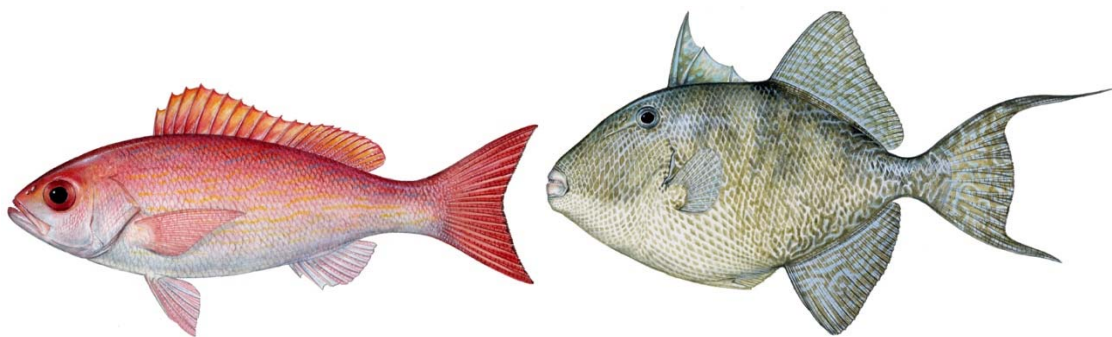


Modifications to Vermilion Snapper and Gray Triggerfish Catch Levels and Gray Triggerfish Recreational Fixed Closed Season



Framework Action to the Fishery Management Plan for Reef Fish Resources of the Gulf of Mexico Including Environmental Assessment

November 2020



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ENVIRONMENTAL ASSESSMENT COVER SHEET

Name of Action

Framework Action to the Fishery Management Plan for Reef Fish Resources in the Gulf of Mexico: Modification to Vermilion Snapper and Gray Triggerfish Catch Levels and Gray Triggerfish Recreational Fixed Closed Season including Environmental Assessment.

Responsible Agencies and Contact Persons

Gulf of Mexico Fishery Management Council (Council) 4107 W. Spruce Street, Suite 200 Tampa, Florida 33607 Carly Somerset (carly.somerset@gulfcouncil.org)	813-348-1630 813-348-1711 (fax) gulfcouncil@gulfcouncil.org Gulf Council Website
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National Marine Fisheries Service (Lead Agency) Southeast Regional Office 263 13 th Avenue South St. Petersburg, Florida 33701 Kelli O'Donnell (kelli.odonnell@noaa.gov)	727-824-5305 727-824-5308 (fax) SERO Website
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Type of Action

<input type="checkbox"/> Administrative	<input type="checkbox"/> Legislative
<input checked="" type="checkbox"/> Draft	<input type="checkbox"/> Final

ABBREVIATIONS USED IN THIS DOCUMENT

ABC	acceptable biological catch
ACL	annual catch limit
ACT	annual catch target
AM	accountability measures
AP	Advisory Panel
APAIS	Access Point Angler Intercept Survey
CHTS	Coastal Household Telephone Survey
Council	Gulf of Mexico Fishery Management Council
EA	environmental assessment
EIS	environmental impact statement
F	fishing mortality
FES	Fishing Effort Survey
FHS	For-Hire Survey
FL	fork length
FMP	fishery management plan
Gulf	Gulf of Mexico Fishery
MFMT	maximum fishing mortality threshold
mp	million pounds
MRFSS	Marine Recreational Fisheries Statistics Survey
MRIP	Marine Recreational Information Program
MSST	minimum stock size threshold
MSY	maximum sustainable yield
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NS1	National Standards 1 Guidelines
OFL	overfishing limit
OY	optimum yield
Reef Fish FMP	Fishery Management Plan for the Reef Fish Resources of the Gulf of Mexico
RFA	Regulatory Flexibility Analysis
RIR	Regulatory Impact Review
SDC	status determination criteria
SEAMAP	Southeast Area Monitoring and Assessment Program
SEDAR	Southeast Data Assessment and Review
SEFSC	Southeast Fishery Science Center
SFA	Sustainable Fisheries Act
SPR	spawning potential ratio
SSB	spawning stock biomass
SSC	Scientific and Statistical Committee
TL	total length
ww	whole weight

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CHAPTER 1. INTRODUCTION

1.1 Background

Vermilion snapper and gray triggerfish are managed under the Fishery Management Plan (FMP) for the Reef Fish Resources of the Gulf of Mexico (Reef Fish FMP). This framework action would modify the overfishing limit (OFL), acceptable biological catch (ABC), and annual catch limit (ACL) for the vermilion snapper stock, and the ABC, ACLs and ACTs for the gray triggerfish stock consistent with recommendations from the Gulf of Mexico Fishery Management Council's (Council) Scientific and Statistical Committee (SSC). This action also considers modifying the recreational fixed closed season for gray triggerfish.

A recent stock assessment for *vermilion snapper* was completed in 2020 (SEDAR 67). After review by the SSC, the assessment was determined to represent the best scientific information available and was suitable for management advice. Therefore, a recommendation was made to increase the quota and update the catch limits. These proposed modifications to the vermilion snapper stock OFL, ABC, and ACL are based on results of the Southeast Data Assessment and Review (SEDAR) 67 (2020) stock assessment, which incorporated new years of data and updated bycatch estimation approaches from SEDAR 45 (2016). The SSC reviewed SEDAR 67 and provided new catch recommendations to the Council, which are provided in Chapter 2. Vermilion snapper is currently not overfished and is not experiencing overfishing.

In September of 2020, the Council's SSC reviewed an interim analysis on *gray triggerfish* (SEFSC Interim Assessment 2020). The proposed modifications to the gray triggerfish ABC, ACLs, and ACTs are based on results of that interim analysis and subsequent recommendations from the Council's SSC. The SSC determined the interim analysis suitable for providing catch advice and management advice through 2023. Gray triggerfish is rebuilding but is not considered overfished (GMFMC 2017a and 2017b) and is not experiencing overfishing. Gulf of Mexico (Gulf) gray triggerfish was considered overfished in SEDAR 43 which was finalized in 2015, using data through 2013 based on the minimum stock size threshold (MSST) defined as $(1-M)*B_{30\% SPR}$. Amendment 44 changed the MSST for gray triggerfish to $0.50*B_{MSY}$ (or proxy), changing the stock status to not overfished but rebuilding. Amendment 46 implemented a rebuilding plan based on the SSC's review of SEDAR 43¹, and to address the results of the stock assessment.

