# **Red Snapper General Recreational Open and Closed Season Discard Development**

Gulf of Mexico Fisheries Branch

Sustainable Fisheries Division

NOAA Fisheries - Southeast Fisheries Science Center

Corresponding authors email ([latreese.denson@noaa.gov](mailto:latreese.denson@noaa.gov), *matthew.w.smith@noaa.gov*)

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# Abstract

General recreational survey data consists of catch and effort information from the Marine Recreational Information Program (MRIP), the Louisiana Department of Wildlife and Fisheries recreational saltwater landings data collection program (LA Creel), and the Texas Parks and Wildlife Department (TPWD). In order to get an accurate representation of the population, General Recreational discards, in numbers, are used in the stock assessment model. Due to changes in regulations (quotas, season length, etc.), tracking discards separately for the recreational fishing components (private and the for-hire/charter), in both the open and closed season is necessary. Code to reproduce data summaries can be found on GitHub (Denson 2022). Partitioned results indicate that the number of discarded red snapper is higher for the private component of the General Recreational fishery compared to the for-hire component. When taking the three stock ID regions (east, central and west) into consideration, the Central Stock ID region accounts for the largest portion of discards annually, regardless of the fishery component.

# Introduction

The Office of Science and Technology (OST) collects catch and effort data through their Marine Recreational Information Program (MRIP) (SEDAR68-DW-13). This along with the surveys from the Louisiana Department of Wildlife and Fisheries recreational saltwater landings data collection program (LA Creel) (SEDAR74-DW-04), and the Texas Parks and Wildlife Department (TPWD) (SEDAR70-WP-03) are combined to form the general recreational survey data for red snapper in the Gulf of Mexico (SEDAR74-DW-01). MRIP survey data begins in 1981 and covers multiple recreational fishing components (private, for-hire/charter, head boat 1981-1985). The information recorded by MRIP includes landings (AB1) and discards (B2) which are estimated by the Southeast Fisheries Science Center (SEFSC) using SEDAR best practices (SEDAR-PW-07). In order to account for the contribution of discards to the Gulf of Mexico red snapper population General Recreational discards, in numbers, are summarized annually by stock ID region, for each season (open or closed), and recreational fishing component.

General Recreational discards are initially calculated by mode, wave and season (open or closed), but if the season closes within a given wave the reported discards are not adjusted accordingly (i.e., they are assigned to the season that corresponds to the beginning of the wave) (SEDAR74-DW-01). Therefore, discards occurring within a wave where the recreational fishing season was initially open but subsequently closed require additional partitioning to prorate discards adequately between open and closed seasons. The process involves calculating the length of the open season (based on exact season closure dates) for any wave during which a closure occurred and prorating the discards for that wave between open and closed seasons based on the proportion of the wave that the season was open or closed. Discards are then summed for each season in a given year to provide the total open and closed season discards for that year. These calculations are necessary from 1997 on, because prior to this the recreational season lasted year round.

In 2013, Gulf States began to set their own season lengths for their state waters. Since 2015, the recreational fishing components private and for-hire/charter) have been assigned separate quotas resulting in different season lengths in the federal waters (GMFMC 2014). In 2018 and 2019, the private angling, component fishing seasons were officially set by each Gulf State through State recreational Red Snapper management Exempted Fishing Permits (EFPs) in both state and federal waters, while the federal for-hire component season continued to be set by the National Marine Fisheries Service ([EFP\_description](https://www.fisheries.noaa.gov/southeast/state-recreational-red-snapper-management-exempted-fishing-permits)). In 2020, an amendment to the fisheries management plan was made to provide limited authority to the Gulf States to manage private recreational fishing of red snapper in federal waters in the Gulf of Mexico, adjacent to their state waters (GMFMC 2019a-f). As such, partitioning between open and closed seasons must be calculated independently for each recreational fishing component, and with the consideration of discards from state and/or federal waters.

# Methods

## Determining Private vs. For-hire and Federal vs. State Season Lengths

Starting in 2013, the season length for the private component was split into season lengths in federal waters (Table 1) versus season lengths in the state waters (Table 2). Season length information was provided by the Southeast Regional Office as part of the Gulf of Mexico Red Snapper management history summary. An R script was used to tabulate season length based on annual regulations (see reg\_table.R script in GitHub repository). Given these season lengths, the proportion of days the season was open was calculated per wave, by each component. There are six waves in a year, starting in January. To get the proportion of open days in a wave, the number of open days in a wave was divided by the total number of days in a wave (i.e., total numbers of days in the wave months). Leap years are taken into consideration.

