

Modifications to Vermilion Snapper Overfishing Limit, Allowable Biological Catch and Annual Catch Limits



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

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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 Catch Levels including Environmental Assessment.

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Type of Action

() Administrative
(X) Draft

() Legislative
() 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 is 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 vermillion snapper stock consistent with recommendations from the Gulf of Mexico Fishery Management Council's (Council) Scientific and Statistical Committee (SSC).

A recent stock assessment for *vermillion 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 deemed suitable for management advice. The SSC determined that the stock was not overfished or experiencing overfishing, and could support higher catch levels. The SSC provided new catch recommendations to the Council, which are detailed in Chapter 2. Vermilion snapper is currently not overfished and is not experiencing overfishing.

Establishment of vermillion 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 vermillion snapper including the OFL, ABC, and ACL (GMFMC 2011). Amendment 47 (GMFMC 2017) 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. SEDAR 45 identified a proxy for fishing mortality at maximum sustainable yield (F_{MSY}) as 30% of the fishing mortality at a spawning potential ratio of 30% ($F_{SPR30\%}$). SEDAR 45 used a statistical catch-at-age model to evaluate vermillion snapper, and represented a more data-rich assessment of the stock than was previously performed under the SEDAR 9 (2006) and SEDAR 9 Update (2012) stock assessments. The preferred alternative set a constant catch ACL of 3.11 mp ww based on the F30% SPR proxy. Vermilion snapper annual landings have been below this ACL since implementation in 2012. Therefore, this preferred alternative was not expected to have any change to the impact on vermillion population.

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 vermillion snapper, lane snapper, gray triggerfish, almaco jack, and tilefishes (golden, blueline, and goldface). There is no commercial trip limit. The fishing season for vermillion snapper is open year-round from January 1 – December 31 and harvest is monitored as a single stock with no sector allocation. 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 AM, such as an overage adjustment, for vermillion 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 approximately 3% 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 2017). 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. Vermilion snapper harvest data are presented in Table 1.1.1. The National Marine Fisheries Service (NMFS) transitioned from monitoring the catch limit using the Marine Recreational Fisheries Statistics Survey (MRFSS) to the Marine Recreational Information Program's Coastal Household Telephone Survey (MRIP-CHTS) in 2018 following the implementation of catch limits based on SEDAR 45 (2016). The current stock ACL is monitored in MRIP-CHTS (presented in Table 1.1.1); however, recreational landings as currently recorded in the new MRIP Fishing Effort Survey (FES) data currency and are provided in Table 1.1.2; these MRIP-FES landings are currently calibrated back to the MRIP-CHTS data currency for quota monitoring purposes, since it is in the MRIP-CHTS data currency that the catch limits were established. 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 landings by sector, stock ACL and percent ACL landed (2012 – 2020). Landings are in pounds whole weight (lbs ww) using MRIP-CHTS data units.

| Year | Recreational | Commercial | Total Landings | Stock ACL | Total Landings (% ACL) |
|------|--------------|------------|----------------|-----------|------------------------|
| 2012 | 719,926 | 2,441,360 | 3,161,286 | 3,420,000 | 92.4% |
| 2013 | 1,131,054 | 1,418,401 | 2,549,455 | 3,420,000 | 74.5% |
| 2014 | 1,147,574 | 1,745,222 | 2,892,796 | 3,420,000 | 84.6% |
| 2015 | 1,053,269 | 1,352,934 | 2,406,203 | 3,420,000 | 70.4% |
| 2016 | 1,118,252 | 1,565,364 | 2,683,616 | 3,420,000 | 78.5% |
| 2017 | 1,479,681 | 1,612,859 | 3,092,540 | 3,420,000 | 90.4% |
| 2018 | 1,797,815 | 1,398,445 | 3,196,260 | 3,110,000 | 102.8% |
| 2019 | 1,355,763 | 1,283,633 | 2,639,396 | 3,110,000 | 84.9% |
| 2020 | 1,058,136 | 860,613 | 1,918,750 | 3,110,000 | 61.7% |

Source: MRIP data from MRIPACLspec_rec81_21wv3_01Sep21w2014to2020LACreel.xlsx; Commercial landings from M. Larkin (NMFS-SERO). September 24, 2021.