Establishment of vermilion snapper catch limits

In 2012, the Generic Annual Catch Limits and Accountability Measures Amendment (Generic ACL/AM Amendment) for the Gulf established catch limits for vermilion snapper including the OFL, ABC, and ACL (GMFMC 2011). Amendment 47 (GMFMC 2017c) to the Reef Fish FMP decreased the OFL, ABC, and ACL based on the results of the SEDAR 45 (2016) stock assessment, and the subsequent OFL and ABC recommendations from the Council's SSC.

¹ <https://sedarweb.org/docs/supp/Gulf%20SSC%20Review%20Summary%20-%20SEDAR%2043%20-%20Gulf%20Gray%20Triggerfish.pdf>

Vermilion snapper management and landings

Vermilion snapper is subject to a 10-inch total length (TL) minimum size limit for both commercial and recreational fishermen. The recreational bag limit is 10-fish per person per day within the 20-reef fish aggregate bag limit for vermilion snapper, lane snapper, gray triggerfish, almaco jack, and tilefishes (golden, blueline, and goldface). There is no commercial trip limit. The fishing season for vermilion snapper is open year-round from January 1 – December 31 and harvest is monitored as a single stock with no sector allocations. When the combined commercial and recreational catch reaches the stock ACL, or is projected to reach the stock ACL, the season is closed for both sectors for the remainder of the year. There is no post-season accountability measure (AM), such as an overage adjustment, for vermilion snapper.

Table 1.1.1 provides commercial and recreational landings for vermilion snapper from 2012 to 2019. The vermilion snapper stock ACL has been exceeded once, by 3.5% in 2018, since implementation of the vermilion snapper stock ACL in 2012. 2018 was also the first year a reduced ACL was implemented by Amendment 47 (GMFMC 2017c). The fishing season for vermilion snapper has never been closed in-season, prior to the end of the fishing year, due to the stock ACL being met. Recreational harvest data are presented below in both the Marine Recreational Fisheries Statistics Survey (MRFSS), and the Marine Recreational Information Program’s Coastal Household Telephone Survey (MRIP-CHTS) data currencies. The Data Units column in the table provides the currency the recreational landings were monitored in for each year through 2019. The National Marine Fisheries Service (NMFS) transitioned from monitoring the catch limit in MRFSS to MRIP-CHTS in 2018 following the implementation of catch limits based on SEDAR 45 (2016). The current stock ACL is monitored in MRIP-CHTS; however, recreational landings are currently recorded in the new MRIP Fishing Effort Survey (FES) data currency. A more detailed description on the recent changes to recreational catch and effort data, and historical landings comparisons from 1986 to 2019 can be found in Appendix B.

Table 1.1.1. Vermilion snapper recreational landings, data collection units, commercial landings, total landings, stock ACL and percent ACL landed for 2012 - 2019. Landings are in pounds whole weight (lbs ww).

Year	Recreational Landings	Data Units	Commercial Landings	Total Landings	Stock ACL	Percent of ACL
2012	776,068	MRFSS	2,441,360	3,217,428	3,420,000	94.1%
2013	1,116,205	MRFSS	1,418,401	2,534,606	3,420,000	74.1%
2014	1,168,831	MRFSS	1,764,716	2,933,547	3,420,000	85.8%
2015	967,814	MRFSS	1,369,645	2,337,459	3,420,000	68.3%
2016	101,5100	MRFSS	1,588,255	2,603,355	3,420,000	76.1%
2017	148,8571	MRFSS	1,636,048	3,124,619	3,420,000	91.4%
2018	1,797,815	MRIP-CHTS	1,419,698	3,217,513	3,110,000	103.5%
2019	1,355,761	MRIP-CHTS	1,283,687	2,639,448	3,110,000	84.9%

Source: The MRFSS landings came from the SEFSC MRFSS recreational ACL data on May 19, 2020, MRIP-CHTS landings came from the SEFSC MRIP-CHTS recreational ACL data on May 18, 2020, and the commercial landings came from the SEFSC commercial ACL file on November 15, 2019.

Recent vermilion snapper stock assessments

In 2012, the vermilion snapper ABC and ACL were set at 3.43 million pounds (mp) ww based on Tier 3a of the Council’s ABC Control Rule (GMFMC 2011). This data-poor method set the ABC based on the mean landings from 1999 through 2008, plus one standard deviation. An update assessment (SEDAR 9 Update 2012) determined the stock was neither overfished nor undergoing overfishing. Projections for the OFL and ABC conducted under Tier 1 of the ABC Control Rule, with a probability of overfishing (P^*) = 39.8%, resulted in ABC yields higher than the existing 3.42 mp in Amendment 47, suggesting that the ACL could be increased. However, members of the Council’s Reef Fish Advisory Panel (AP), as well as fishermen who testified to the Council suggested that, based on their personal observations, the vermilion snapper stock was not as healthy as the assessment suggested. As a result, the 3.42 mp ww ACL was maintained in a 2013 framework action (GMFMC 2013).

In 2016, an assessment for vermilion snapper was conducted with data through 2014 (SEDAR 45 2016). Stock status was evaluated using a maximum sustainable yield (MSY) proxy at a 30% spawning potential ratio (SPR) for spawning stock biomass ($SSB_{30\% SPR}$) and fishing mortality ($F_{30\% SPR}$), under which the stock was deemed not overfished and not experiencing overfishing.

Projections were made for the OFL and ABC. However, the SSC considered the ABCs calculated under Tier 1 of the ABC Control Rule to be too close to the OFLs, and instead provided ABC projections based on the yield when fishing at 75% of $F_{30\% SPR}$. This is the yield corresponding to optimum yield (OY) for vermilion snapper. Based on the results, the SSC offered two recommendations for ABC yield streams for the 5-year projection period from 2017 through 2021. The first was a declining yield stream from 3.21 mp ww in 2017 to 3.03 mp ww in 2021, and the second was a constant catch ABC of 3.11 mp ww for the entire 5-year period. These two yield streams were considered biologically equivalent. The Council selected the constant catch scenario.