## Discards by Component, Stock ID region, and Season

### For-Hire Component

To determine the annual discards for each recreational fishing component, the General Recreational data (SEDAR74-DW-01) was first filtered for the For-hire fishing component and partitioned by federal season status (fed\_closed). A discard summary was created for each federal season status level (3). The factor levels for each record determine if the catch took place during a wave when the federal season was *Open*, *Closed*, or *Both* (fed\_closed = 0, 2, 1). The discard summary was created in terms of year, wave, and stock ID region (Gulf).

When there were both open and closed days in a wave (fed\_closed =1), the open season discards were calculated by multiplying the number of summarized discards by year, wave and stock ID region by the proportion of days open in that year and wave (no matter the stock ID region). To determine the number of discards observed during the closed portion of the wave, the resulting number of open season discards by year, wave and stock ID region were summarized across waves and subtracted from the total number of discards in that year and region (across all waves). Resulting in annul discards by stock ID region and season (open/closed).

When the wave was completely open (fed\_closed = 0), the discards in terms of year, and stock ID region were added to the open season discards calculated when fed\_closed equaled one (see above) for the same year, and stock ID regions. Similarly, the closed season portion of discards from fed\_closed equal to one, is added to discards when the wave is completely closed (fed\_closed = 2). The discards are summarized as open and closed season discards for each stock id region, each year in numbers from 1986-2019 (see 2\_Charter\_ForHire\_Discards.R script in GitHub repository).

### Private Component

For the recreational fishing private component, similar steps as those used for the for-hire component were followed until 2013.

From 2013 to 2016 the discard data is still summarized by wave, year, and stock ID region but it is filtered based on the jurisdiction the fishing took place in (state or federal waters). The proportion of days open from the mixed season waves (fed\_closed = 1) changes based on the jurisdiction. Determining open and closed season discards for those taking place in federal waters follow the season length from Table 1, determining those from state waters follow the season length of each state in Table 2. The state adjusted open wave proportions were multiplied by the discard summary filtered for the state water jurisdiction. These values were then summed across all waves similar to the process for discards pre-2013. This was also done for the federal jurisdiction using the federal season lengths, proportion open, and discard summary (see 3\_FedPrivate\_2016\_Discard.R script in GitHub repository). In 2017-2019 the seasons were all managed by the fisheries management plans (i.e., the states) so the season length no matter the jurisdiction is based on Table 2 (see 4\_StatePrivate\_2013\_2019\_Discards.R).

The final number of discards in the open and closed season for the private component are the summation of the state and federal discards annually by stock ID region and season.

# Results

General recreational discards vary based on stock ID region, season, and fishery component (Table 3 -6). The private component continuously has the largest number of discards across seasons, (Table 4-6) with the central region having on average more discards during the closed season (~1.5 million) than the open season (~1.2 million). Having more discards in the closed season is unique to the central region private recreational component as the open season discards are higher than the closed season discards on average in the east and the west. In the central and the western region, open season discards appear to decrease starting in 2005 in the west and 2007 in the central region. The eastern region is continuously under 500 thousand discards during the open season but experiences a spike starting in 2013. Closed season discards increase rapidly overtime for the central region while the west and east remain relatively stable, with the east having a large spike in 2011. For closed season discards in the west, it is important to note that the Texas state waters have always been open year around so there are no Texas closed season discards from state waters.

The General Recreation for-hire component contributes considerably less discards than the private component (Table 3). The central region only averages 249,000 fish annually in the open season compared to the 1.2 million fish from the private component open season. The for-hire component central region has the highest average annual discards compared to the east and west in both open and closed season. While the central region experiences discards in the hundreds of thousands the other regions only contribute thousands of discards annually. The median values for annual discards by region are lower than the average indicating that there are years with relatively high discards in all regions, pulling the average up. Similar to the private component in the open season, the for-hire component experiences a decrease in discards starting in 2007 for the central and western regions, while the east remains relatively flat. The closed season discards increase rapidly for the central region, while the east and west remain relatively constant, with a spike in the east in 2017.

In general, the temporal patterns across recreational components appear to coincide with the various shifts in management. The first major change besides initiating season closured in 1997was the reduction in season lengths in 2007-2008 (194 days to 65 days). For the private component, changes from federal to the state level management in 2013 and regional changes in season length, also appear to have an impact on spikes in discards.

