109,335		
1976	245,976			60,495		
1977	333,375			195,126		
1978	286,552			163,261		
1979	218,438			220,445		
1980	159,658	*		148,455		
1981	231,522	10,131		115,663	4,549	
1982	239,367	7,188		146,490	4,662	
1983	377,712	23,936		161,754	7,102	
1984	532,029	15,834		848,288	41,392	
1985	672,148	14,765	*	737,600	53,910	
1986	689,625	1,184		939,041	119,597	
1987	534,518	4,792		1,003,433	62,662	
1988	491,437	*		991,713	*	
1989	478,794	114,692	2,911	1,002,816	59,609	
1990	1,140,157	2,041	350,014	962,046	614	
1991	927,955	15,594	41,993	807,767	1,683	*
1992	1,187,338	1,486	109,208	1,050,576	12,514	*
1993	1,638,102	*	29,284	1,021,272	*	3,064
1994	1,570,813	*	11,306	1,040,141	*	
1995	1,496,663	3,013	9,421	654,243	14,700	
1996	1,155,153	3,426	11,284	651,873	5,545	
1997	1,034,972	4,779	5,359	1,072,585	8,120	
1998	805,347	22,925	2,867	895,148	6,390	
1999	918,719	10,025	2,807	1,097,635	7,419	
2000	695,756	1,795	2,321	758,230	712	
2001	799,251	6,553	3,426	904,132	1,366	
2002	996,757	2,184	8,992	999,738	445	
2003	1,153,684	622	1,784	1,258,858	663	
2004	928,006	941	4,213	1,217,555	11,575	

2005	979,544	2,792	1,717	886,061	771	
2006	1,114,269	13,134	219	636,146	1,815	
2007	1,163,278	11,447		1,208,917	*	
2008	1,785,804	5,567		1,029,233	909	
2009	2,808,802	5,642		979,594	443	
2010	1,319,794	1,911		786,699	515	
2011	2,429,777	3,472		726,468	*	
2012	1,588,889	2,958		848,266	*	
2013	918,442	427		497,812	1,044	
2014	1,107,886	2,245		658,918	2,497	
2015	661,829	2,032		700,909	1,526	
2016	796,884	4,233		781,011	1,672	
2017	932,186	6,592		690,546	*	
2018	782,217	4,109		630,406	781	

Landings for 2014 shown in this Sedar 67 are 404,846 lbs higher compared to what was reported for 2014 Landings in Sedar 45. Apparently at the end of August 2015 (August 26), 2014 Landings for the state of Florida had not completely recorded yet into the ALS database, whereas Landings of the other Gulf of Mexico states, TX, LA, MS, AL had already been completely reported for 2014.

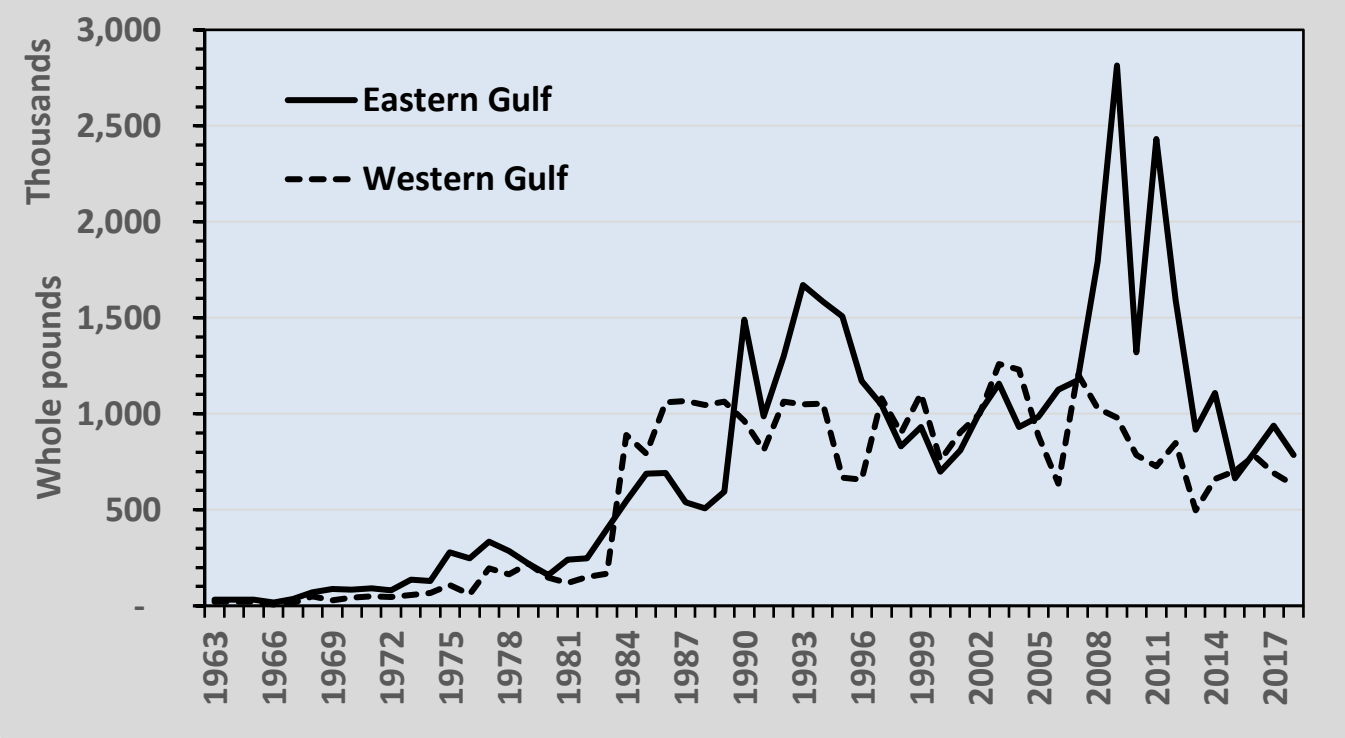

Figure 2.Commercial Landings of Vermillion Snapper in 1963 to 2018 for the Eastern (NMFS Statistical areas 1-12) and Western Gulf of Mexico (NMFS Statistical Areas 13-21).