In 2020, an assessment for vermilion snapper was completed (SEDAR 67 2020) using data through the 2017 fishing year. This assessment considers new data sources, including recreational catch and effort data in the FES data currency, and reconsidered previous decisions regarding discards and shrimp bycatch estimates. Based on results from SEDAR 67, the stock is not overfished and not experiencing overfishing. When reviewing SEDAR 67, the Council's SSC determined that the results of the model represented the best scientific information available for vermilion snapper and were suitable for management advice. An OFL recommendation of 8.6 mp ww was made based on the yield at $F_{30\% SPR}$. The SSC also provided a constant catch ABC recommendation of 7.27 mp ww for 2021 through 2025 based on the yield when fishing at 75% of $F_{30\% SPR}$ with the ABC equal to OY.

Establishment of gray triggerfish catch limits

The ACLs and ACTs for gray triggerfish were established in Amendment 30A (GMFMC 2008) to the Reef Fish FMP. After the results of the 2011 SEDAR 9 Update Assessment (SEDAR 9 Update 2011), NMFS prepared an interim rule that reduced the recreational and commercial ACLs and ACTs to end overfishing while Amendment 37 to the Reef Fish FMP (GMFMC 2012) was being developed. Amendment 37 established a plan to rebuild the stock in 5 years and replaced the catch limits set by the 2012 interim rule reducing the ACLs and ACTs. Amendment 46 to the Reef Fish FMP (GMFMC 2017b) kept the sector ACLs the same, but established a new rebuilding timeline of nine years (or 2025), due to the stock not rebuilding on the schedule established under Amendment 37 (based on the results of the SEDAR 43 (2015) stock assessment). The rebuilding and catch level recommendations in Amendment 46 for gray triggerfish were based on the SEDAR 43 (2015) stock assessment and subsequent SSC review. Even though the Council decided not to modify the ABC, ACLs, and ACTs based on rebuilding timelines of 8, 9, and 10 years from the SEDAR 43 (2015) stock assessment, Amendment 46 implicitly adopted the SSC's recommendations for OFL of 1.31, 1.29, and 1.22 mp ww for years 2017, 2018, and 2019 and beyond, respectively, by including alternatives with an ABC that was higher than the status quo OFL.

Gray triggerfish management and landings

The fishing year for gray triggerfish is January 1 – December 31 with a fixed seasonal closure for the recreational sector from January 1 to the end of February, and June 1 – July 31; a seasonal closure for the commercial sector is in place from June 1 – July 31. The stock ACL is allocated 79% to the recreational sector and 21% to the commercial sector. The minimum size limits for gray triggerfish are a 15-inch fork length (FL) for the recreational sector, and 14-inch FL for the commercial sector. The recreational bag limit is one fish per person per day within the 20-reef fish aggregate bag limit for vermilion snapper, lane snapper, gray triggerfish, almaco jack, and tilefishes (golden, blueline, and goldface). The commercial trip limit is 16 fish per vessel. Currently, the commercial and recreational sectors' ACLs have ACT buffers of 5% and 10% below their respective ACLs. When either sector's landings reach or are projected to reach the ACT, that sector is closed to harvest for the remainder of its fishing year. If the commercial sector's landings exceed its ACL, then in the following fishing year, a post-season AM, such as an overage adjustment, is applied that reduces the ACL by the amount of the overage and adjusts the ACT accordingly. If the recreational sector's landings exceed its ACL and the gray triggerfish stock is overfished, then in the following year a post-season overage adjustment is

applied that reduces the recreational ACL by the amount of the overage and adjusts the ACT accordingly.

Since ACLs were implemented in 2011, both fishing sectors have experienced periodic overages and payback AMs with annual seasonal closures to protect the stock from overexploitation (Table 1.1.2 and 1.1.3). The recreational sector ACL has been exceeded in several years since 2011; however, the payback provision AM was only applied in fishing years after the implementation of Amendment 37 and when the stock was determined to be overfished. The commercial sector exceeded its ACL in 2012, 2013 and 2018, with the payback provision AM being applied following the 2012 and 2018 overages. Further, due to the timing of when payback notices were published, prior year overages and *Federal Register* noticed payback-adjusted ACLs presented in Table 1.1.2 and 1.1.3 may not match. As with vermilion snapper, historical recreational harvest data are presented in MRFSS and MRIP-CHTS data currencies. NMFS transitioned from monitoring the catch limit in MRFSS for the applicable years to MRIP-CHTS in 2018.

Table 1.1.2. Gray triggerfish recreational landings, data collection units, recreational ACL, payback-adjusted ACL, percent ACL landed, and closure dates for the years 2008 through 2019. Landings are in lbs ww.

Year	Recreational Landings	Data Units	Recreational ACL	Adjusted ACL	Percent of ACL Landed	Recreational Closure
2008	408,434	MRFSS	394,000	None	103.7	None
2009	402,539	MRFSS	426,000	None	94.5	None
2010	299,177	MRFSS	457,000	None	65.5	None
2011	477,477	MRFSS	457,000	None	104.5	None
2012	269,877	MRFSS	217,100	None	124.3	6/11/2012
2013	518,932	MRFSS	241,200	None	215.1	10/15/2013
2014	231,818	MRFSS	241,200	None	96.1	5/1/2014
2015	67,245	MRFSS	241,200	54,207	27.9	2/7/2015
2016	438,149	MRFSS	241,200	201,223	181.7	6/1/2016
2017	62,238	MRFSS	241,200	19,987	25.8	1/1/2017
2018	491,514	MRIP-CHTS	241,200	None	203.8	8/17/2018
2019	310,816	MRIP-CHTS	241,200	None	128.9	5/11/2019

Source: The MRFSS landings came from SEFSC MRFSS recreational ACL data on May 19, 2020, and the MRIP-CHTS landings came from the SEFSC MRIP-CHTS recreational ACL data on Sept. 14, 2020.

Table 1.1.3. Gray triggerfish commercial landings, commercial ACL, payback-adjusted ACL, percent ACL landed, and closure dates for 2008-2019. Landing units are in lbs ww.

Year	Commercial Landings	Commercial ACL	Adjusted ACL	Percent of ACL Landed	Commercial Closure
2008	76,717	105,000	None	73.1	None
2009	78,117	122,000	None	64.0	None
2010	55,661	138,000	None	40.3	None
2011	105,251	138,000	None	76.3	None
2012	72,778	64,100	None	113.5	7/1/2012
2013	63,086	64,100	54,802	98.4	None
2014	40,908	64,100	None	63.8	None
2015	48,012	64,100	None	74.9	None
2016	59,787	64,100	None	93.3	None
2017	63,264	64,100	None	98.7	11/17/2017
2018	65,373	64,100	None	102.0	10/7/2018
2019	62,810	64,100	63,498	98.9	11/26/2019

Source: SEFSC Commercial ACL data (August 21, 2020).