It is important to note that these are estimates of discards in numbers and not actual observed discards although there has been a procedural workshop to ensure the accuracy of these estimates (SEDAR-PW-07). In addition to the assumptions made to produce the discard estimates, there are assumptions that go into splitting the open and closed season discards within a wave. Fisher behavior may change within that wave if the season is closing and the quota has or has not been met, skewing open and closed season discards from that wave. Using the proportion of days, open in a given wave attempts to rectify any bias this may cause but it is also an estimate. With this in mind, the approximation for the split of the proportion of days open for a wave is just an approximation and analyses could benefit from more temporally refined General Recreational data.

# References

Denson, L.S. (2022) OpenClosedRecDiscards [Source Code]. https://github.com/latreesedenson-NOAA/OpenClosedRecDiscards

LADWF. 2022. LA Creel/MRIP Red Snapper Private Mode Landings and Discards Calibration Procedure. SEDAR74-DW-4. SEDAR, North Charleston, SC. 38 pp.

GMFMC. 2014. Final Amendment 40 to the reef fish fishery management plan for the reef fish resources of the Gulf of Mexico – recreational red snapper sector separation. Gulf of Mexico Fishery Management Council, Tampa, Florida. 304 pp.

<http://www.gulfcouncil.org/docs/amendments/RF%2040%20-%20Final%2012-17-2014.pdf>

GMFMC. 2019a. Final amendment 50A to the fishery management plan for the reef fish resources of the Gulf of Mexico: state management program for recreational red snapper. Gulf of Mexico Fishery Management Council, Tampa, Florida. 278 pp. <http://gulfcouncil.org/wp-content/uploads/State-Management-Program-for-Red-Snapper-Final-5-23-2019.pdf>

GMFMC. 2019b. Louisiana management for recreational red snapper. Final amendment 50B to the fishery management plan for the reef fish resources of the Gulf of Mexico, including environmental assessment, regulatory impact review, and regulatory flexibility act analysis.

Gulf of Mexico Fishery Management Council, Tampa, Florida. 75 pp.

<https://gulfcouncil.org/wp-content/uploads/Louisiana-State-Management-5-23-2019_FINAL.pdf>

GMFMC. 2019c. Mississippi management for recreational red snapper. Final amendment 50C to the fishery management plan for the reef fish resources of the Gulf of Mexico, including environmental assessment, regulatory impact review, and regulatory flexibility act analysis.

Gulf of Mexico Fishery Management Council, Tampa, Florida. 75 pp.

<https://gulfcouncil.org/wp-content/uploads/Mississippi-State-Management-5-23-2019_FINAL.pdf>

GMFMC. 2019d. Alabama management for recreational red snapper. Final amendment 50D to the fishery management plan for the reef fish resources of the Gulf of Mexico, including environmental assessment, regulatory impact review, and regulatory flexibility act analysis.

Gulf of Mexico Fishery Management Council, Tampa, Florida. 75 pp.

<https://gulfcouncil.org/wp-content/uploads/Alabama-State-Management-5-23-2019_FINAL.pdf>

GMFMC. 2019e. Florida management for recreational red snapper. Final amendment 50E to the fishery management plan for the reef fish resources of the Gulf of Mexico, including environmental assessment, regulatory impact review, and regulatory flexibility act analysis.

Gulf of Mexico Fishery Management Council, Tampa, Florida. 75 pp.

<https://gulfcouncil.org/wp-content/uploads/Florida-State-Management-5-23-2019_FINAL.pdf>

GMFMC. 2019f. Texas management for recreational red snapper. Final amendment 50F to the fishery management plan for the reef fish resources of the Gulf of Mexico, including environmental assessment, regulatory impact review, and regulatory flexibility act analysis.

Gulf of Mexico Fishery Management Council, Tampa, Florida. 74 pp.

<https://gulfcouncil.org/wp-content/uploads/Texas-State-Management-5-23-2019_FINAL.pdf>

Matter, Vivian M. and Matthew A. Nuttall. 2020. Marine Recreational Information Program Metadata for the Atlantic, Gulf of Mexico, and Caribbean regions. SEDAR68-DW-13. SEDAR, North Charleston, SC. 16 pp.

Nuttall, Matthew A. and Vivian M. Matter. 2020. Texas Parks and Wildlife Department’s Marine Sport-Harvest Monitoring Program Metadata. SEDAR70-WP-03. SEDAR, North Charleston, SC. 25 pp.