Table 1.1.2. Vermilion snapper recreational landings by mode (2012-2020). Landings are in lbs ww using MRIP-FES data units.

| Year | Charter | Headboat | Private | Total |
|------|---------|----------|-----------|-----------|
| 2012 | 170,651 | 283,132 | 925,125 | 1,378,908 |
| 2013 | 302,959 | 302,328 | 1,220,917 | 1,826,204 |
| 2014 | 466,349 | 330,088 | 947,619 | 1,744,056 |
| 2015 | 367,276 | 338,865 | 836,032 | 1,542,173 |
| 2016 | 529,907 | 311,779 | 685,455 | 1,527,140 |
| 2017 | 660,805 | 430,518 | 1,355,116 | 2,446,438 |
| 2018 | 741,305 | 541,200 | 1,657,706 | 2,940,211 |
| 2019 | 458,612 | 409,294 | 1,393,872 | 2,261,779 |
| 2020 | 515,246 | 328,792 | 703,432 | 1,547,470 |

Source: FES data from MRIP_FES_rec81_21wv3_01Sep21w2014to2020LACreel.xlsx.
September 24, 2021

Recent vermilion snapper stock assessments

In 2012, the vermilion snapper ABC and ACL were set at 3.42 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, 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 an MSY proxy of 30% spawning potential ratio (SPR) for spawning stock biomass ($SSB_{30\% SPR}$) and fishing mortality ($F_{SPR30\%}$), 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 $F_{SPR30\%}$. 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 (GMFMC 2017).

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 (in the MRIP-FES data currency) was made based on the yield at $F_{SPR30\%}$. The SSC also provided a constant catch ABC recommendation of 7.27 mp ww (in the MRIP-FES data currency) for 2021 through 2025 based on the yield when fishing at 75% of $F_{SPR30\%}$ with the ABC equal to OY.

1.2 Purpose and Need

The purpose of the proposed actions is to modify the OFL, ABC, and ACL, as applicable, consistent with the most recent stock assessment for Gulf vermilion snapper, and SSC 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 in the Gulf. A complete history of management for the Reef Fish FMP is available on the Council's website¹. 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).

¹ <http://gulfcouncil.org/fishery-management/implemented-plans/reef-fish/>

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.

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 B_{MSY} 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 the yield when fishing at $F_{30\% SPR}$.

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+ (MRIP-CHTS) | 3,580,000 | 3,110,000 | 3,110,000 |

Note: Values are in lbs whole weight (ww).

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+ (MRIP-FES) | 8,600,000 | 7,270,000 | 7,270,000 |

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

Discussion

Alternative 1 (No Action) retains the existing OFL, ABC, and ACL that were based on the previous vermilion snapper stock assessment (SEDAR 45 2016). The ACL is equal to the ABC implemented 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+ (“+” denotes: “and subsequent years”) 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 ($F_{SPR30\%}$). 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 (2020) stock assessment. Furthermore, one of the major changes between the SEDAR 45 (2016) and SEDAR 67 base models is the incorporation of the MRIP Fishing Effort Survey (FES) adjustments to the recreational catch and effort estimates, which are generally twice as large as those generated by MRIP-CHTS. 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. Because the catch limits in **Alternative 1** do not represent the best scientific information available, **Alternative 1** is not a viable alternative under National Standard 2 of the Magnuson-Stevens Fishery Conservation and Management Act.

The SEDAR 67 stock assessment determined that vermilion snapper 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 Gulf of Mexico Fishery Management Council’s (Council) 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 lbs (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 _{$F_{SPR30\%}$} | 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.

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APPENDIX A. 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 B. 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. Vermilion 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).