Gray triggerfish stock assessments

The SEDAR 9 (2006) stock assessment determined the gray triggerfish stock to be overfished and experiencing overfishing. A 6-year rebuilding plan was implemented in Amendment 30A (GMFMC 2008). An update assessment (SEDAR 9 Update 2011) determined the stock was still overfished and experiencing overfishing, and would not be rebuilt by 2013. Amendment 37 (GMFMC 2012) implemented a new rebuilding plan to rebuild the stock in 5 years. The next stock assessment (SEDAR 43 2015) of Gulf gray triggerfish was completed and reviewed by the SSC in October 2015. The assessment indicated that gray triggerfish was no longer experiencing overfishing, but remained overfished. In November 2015, NMFS notified the Council that the gray triggerfish stock was not making adequate progress toward rebuilding. Based on SSC recommendations and Council discussion, the Council requested additional data and analyses from the Southeast Fisheries Science Center (SEFSC) for subsequent review by the SSC. The Council requested the SEFSC complete six projection scenarios with specific rebuilding targets of 8, 9, and 10 years and assuming two recruitment scenarios due to recruitment concerns raised during the SEDAR 43 stock assessment. The Council ultimately chose a 9-year rebuilding plan, which would rebuild the stock by 2025. To generate catch advice for the new rebuilding plan established in Amendment 46 (GMFMC 2017b), the SSC used the “low recruitment scenario” for 2014–2018, with fleet selectivity, discards, and retention held constant. The implementation of Amendment 44 (GMFMC 2017a) changed the gray triggerfish status determination criteria (SDC) for minimum stock size threshold (MSST), resulting in the stock no longer determined to be overfished.

The SEDAR 62 (2019) stock assessment was intended to update catch advice using data through 2017; however, the assessment was withdrawn due to various impediments that will be addressed

in a future research track stock assessment. Therefore, SEDAR 43 is the last stock assessment to be accepted for gray triggerfish with a terminal data year of 2013. While the previously established ABC of 305,300 lbs ww was maintained, after SEDAR 62 was aborted, an interim analysis (2020) provided updated ABC advice for SSC consideration. Despite some reservations by the SSC regarding the robustness of an interim analysis approach and its assumption of a strong proportionality between the chosen index (Southeast Area Monitoring and Assessment Program (SEAMAP) combined video survey) and the ABC, the SSC decided the interim analysis was a useful tool for providing interim catch advice and determined it to be suitable for management advice. The SSC recommended an increase in the ABC to 456,900 lbs ww (in the MRIP-CHTS data currency) for 2021 – 2023 and that an updated interim analysis be completed and used as the basis for catch advice for 2024 forward if a new stock assessment has not yet been completed. Gray triggerfish catch advice will continue to be provided in MRIP-CHTS until the next stock assessment is completed. Previous ABC recommendations are still based on projections from the 2011 SEDAR 9 Update assessment. Even with recommended increased catch limits, the gray triggerfish stock is still on target to be rebuilt by 2025.

Use of an interim analysis for gray triggerfish

Unlike full stock assessments, interim analyses are designed to occur between regular SEDAR assessments to provide a quantitative method of adjusting catch advice, if needed, and determine stock status based on current stock conditions. Interim analyses use a fishery-independent index of abundance to make recommendations about changes in allowable harvest based on the trend in stock size relative to a pre-determined reference period. Interim analyses take less time to complete than other assessments but they still often require manual index selection, which takes time to conduct. Furthermore, it would not be feasible to use yearly interim analyses for catch advice due to the time it takes to complete and implement a regulatory change to catch levels. The SEFSC is interested in automating the interim analysis process in the future. The gray triggerfish interim assessment used SEAMAP’s combined video index as its representative index of abundance. This combined video index amalgamates video data collected by the NMFS Pascagoula Laboratory, the NMFS Panama City Laboratory, and the Florida Fish and Wildlife Research Institute, and was used to estimate the current trend in abundance for the stock. This survey was developed as part of Gulf SEDAR assessments (Pollack et al. 2015) to estimate relative abundance.

1.2 Purpose and Need

The purpose of the proposed actions is to modify the OFL, ABC, ACL, and ACT, as applicable, consistent with the most recent stock assessment for Gulf vermilion snapper and the interim analysis for gray triggerfish, and SSC, SEFSC, and Reef Fish AP recommendations.

The need for the proposed actions is to establish catch limits that achieve OY consistent with the requirements of the Magnuson-Stevens Fishery Conservation and Management Act, while preventing overfishing.

1.3 History of Management

This history of management covers events pertinent to the management of vermilion snapper and gray triggerfish in the Gulf. A complete history of management for the Reef Fish FMP is available on the Council's website². The original Reef Fish FMP [with its associated Environmental Impact Statement (EIS)] (GMFMC 1981) was implemented November 8, 1984.

1.3.1 Vermilion Snapper

Amendment 1 [with its associated environmental assessment (EA), regulatory impact review (RIR), and regulatory flexibility analysis (RFA)] to the Reef Fish FMP, implemented in 1990, established a minimum size limit of 8 inches TL for vermilion snapper.

Amendment 12 (with its associated EA and RIR), implemented in January 1997, created an aggregate bag limit of 20 reef fish for all reef fish species not having a bag limit (including vermilion snapper).

Amendment 15 (with its associated EA, RIR, and RFA), implemented in January 1998, increased the vermilion snapper minimum size limit from 8-inches TL to 10-inches TL.

Amendment 23 [with its associated supplemental environmental impact statement ((EIS), RIR, and RFA)], implemented in July 2005, established a rebuilding plan for vermilion snapper, increasing the minimum size limit to 11-inches TL, implementing a 10-fish vermilion snapper bag limit within the 20-reef fish aggregate bag limit, and established an April 22 through May 31 closed season for the commercial sector. Furthermore, it established MSY for vermilion snapper as the yield associated with F_{MSY} when the stock is at equilibrium. It also established a maximum fishing mortality threshold (MFMT) where $MFMT = F_{MSY}$, and a MSST, where $MSST = (1-M)*B_{MSY}$ or B_{MSY} proxy.