Nuttall, Matthew A. 2022. General Recreational Survey Data for Red Snapper in the Gulf of Mexico. SEDAR74-DW-01. SEDAR, North Charleston, SC. 45 pp.

SEDAR. 2015. SEDAR-PW-07. SEDAR Procedural Workshop 7: Data Best Practices. SEDAR, North Charleston, SC. 151 pp.

# Tables

**Table 1.** Recreational season lengths with season open and close dates from the NOAA Southeast Regional Office for both modes (Private and For-hire). In 2018, the Private mode managed structure changes based on the Exempted Fishing Permits (EFP) and in 2020, the quotas were amended by Reef Fish Amendment 50 changing the season lengths.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Year** | **Mode** | **# Days** | **Open date** | **Close date** |
| Pre-1990 | Both | 365 | 1-Jan | 31-Dec |
| 1990 | Both | " | " | " |
| 1991 | Both | " | " | " |
| 1992 | Both | " | " | " |
| 1993 | Both | " | " | " |
| 1994 | Both | " | " | " |
| 1995 | Both | " | " | " |
| 1996 | Both | " | " | " |
| 1997 | Both | 330 | " | 27-Nov |
| 1998 | Both | 272 | " | 30-Sep |
| 1999 | Both | 240 | " | 29-Aug |
| 2000 | Both | 194 | 21-Apr | 1-Nov |
| 2001 | Both | " | " | 1-Nov |
| 2002 | Both | " | " | 1-Nov |
| 2003 | Both | " | " | 1-Nov |
| 2004 | Both | " | " | 1-Nov |
| 2005 | Both | " | " | 1-Nov |
| 2006 | Both | " | " | 1-Nov |
| 2007 | Both | " | " | 1-Nov |
| 2008 | Both | 65 | 1-Jun | 5-Aug |
| 2009 | Both | 75 | " | 15-Aug |
| 2010 | Both | 53 | " | 24-Jul |
| 2011 | Both | 48 | " | 19-Jul |
| 2012 | Both | 46 | " | 17-Jul |
| 2013 | Both | 42 | 1-Jun; 1-Oct | 29-June; 15-Oct |
| 2014 | Both | 9 | " | 9-Jun |
| 2015 | Private | 10 | " | 11-Jun |
| For-hire | 44 | " | 15-Jul |
| 2016 | Private | 11 | " | 12-Jun |
| For-hire | 46 | " | 17-Jul |
| 2017 | Private | 3 | " | 3-Jun |
| For-hire | 49 | " | 19-Jul |
| 2018 | Private | EFP | EFP | EFP |
| For-hire | 51 | 1-Jun | 22-Jul |
| 2019 | Private | EFP | EFP | EFP |
| For-hire | 48 | 1-Jun | 19-Jul |
| 2020 | Private | RF50 | RF50 | EFP |
| For-hire | 63 | 1-Jun | 2-Aug |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table 2.** Gulf state season open days by wave annually. Each wave consists of two months, for instance wave one consists of open days in January and February of a given year. | | | | | | | | |