Spatial Distribution of Commercial Landings by NMFS Statistical Areas

The spatial distribution of cumulative landings of Vermillion Snapper for the years 1963 -2018 by the NMFS statistical areas 1-21 in the Gulf of Mexico are shown in Figure 3. The cumulative landings were placed into weight bins using Jenks methods, i.e. by natural breaks, which show a minimum of about 50,000 whole pounds in statistical area one compared to maximum of 14 million whole pounds in statistical area ten, with the grading of data intervals from light to dark as catches increase.

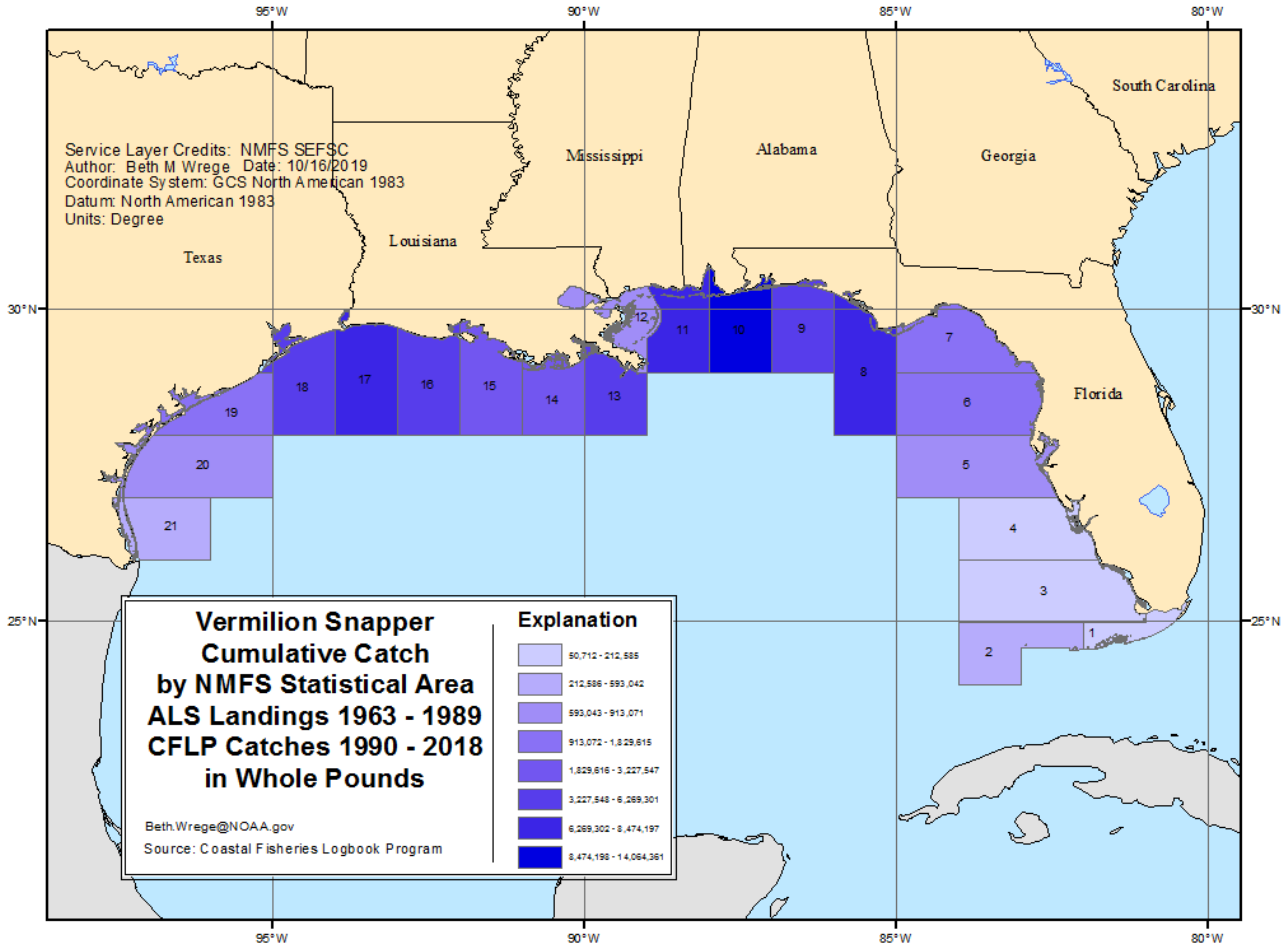

Figure 3. Map of the spatial distribution of cumulative commercial landings of Vermillion Snapper in 1963 to 2018 for Eastern regions (NMFS statistical areas 1-12) and Western regions of the Gulf of Mexico (NMFS statistical areas 13-21).