A February 2007 Framework Action (with its associated EA, RIR, and RFA), revised management measures for vermilion snapper to those prior to implementation of Reef Fish Amendment 23 by reducing the minimum size limit from 11-inches TL to 10-inches TL; eliminating the 10-fish bag limit for vermilion snapper, but retaining the 20-fish aggregate bag limit for those reef fish species without a species-specific bag limit, and eliminating the April 22 through May 31 commercial closed season.

The **Generic ACL/AM Amendment** (with its associated EIS, RIR, and RFA), implemented in January 2012, established an OFL and ACL; an ACT is not used for management purposes. It also established an in-season closure authority for when vermilion snapper landings reach or are projected to reach the ACL.

A September 2013 Framework Action (with its associated EA, RIR, and RFA) re-established a 10-vermilion snapper recreational bag limit within the 20-reef fish aggregate bag limit.

² <http://gulfcouncil.org/fishery-management/implemented-plans/reef-fish/>

Amendment 44 (with its associated EA), implemented in 2017, re-defined MSST for seven reef fish species including vermilion snapper. MSST was re-defined to be 50% of the BMSY proxy.

Amendment 47 (with its associated EA, RIR, and RFA), implemented in 2018, decreased the ABC and ACL as a constant catch. An ACT was not set. MSY was updated to be $F_{30\% SPR}$.

1.3.2 Gray Triggerfish

Amendment 1 (with its associated EA, RIR, and RFA), implemented in 1990, added gray triggerfish to the fishery management unit and provided a framework procedure for specifying the total allowable catch. The framework procedure specified that allocations between the commercial and recreational sectors were based on historical landing percentages from average landings during 1979-1987.

Amendment 12 (with its associated EA and RIR), implemented in January 1997, created an aggregate bag limit of 20-reef fish for all reef fish species not having a bag limit, including gray triggerfish.

Amendment 16B (with its associated EA and RIR), implemented in 1999, established a gray triggerfish 12-inch (TL) minimum size limit.

Amendment 30A (with its supplemental EIS, RIR and RFA), implemented in 2008, was developed in part to stop overfishing of gray triggerfish and rebuild the overfished stock. The amendment established the MSY, MSST, and OY status determination criteria, and set ACLs, ACTs and AMs, set sector allocations of 21% commercial and 79% recreational, and increased the gray triggerfish minimum size limit to 14-inches FL. The size limit was changed from TL to FL to assist fishermen in measuring gray triggerfish.

The **2012 interim rule** reduced the recreational and commercial ACLs and ACTs, respectively, after the results of the 2011 Update Assessment (SEDAR 9 Update 2011) until Amendment 37 could be finalized.

Amendment 37 (with its associated EA, RIR, and RFA), implemented in June 2013, made the reductions in ACLs and ACTs for both sectors permanent and established the objective of rebuilding the stock within 5 years or less. The rebuilding plan also modified the recreational AMs to replace the existing AM with an in-season closure authority based on the recreational ACT. A post-season overage adjustment was also added to the recreational AMs. Any overages for the recreational ACL are applied only if the stock is overfished, and the ACL and ACT are reduced by the amount of the overage in the following season. Amendment 37 also established a fixed closed season for gray triggerfish during peak spawning (June 1 through July 31) for both the recreational and commercial sectors. The daily recreational bag limit was reduced to 2 gray triggerfish per angler within the 20-reef fish aggregate bag limit and a commercial trip limit of 12 fish was implemented.

Amendment 44 (with its associated EA), implemented in 2017, re-defined MSST for seven reef fish species including gray triggerfish. MSST was re-defined to be 50% of the BMSY proxy.

Amendment 46 (with its associated EA, RIR, and RFA), implemented in 2018, established a rebuilding time period of 9 years, or the end of 2025, modified the recreational seasonal closure to be January 1 through the end of February, and June 1 through July 31, reduced the recreational bag limit to 1 gray triggerfish per angler per day within the 20-reef fish aggregate bag limit, increased the recreational minimum size limit for gray triggerfish to 15-inches FL and increased the commercial trip limit for gray triggerfish to 16 fish per trip.

CHAPTER 2. MANAGEMENT ALTERNATIVES

2.1 Action 1 – Modify the Gulf of Mexico (Gulf) Vermilion Snapper Overfishing Limit (OFL), Acceptable Biological Catch (ABC), and Annual Catch Limit (ACL).

Alternative 1: No Action. Retain the OFL, ABC, and ACL for the vermilion snapper stock as implemented in 2018 by Reef Fish Amendment 47.

Year	OFL	ABC	ACL
2021+	3,580,000	3,110,000	3,110,000

Note: Values are in pounds whole weight. Units are in MRIP-CHTS.

Alternative 2: Modify the OFL, ABC, and ACL for vermilion snapper based on the recommendation of the Scientific and Statistical Committee (SSC) for a constant catch yield for 2021 to 2025, and then maintains the ACL at the 2025 level for subsequent fishing years or until changed by management. The stock ABC equals OY and the ACL equals the ABC.

Year	OFL	ABC	ACL
2021-2025+	8,600,000	7,270,000	7,270,000

Note: Values are in pounds whole weight. Units are in MRIP-FES.

Discussion

Alternative 1 (No Action) retains the existing OFL, ABC, and ACL: catch limits that are based on the previous vermilion snapper stock assessment (SEDAR 45 2015). The ACL is equal to the ABC adopted in 2018 under Amendment 47 (GMFMC 2017c) to the Fishery Management Plan for Reef Fish Resources in the Gulf of Mexico (Reef Fish FMP), which set the ACL for vermilion snapper for the years 2017 - 2021 as the constant catch average of the 5-year annual ACLs when fishing at 75% of the maximum sustainable yield (MSY) proxy of fishing mortality at 30% spawning potential ratio ($F_{30\%SPR}$). The OFL, ABC and ACL in **Alternative 1** are presented in the Marine Recreational Information Program's Coastal Household Telephone Survey (MRIP-CHTS) data currency, which no longer represents best scientific information available based on the recommendations given by the SSC from the most recent SEDAR 67 stock assessment. Furthermore, one of the major changes between the SEDAR 45 (2016) and SEDAR 67 (2020) base models is the incorporation of the MRIP Fishing Effort Survey (FES) adjustments to the recreational catch and effort estimates. SEDAR 67 used MRIP-FES for yield projections; due to this transition in data currency, retaining the OFL, ABC and ACL in MRIP-CHTS units as presented in **Alternative 1** would require recreational landings monitored in MRIP-FES units to be converted to MRIP-CHTS units.