| **State** | **Year** | **1** | **2** | **3** | **4** | **5** | **6** | **Annual Total** |
| Florida | 2013 | 0 | 0 | 30 | 14 | 21 | 0 | 65 |
| Florida | 2014 | 0 | 0 | 38 | 14 | 0 | 0 | 52 |
| Florida | 2015 | 0 | 0 | 39 | 12 | 22 | 1 | 74 |
| Florida | 2016 | 0 | 0 | 40 | 10 | 28 | 7 | 85 |
| Florida | 2017 | 0 | 0 | 33 | 28 | 4 | 0 | 65 |
| Florida | 2018 | 0 | 0 | 20 | 20 | 0 | 0 | 40 |
| Florida | 2019 | 0 | 0 | 20 | 12 | 6 | 2 | 40 |
| Florida | 2020 | 0 | 0 | 20 | 25 | 5 | 6 | 56 |
| Alabama | 2013 | 0 | 0 | 30 | 12 | 0 | 0 | 42 |
| Alabama | 2014 | 0 | 0 | 9 | 12 | 0 | 0 | 21 |
| Alabama | 2015 | 0 | 0 | 10 | 31 | 0 | 0 | 41 |
| Alabama | 2016 | 0 | 0 | 35 | 31 | 0 | 0 | 66 |
| Alabama | 2017 | 0 | 0 | 28 | 27 | 4 | 0 | 59 |
| Alabama | 2018 | 0 | 0 | 14 | 14 | 0 | 0 | 28 |
| Alabama | 2019 | 0 | 0 | 14 | 18 | 2 | 0 | 34 |
| Alabama | 2020 | 0 | 0 | 24 | 1 | 8 | 11 | 44 |
| Mississippi | 2013 | 0 | 0 | 30 | 12 | 0 | 0 | 42 |
| Mississippi | 2014 | 0 | 0 | 9 | 0 | 13 | 2 | 24 |
| Mississippi | 2015 | 0 | 0 | 10 | 47 | 61 | 0 | 118 |
| Mississippi | 2016 | 0 | 0 | 35 | 62 | 5 | 0 | 102 |
| Mississippi | 2017 | 0 | 0 | 28 | 28 | 4 | 0 | 60 |
| Mississippi | 2018 | 0 | 0 | 37 | 33 | 5 | 0 | 75 |
| Mississippi | 2019 | 0 | 0 | 37 | 36 | 5 | 0 | 78 |
| Mississippi | 2020 | 0 | 0 | 40 | 5 | 1 | 0 | 46 |
| Louisiana | 2013 | 0 | 17 | 41 | 0 | 14 | 0 | 72 |
| Louisiana | 2014 | 3 | 38 | 61 | 62 | 61 | 61 | 286 |
| Louisiana | 2015 | 0 | 42 | 61 | 62 | 8 | 41 | 214 |
| Louisiana | 2016 | 53 | 61 | 61 | 62 | 5 | 0 | 242 |
| Louisiana | 2017 | 28 | 61 | 46 | 0 | 11 | 19 | 165 |
| Louisiana | 2018 | 0 | 0 | 37 | 23 | 0 | 0 | 60 |
| Louisiana | 2019 | 0 | 0 | 17 | 28 | 18 | 46 | 109 |
| Louisiana | 2020 | 0 | 0 | 19 | 18 | 4 | 0 | 41 |
| Texas | 2013 | 59 | 61 | 61 | 62 | 61 | 61 | 365 |
| Texas | 2014 | 59 | 61 | 61 | 62 | 61 | 61 | 365 |
| Texas | 2015 | 59 | 61 | 61 | 62 | 61 | 61 | 365 |
| Texas | 2016 | 60 | 61 | 61 | 62 | 61 | 61 | 366 |
| Texas | 2017 | 59 | 61 | 61 | 62 | 61 | 61 | 365 |
| Texas | 2018 | 59 | 61 | 61 | 62 | 61 | 61 | 365 |
| Texas | 2019 | 59 | 61 | 61 | 62 | 61 | 61 | 365 |
| Texas | 2020 | 60 | 61 | 61 | 62 | 61 | 61 | 366 |

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| **Table 3.** General recreational Charter/For-Hire component discards in numbers of fish (thousands) per season (open/closed) and stock ID region (central, east, and west). | | | | | | |
|  | **Open** | | | **Closed** | | |
| **Year** | **Central** | **East** | **West** | **Central** | **East** | **West** |
| 1981 | 0.488 | 0.000 | 0.002 | 0.000 | 0.000 | 0.000 |
| 1982 | 7.736 | 0.396 | 13.299 | 0.000 | 0.000 | 0.000 |
| 1983 | 0.000 | 0.000 | 1.526 | 0.000 | 0.000 | 0.000 |
| 1984 | 3.784 | 3.594 | 0.007 | 0.000 | 0.000 | 0.000 |
| 1985 | 2.285 | 1.007 | 0.027 | 0.000 | 0.000 | 0.000 |
| 1986 | 7.325 | 17.128 | 2.566 | 0.000 | 0.000 | 0.000 |
| 1987 | 42.598 | 1.642 | 1.802 | 0.000 | 0.000 | 0.000 |
| 1988 | 64.906 | 0.000 | 1.213 | 0.000 | 0.000 | 0.000 |
| 1989 | 35.092 | 0.000 | 4.604 | 0.000 | 0.000 | 0.000 |
| 1990 | 80.687 | 0.000 | 64.074 | 0.000 | 0.000 | 0.000 |
| 1991 | 196.019 | 0.000 | 140.526 | 0.000 | 0.000 | 0.000 |
| 1992 | 317.612 | 1.018 | 111.920 | 0.000 | 0.000 | 0.000 |
| 1993 | 260.033 | 0.000 | 67.206 | 0.000 | 0.000 | 0.000 |
| 1994 | 273.364 | 0.057 | 107.784 | 0.000 | 0.000 | 0.000 |
| 1995 | 401.693 | 0.000 | 89.025 | 0.000 | 0.000 | 0.000 |
| 1996 | 486.469 | 0.000 | 90.822 | 0.000 | 0.000 | 0.000 |
| 1997 | 833.406 | 0.231 | 61.019 | 14.866 | 0.311 | 0.396 |
| 1998 | 588.805 | 2.892 | 47.398 | 88.149 | 0.184 | 0.625 |
| 1999 | 715.193 | 1.918 | 12.322 | 143.259 | 0.000 | 0.555 |
| 2000 | 369.340 | 0.170 | 8.454 | 135.403 | 0.089 | 1.533 |
| 2001 | 472.442 | 0.076 | 15.101 | 99.096 | 2.682 | 0.000 |
| 2002 | 465.100 | 0.000 | 36.578 | 90.025 | 0.000 | 1.141 |
| 2003 | 498.264 | 0.300 | 55.881 | 75.088 | 2.578 | 3.541 |
| 2004 | 531.107 | 0.000 | 177.149 | 82.524 | 0.693 | 1.380 |
| 2005 | 484.190 | 0.522 | 166.530 | 87.763 | 1.044 | 30.359 |
| 2006 | 651.505 | 7.987 | 188.840 | 151.697 | 9.691 | 13.496 |
| 2007 | 581.523 | 0.230 | 121.512 | 103.570 | 2.001 | 4.107 |
| 2008 | 166.667 | 2.384 | 39.651 | 319.822 | 13.723 | 28.545 |
| 2009 | 213.608 | 4.877 | 13.875 | 262.248 | 12.779 | 19.249 |
| 2010 | 55.901 | 1.806 | 20.182 | 170.751 | 2.243 | 2.654 |
| 2011 | 99.759 | 0.000 | 4.564 | 276.186 | 1.948 | 2.821 |
| 2012 | 65.409 | 0.624 | 7.697 | 193.049 | 0.720 | 11.463 |
| 2013 | 77.989 | 4.882 | 11.481 | 324.961 | 6.315 | 16.226 |
| 2014 | 12.228 | 1.129 | 3.612 | 269.320 | 7.950 | 3.364 |
| 2015 | 63.244 | 5.520 | 8.449 | 195.166 | 9.621 | 9.332 |
| 2016 | 116.904 | 5.400 | 6.601 | 299.905 | 36.881 | 6.453 |
| 2017 | 184.248 | 14.473 | 4.597 | 353.694 | 145.530 | 5.324 |
| 2018 | 128.464 | 15.931 | 2.991 | 293.567 | 43.095 | 3.953 |
| 2019 | 158.788 | 9.610 | 15.856 | 338.369 | 15.550 | 18.104 |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Table 4.** General recreational private component discards in federal waters in numbers of fish (thousands) per season (open/closed) and stock ID region (central, east, and west). | | | | | | | | | | | | | |
|  |  | | **Open** | |  | |  | | **Closed** | | |  | |
| **Year** | **Central** | | **East** | | **West** | | **Central** | | **East** | | | **West** | |