The SEDAR 67 stock assessment determined the vermilion stock was neither overfished nor experiencing overfishing. The SSC determined SEDAR 67 to be the best scientific information available and, based on the assessment, recommended an OFL and ABC yield stream for 2021 – 2025 and beyond. The SSC thought it more appropriate to recommend average (constant catch)

yields as opposed to annual yields, as constant catch may help account for year-to-year variability while also providing consistency for stakeholders. A buffer between the OFL and the ABC would remain in place to account for scientific uncertainty, and is determined using the Council’s ABC Control Rule.

An alternative that contains a buffer between the ABC and ACL is not considered herein because the vermilion snapper stock is not overfished and is not experiencing overfishing. Further, landings of vermilion snapper have only exceeded the stock ACL once (in 2018; see Table 1.1.1). As such, accounting for additional management uncertainty in the form of a buffer between the ACL and the ABC has not been determined to be necessary by the Council. Accountability measures (AM) for vermilion snapper are based on the ACL, and apply to all fishing activity on the stock (recreational and commercial). This AM was adopted in the Generic ACL/AM Amendment (GMFMC 2011) and states that if the ACL is reached or projected to be reached within a fishing year, the fishing season is to close for the remainder of the fishing year.

Alternative 2 sets a constant catch ACL, which is equal to the ABC, for 2021-2025, and then maintains the ACL at the 2025 level for subsequent years until changed by future management action. The ABC, which equals the optimum yield (OY), is currently equal to the ACL. The ABC in this alternative is set lower than the OFL to account for scientific uncertainty. The catch limits proposed in **Alternative 2** also differ from **Alternative 1** because of the recreational survey data currency used to generate the catch limits. Catch limits for **Alternative 2** are calculated using the MRIP-FES data currency; landings data for vermilion snapper are currently collected in MRIP-FES and then must be back-calibrated to MRIP-CHTS for quota monitoring purposes under **Alternative 1**. Table 2.1.1 was generated within the most recent stock assessment (SEDAR 67 2020) to show the effect of the MRIP-FES data on the equilibrium yield, which is shown in millions of pounds whole weight (mp ww). The increase in projected biomass is due largely to the transition from MRIP-CHTS to MRIP-FES, and partly due to exceptional recruitment in 2015 and 2016.

Table 2.1.1. Summary of projections at $F_{SPR30\%}$ completed using the original SEDAR 45 base model, the SEDAR 45 base model with the recreational data updated to the FES values, and the SEDAR 67 base model in FES.

Model	Terminal Year	SSB	$F_{SPR30\%}$	SSB_0	$SSB_{FSPR30\%}$	Equilibrium Yield
SEDAR 45 (CHTS)	2014	1.91E+14	0.103	6.56E+14	1.97E+14	3.35
SEDAR 45 (if in FES)	2014	2.28E+14	0.14	6.51E+14	1.96E+14	5.19
SEDAR 67 (FES)	2017	2.22E+14	0.135	6.73E+14	2.02E+14	5.91

Note: Equilibrium yield is shown in millions of pounds whole weight.

2.2 Action 2 –Modify the Gray Triggerfish ABC, ACLs, and ACTs

Alternative 1: No Action. Retain the ABC, ACL, and ACT for gray triggerfish as implemented in 2017 by Reef Fish Amendment 46.

Year	OFL	ABC	Recreational ACL	Recreational ACT	Commercial ACL	Commercial ACT
2019+	1,220,000	305,300	241,200	217,100	64,100	60,900

Note: Values are in pounds whole weight. Units are in MRIP-CHTS. The OFL reflects the SSC’s January 2016 recommendation.

Alternative 2: Modify the ABC, ACL, and ACT for gray triggerfish based on the results of the 2020 interim analysis, the recommendations of the Council’s SSC, and Reef Fish Advisory Panel (Reef Fish AP). Apply the ACL/ACT Control Rule to determine the buffer between the ACL and ACT for the recreational and commercial sectors, respectively.

Year	OFL	ABC	Recreational ACL	Recreational ACT	Commercial ACL	Commercial ACT
2021+	1,220,000	456,900	360,951	274,323	95,949	88,273

Note: Values are in pounds whole weight. Units are in MRIP-CHTS. The OFL reflects the SSC’s January 2016 recommendation.

Discussion

Alternative 1 (No Action) would maintain the current catch limits defined in Amendment 37 (GMFMC 2013), which used Amendment 30A (GMFMC 2008) to determine the sector allocations (79% recreational, 21% commercial), and retains the Council’s ACL/annual catch target (ACT) Control Rule that determined the buffers between the sector ACLs and ACTs. Based on an ABC equal to 305,300 lbs ww, the commercial ACL was set at 64,100 lbs ww and the recreational ACL was set equal to 241,200 lbs ww. Currently, the commercial ACT is 60,900 lbs ww (commercial ACL reduced by 5%) and the recreational ACT is 217,100 lbs ww (recreational ACL reduced by 10%). The catch limits in **Alternative 1** do not reflect the SSC’s recent ABC recommendation based on the 2020 gray triggerfish interim analysis, or the Reef Fish Advisory Panel’s (AP) request to set the total ACL equal to the ABC based on that interim analysis. The stock is still in a rebuilding plan, and is currently considered not overfished and not experiencing overfishing. Based on the 2020 interim analysis, the Southeast Fisheries Science Center (SEFSC) recommended an increase in the ABC from 305,300 lbs ww to 456,900 lbs ww for 2021 and subsequent fishing years (**Alternative 2**). The SSC did not recommend changes to the OFL, but as discussed above, this assumes the SSC’s previous OFL recommendation from January 2016 had been adopted in Amendment 46 because otherwise the SSC’s ABC recommendation would exceed the previously established OFL of 401,600 lbs ww. Therefore, the OFL in **Alternative 1** and **Alternative 2** are the same and reflect the SSC’s January 2016 recommendation. After review of the interim analysis and its catch limit recommendations, the SSC found the gray triggerfish interim analysis to be suitable for management advice, and also recommended the ABC be increased to 456,900 lbs ww.