| 1981 | 179.403 | | 76.357 | | 63.443 | | 0.000 | | 0.000 | | | 0.000 | |
| 1982 | 13.169 | | 0.000 | | 6.491 | | 0.000 | | 0.000 | | | 0.000 | |
| 1983 | 4.470 | | 0.000 | | 0.695 | | 0.000 | | 0.000 | | | 0.000 | |
| 1984 | 0.000 | | 82.405 | | 43.561 | | 0.000 | | 0.000 | | | 0.000 | |
| 1985 | 0.925 | | 41.324 | | 204.990 | | 0.000 | | 0.000 | | | 0.000 | |
| 1986 | 13.528 | | 11.688 | | 38.582 | | 0.000 | | 0.000 | | | 0.000 | |
| 1987 | 113.799 | | 3.103 | | 120.038 | | 0.000 | | 0.000 | | | 0.000 | |
| 1988 | 9.133 | | 35.687 | | 529.273 | | 0.000 | | 0.000 | | | 0.000 | |
| 1989 | 323.028 | | 7.022 | | 371.122 | | 0.000 | | 0.000 | | | 0.000 | |
| 1990 | 772.205 | | 21.540 | | 422.258 | | 0.000 | | 0.000 | | | 0.000 | |
| 1991 | 1587.532 | | 78.277 | | 410.625 | | 0.000 | | 0.000 | | | 0.000 | |
| 1992 | 1315.577 | | 80.073 | | 450.630 | | 0.000 | | 0.000 | | | 0.000 | |
| 1993 | 1657.182 | | 29.726 | | 528.829 | | 0.000 | | 0.000 | | | 0.000 | |
| 1994 | 940.422 | | 38.864 | | 1213.187 | | 0.000 | | 0.000 | | | 0.000 | |
| 1995 | 226.084 | | 13.967 | | 1942.650 | | 0.000 | | 0.000 | | | 0.000 | |
| 1996 | 1014.854 | | 35.811 | | 413.058 | | 0.000 | | 0.000 | | | 0.000 | |
| 1997 | 2024.065 | | 25.990 | | 482.627 | | 243.967 | | 0.000 | | | 5.803 | |
| 1998 | 831.318 | | 12.660 | | 739.975 | | 281.524 | | 52.945 | | | 51.693 | |
| 1999 | 2312.350 | | 26.440 | | 2006.895 | | 371.640 | | 23.419 | | | 30.496 | |
| 2000 | 1316.588 | | 66.169 | | 547.257 | | 1245.758 | | 1.556 | | | 178.707 | |
| 2001 | 1673.859 | | 5.729 | | 458.869 | | 2698.898 | | 0.000 | | | 55.735 | |
| 2002 | 3289.216 | | 6.874 | | 723.429 | | 3136.651 | | 0.000 | | | 64.182 | |
| 2003 | 2425.089 | | 2.069 | | 1413.722 | | 1924.069 | | 2.920 | | | 338.460 | |
| 2004 | 3415.206 | | 25.301 | | 2967.127 | | 1089.849 | | 67.293 | | | 219.802 | |
| 2005 | 2388.489 | | 92.921 | | 1880.349 | | 1639.565 | | 36.258 | | | 144.177 | |
| 2006 | 2892.932 | | 30.938 | | 2060.152 | | 1280.177 | | 24.378 | | | 180.231 | |
| 2007 | 4146.943 | | 43.270 | | 916.910 | | 1549.033 | | 0.000 | | | 153.302 | |
| 2008 | 929.750 | | 4.081 | | 1193.048 | | 3426.382 | | 36.400 | | | 414.570 | |
| 2009 | 1497.497 | | 51.471 | | 795.670 | | 2339.131 | | 51.364 | | | 329.754 | |
| 2010 | 1024.479 | | 24.247 | | 721.046 | | 3401.432 | | 105.221 | | | 331.823 | |
| 2011 | 881.733 | | 8.014 | | 900.650 | | 2847.783 | | 1492.565 | | | 434.584 | |
| 2012 | 684.466 | | 3.687 | | 459.849 | | 3286.846 | | 10.601 | | | 230.126 | |
| 2013 | 770.844 | | 3.026 | | 297.268 | | 1514.132 | | 5.490 | | | 545.272 | |
| 2014 | 120.990 | | 6.504 | | 13.251 | | 1816.167 | | 42.881 | | | 87.797 | |
| 2015 | 226.239 | | 1.265 | | 31.544 | | 1675.008 | | 22.736 | | | 206.912 | |
| 2016 | 329.841 | | 8.600 | | 6.070 | | 3280.131 | | 672.268 | | | 30.168 | |
| **Table 5.** General recreational private component discards in state waters in numbers of fish (thousands) per season (open/closed) and stock ID region (central, east, and west). | | | | | | | | | | | | |
|  | | **Open** | | | | | | **Closed** | | | | |
| **Year** | | **Central** | | **East** | | **West** | | **Central** | | **East** | **West** | |