Under the current sector allocations, **Alternative 2** would increase the recreational ACL to 360,951 lbs ww and the commercial ACL to 95,949 lbs ww. **Alternative 2** also applies the Council's ACL/ACT Control Rule to calculate a new buffer of 24% between the recreational ACL and ACT, and an 8% buffer between the commercial ACL and ACT. These buffers are determined by comparing the sector-specific landings and ACLs for the years 2016-2019, and by considering the method by which quota monitoring is performed and stock condition. Increasing the buffers between the ACL and ACT for both sectors was presented as an alternative in Amendment 46 (GMFMC 2017b), however, the Council chose to take No Action at that time. Increasing the buffer now may help constrain landings below the respective ACLs. Both sectors have exceeded their ACLs multiple times since 2008 (Table 1.1.2 and 1.1.2); however, the recreational sector has experienced more overages than the commercial sector.

Although gray triggerfish recreational landings are currently recorded in MRIP-FES, they will be back-calibrated to MRIP-CHTS to be directly comparable to the catch limits which will remain in MRIP-CHTS for quota monitoring purposes, regardless of whether **Alternative 1** or **Alternative 2** is selected as preferred. Updating the catch limits to MRIP-FES data currency will require a stock assessment.

2.3 Action 3 –Modify the Gray Triggerfish Recreational Fixed Closed Season

Alternative 1: No Action. Retain the current recreational fixed closed season (January 1 through the end of February and June 1 through July 31) for gray triggerfish.

Alternative 2: Modify the recreational fixed closed season for gray triggerfish to be January 1 through January 31 and June 1 through July 31.

Alternative 3: Modify the recreational fixed closed season for gray triggerfish to be February 1 through the end of February and June 1 through July 31.

Alternative 4: Modify the recreational fixed closed season for gray triggerfish to be June 1 through July 31.

Table 2.3.1 Months of the current (Alternative 1) and proposed (Alternatives 2-4) fixed closed season (shaded in black) and months that may be open (white), provided the ACT has not been met or projected to have been met for the fishing year beginning on January 1.

Alt 1	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Alt 2	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Alt 3	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Alt 4	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec

CHAPTER 3. REFERENCES

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ACL/ACT Buffer Spreadsheet		version 4.1 - April 2011		Sector: Commercial	
sum of points	1.5			Years: 2016-2019	
max points	5.5	Buffer between ACL and ACT (or ABC and ACL)		Unweighted	6
Min. Buffer	0 min. buffer	User adjustable		Weighted	8
Max Unw. Buff	23 max unwt. Buff				
Max Wtd Buff	30 max wtd. buffer	User adjustable			
Component	Element score	Element	Selection	Element result	
Stock assemblage		0 This ACL/ACT is for a single stock.	x		0
		1 This ACL/ACT is for a stock assemblage, or an indicator species for a stock assemblage			
Ability to Constrain Catch		0 Catch limit has been exceeded 0 or 1 times in last 4 years	1	0.5	
		1 Catch limit has been exceeded 2 or more times in last 4 years For the year with max. overage, add 0.5 pts. For every 10 percentage points (rounded up) above ACL Not applicable (there is no catch limit)	0.5		
		Apply this component to recreational fisheries, not commercial or IFQ fisheries			
Precision of Landings Data Recreational		0 Method of absolute counting		not applicable	
		1 MRIP proportional standard error (PSE) <= 20			
		2 MRIP proportional standard error (PSE) > 20			
		Not applicable (will not be included in buffer calculation)	x		
		Apply this component to commercial fisheries or any fishery under an IFQ program			
Precision of Landings Data Commercial		0 Landings from IFQ program		1	
		1 Landings based on dealer reporting	x		
		2 Landings based on other			
		Not applicable (will not be included in buffer calculation)			
Timeliness		0 In-season accountability measures used or fishery is under an IFQ	x	0	
		1 In-season accountability measures not used			
			Sum		1.5
Weighting factor					
	Element weight	Element	Selection	Weighting	
Overfished status		0 1. Stock biomass is at or above B_{OY} (or proxy).		0.2	
		0.1 2. Stock biomass is below B_{OY} (or proxy) but at or above B_{MSY} (or proxy).			
		0.2 3. Stock biomass is below B_{MSY} (or proxy) but at or above minimum stock size threshold (MSST).	x		
		0.3 4. Stock is overfished, below MSST.			
		0.3 5. Status criterion is unknown.			

Figure A2. Council's ACL/ACT Control Rule for the commercial gray triggerfish sector using years 2016 – 2019.

APPENDIX B. CHANGES TO RECREATIONAL DATA COLLECTION

Changes to the Recreational Data Collection Survey

The Marine Recreational Fisheries Statistics Survey (MRFSS) was created in 1979 by NMFS. In the Gulf, MRFSS collected data on catch and effort in recreational fisheries, including vermilion snapper and gray triggerfish; the first recreational fishing estimates became available in 1981. The program included the Access Point Angler Intercept Survey (APAIS), which consisted of onsite interviews at marinas and other points where recreational anglers fish, to determine catch. MRFSS also included the coastal household telephone survey (CHTS), which used random-digit dialing of homes in coastal counties to contact anglers to determine fishing effort. In 2000, the For-Hire Survey (FHS) was implemented to incorporate for-hire effort due to lack of coverage of charter boat anglers by the CHTS. The FHS used a directory of all known charter boats and a weekly telephone sample of the charter boat operators to obtain effort information.

MRFSS included both offsite telephone surveys and onsite interviews at marinas and other points where recreational anglers fish. In 2008, the Marine Recreational Information Program (MRIP) was established to replace MRFSS to meet increasing demand for more precise, accurate, and timely recreational catch estimates. After the National Academies of Sciences identified potential sources of bias in the sampling process, catch survey protocols were revised. This led to a new design for the APAIS that was certified and subsequently implemented in 2013 to measure recreational catch on the Atlantic and Gulf coasts. This significantly improved how intercepts were conducted. This new design addressed concerns regarding the validity of the survey approach, specifically that trips recorded during a given time period were representative of trips for a full day (Foster et al. 2018). The more complete temporal coverage with the new survey design provided for consistent increases or decreases in APAIS angler catch rate statistics, which are used in stock assessments and management, for at least some species (NOAA Fisheries 2019).

MRIP is a more scientifically sound methodology for estimating catch because it reduces some sources of potential bias as compared to MRFSS resulting in more accurate catch estimates. Specifically, CHTS was improved to better estimate private angling effort. Instead of random telephone calls, MRIP-CHTS used targeted calls to anglers registered with a federal or state saltwater fishing registry. Subsequently, MRIP transitioned from the CHTS to a new mail-based Fishing Effort Survey, (FES) beginning in 2015, and in 2018, replaced the CHTS. Both survey methods collect data needed to estimate marine recreational fishing effort (number of fishing trips) by shore and private/rental boat anglers on the Atlantic and Gulf coasts. The CHTS used random-digit dialing of homes in coastal counties to contact anglers. The new mail-based FES uses angler license and registration information as one way to identify and contact anglers (supplemented with data from the U.S. Postal Service, which includes virtually all U.S. households). Because the FES and CHTS are so different, NMFS conducted side-by-side testing of the two methods from 2015 to 2018 and developed calibration procedures to convert the historical catch estimates (MRFSS, MRIP-CHTS, MRIP-APAIS [collectively MRFSS]) into MRIP-FES. In general, landings estimates are higher using the MRIP-FES as compared to the

MRFSS estimates. This is because the FES is designed to more accurately measure fishing activity than the CHTS, not because there was a sudden rise in fishing effort. NMFS developed a calibration model to adjust historic effort estimates so that they can be accurately compared to new estimates from the FES. The new effort estimates alone do not lead to definitive conclusions about stock size or status in the past or currently. NMFS determined that the MRIP-FES data, when fully calibrated to ensure comparability among years and across states, produced the best available data for use in stock assessments and management (NOAA Fisheries 2019).

APPENDIX C. VERMILION SNAPPER RECREATIONAL LANDINGS BY STATE

Table C1. Vermilion snapper recreational landings by state in MRIP-FES. Landings are in pounds whole weight.

Year	AL	AL/FLW	FLW	LA	LA/MS	MS	TX	Total
1986	66759	261887	426178	5089	1645	0	35208	796767
1987	108427	248378	638794	1910	157	0	35338	1033004
1988	337757	299202	620598	0	730	0	33981	1292267
1989	114839	165018	503293	0	615	0	63182	846946
1990	298275	208218	503795	971	614	213	110862	1122948
1991	318577	215735	910932	11732	1377	1110	80113	1539575
1992	626599	288268	687179	103282	5737	1304	96119	1808489
1993	448152	235796	775791	3672	7383	5935	66043	1542772
1994	415183	219480	352499	2883	2623	59	115253	1107981
1995	231512	189850	584594	3450	3004	0	119260	1131670
1996	148422	126805	110310	2320	1002	0	102851	491711
1997	249385	110851	268745	12611	605	1508	122806	766510
1998	170639	74121	133667	11182	209	0	82410	472228
1999	413621	104948	378487	11642	1467	2995	63193	976353
2000	67491	100639	154296	0	941	0	75034	398400
2001	345330	103920	549510	19215	1065	0	78119	1097160
2002	421289	110963	671039	18730	755	0	100183	1322960
2003	147742	171872	662732	39806	824	1745	123313	1148033
2004	178650	179768	486967	70321	0	6040	125535	1047281
2005	220577	158493	262991	1827	0	0	105081	748969
2006	104184	172956	499969	33688	0	1766	64221	876784
2007	51871	116194	563896	20437	106	0	130654	883159
2008	101492	162457	288737	60710	612	0	24791	638799
2009	109468	262692	645589	111	228	0	39070	1057158
2010	120645	154610	416996	0	3	0	53485	745740
2011	276732	401545	1156462	0	366	0	49701	1884806
2012	42619	232842	1053110	0	528	0	49810	1378908
2013	308412	0	1443835	2104	234	0	71600	1826184
2014	441085	0	1236427	3822	86	0	62654	1744076
2015	323329	0	1133002	7308	2733	0	75802	1542174
2016	173367	0	1119890	10812	787	167007	55278	1527140
2017	639526	0	1716197	19115	784	0	70817	2446438
2018	534896	0	2306633	22429	647	9295	66311	2940211
2019	406439	0	1717236	57452	2669	2040	75942	2261778

Source: SEFSC MRIP-FES Recreational ACL data (May 8, 2020).

Table C2. Vermilions snapper recreational landings in MRIP-CHTS units. Landings are in pounds whole weight.

Year	AL	AL/FLW	FLW	LA	LA/MS	MS	TX	Total
1986	67999	261887	320576	2888	1645	0	35208	690204
1987	52654	248378	311405	2215	157	0	35338	650147
1988	79977	299202	409152	0	730	0	33981	823041
1989	94183	165018	298367	0	615	0	63182	621366
1990	463101	208218	212565	2402	614	757	110862	998518
1991	296212	215735	457640	11811	1377	14138	80113	1077026
1992	455983	288268	324314	36398	5737	631	96119	1207451
1993	446300	235796	449031	1597	7383	1534	66043	1207684
1994	239661	219480	235490	7231	2623	439	115253	820176
1995	239663	189850	398064	5971	3004	0	119260	955812
1996	181308	126805	91412	2089	1002	0	102851	505468
1997	318078	110851	147378	8021	605	1722	122806	709460
1998	183024	74121	65282	4191	209	0	82410	409237
1999	248620	104948	126267	3771	1467	1171	63193	549436
2000	45407	100639	115944	0	941	0	75034	337965
2001	226033	103920	226599	7919	1065	0	78119	643657
2002	151974	110963	206554	7898	755	0	100183	578327
2003	106906	171872	214840	19937	824	886	123313	638578
2004	128845	179768	291286	78254	0	2106	125535	805794
2005	84511	158493	171968	2487	0	0	105081	522541
2006	80522	172956	245926	35234	0	643	64221	599503
2007	38016	116194	307061	22138	106	0	130654	614170
2008	89961	162457	192836	50571	612	0	24791	521228
2009	57601	262692	325519	132	228	0	39070	685242
2010	47475	154610	214598	0	3	0	53485	470171
2011	173871	401545	518957	0	366	0	49701	1144439
2012	30822	232842	405924	0	528	0	49810	719926
2013	210578	0	847132	1492	234	0	71600	1131035
2014	240265	0	857239	3822	86	0	62654	1164066
2015	181524	0	707130	7308	2733	0	75802	974497
2016	125353	0	779898	10812	787	38250	55278	1010377
2017	261733	0	1127232	19115	784	0	70817	1479681
2018	360035	0	1344814	22429	647	3579	66311	1797815
2019	263813	0	955321	57452	2669	564	75942	1355761

Source: SEFSC MRIP-CHTS Recreational ACL data (May 18, 2020).