| 2013 | | 870.272 | | 991.406 | | 0.000 | | 1716.142 | | 2.298 | 0.000 | |
| 2014 | | 332.383 | | 524.337 | | 0.000 | | 1595.453 | | 0.000 | 0.000 | |
| 2015 | | 351.058 | | 514.676 | | 0.000 | | 905.458 | | 0.000 | 0.000 | |
| 2016 | | 633.780 | | 82.619 | | 15.041 | | 1238.843 | | 0.000 | 12.252 | |
| 2017 | | 2727.022 | | 320.400 | | 61.761 | | 5539.613 | | 0.000 | 198.966 | |
| 2018 | | 1052.638 | | 380.821 | | 123.727 | | 3972.806 | | 0.000 | 523.313 | |
| 2019 | | 1186.893 | | 844.184 | | 61.010 | | 4577.792 | | 0.000 | 334.141 | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Table 6.** Total State and Federal Private component discards in numbers of fish (thousands) by season (open/closed) and stock ID region. | | | | | | |
|  | **Open** | | | **Closed** | | |
| **Year** | **East** | **Central** | **West** | **East** | **Central** | **West** |
| 1981 | 76.357 | 179.403 | 63.443 | 0.000 | 0.000 | 0.000 |
| 1982 | 0.000 | 13.169 | 6.491 | 0.000 | 0.000 | 0.000 |
| 1983 | 0.000 | 4.470 | 0.695 | 0.000 | 0.000 | 0.000 |
| 1984 | 82.405 | 0.000 | 43.561 | 0.000 | 0.000 | 0.000 |
| 1985 | 41.324 | 0.925 | 204.990 | 0.000 | 0.000 | 0.000 |
| 1986 | 11.688 | 13.528 | 38.582 | 0.000 | 0.000 | 0.000 |
| 1987 | 3.103 | 113.799 | 120.038 | 0.000 | 0.000 | 0.000 |
| 1988 | 35.687 | 9.133 | 529.273 | 0.000 | 0.000 | 0.000 |
| 1989 | 7.022 | 323.028 | 371.122 | 0.000 | 0.000 | 0.000 |
| 1990 | 21.540 | 772.205 | 422.258 | 0.000 | 0.000 | 0.000 |
| 1991 | 78.277 | 1587.532 | 410.625 | 0.000 | 0.000 | 0.000 |
| 1992 | 80.073 | 1315.577 | 450.630 | 0.000 | 0.000 | 0.000 |
| 1993 | 29.726 | 1657.182 | 528.829 | 0.000 | 0.000 | 0.000 |
| 1994 | 38.864 | 940.422 | 1213.187 | 0.000 | 0.000 | 0.000 |
| 1995 | 13.967 | 226.084 | 1942.650 | 0.000 | 0.000 | 0.000 |
| 1996 | 35.811 | 1014.854 | 413.058 | 0.000 | 0.000 | 0.000 |
| 1997 | 25.990 | 2024.065 | 482.627 | 0.000 | 243.967 | 5.803 |
| 1998 | 12.660 | 831.318 | 739.975 | 52.945 | 281.524 | 51.693 |
| 1999 | 26.440 | 2312.350 | 2006.895 | 23.419 | 371.640 | 30.496 |
| 2000 | 66.169 | 1316.588 | 547.257 | 1.556 | 1245.758 | 178.707 |
| 2001 | 5.729 | 1673.859 | 458.869 | 0.000 | 2698.898 | 55.735 |
| 2002 | 6.874 | 3289.216 | 723.429 | 0.000 | 3136.651 | 64.182 |
| 2003 | 2.069 | 2425.089 | 1413.722 | 2.920 | 1924.069 | 338.460 |
| 2004 | 25.301 | 3415.206 | 2967.127 | 67.293 | 1089.849 | 219.802 |
| 2005 | 92.921 | 2388.489 | 1880.349 | 36.258 | 1639.565 | 144.177 |
| 2006 | 30.938 | 2892.932 | 2060.152 | 24.378 | 1280.177 | 180.231 |
| 2007 | 43.270 | 4146.943 | 916.910 | 0.000 | 1549.033 | 153.302 |
| 2008 | 4.081 | 929.750 | 1193.048 | 36.400 | 3426.382 | 414.570 |
| 2009 | 51.471 | 1497.497 | 795.670 | 51.364 | 2339.131 | 329.754 |
| 2010 | 24.247 | 1024.479 | 721.046 | 105.221 | 3401.432 | 331.823 |
| 2011 | 8.014 | 881.733 | 900.650 | 1492.565 | 2847.783 | 434.584 |
| 2012 | 3.687 | 684.466 | 459.849 | 10.601 | 3286.846 | 230.126 |
| 2013 | 994.432 | 1641.116 | 297.268 | 7.788 | 3230.274 | 545.272 |
| 2014 | 530.841 | 453.374 | 13.251 | 42.881 | 3411.620 | 87.797 |
| 2015 | 515.941 | 577.297 | 31.544 | 22.736 | 2580.466 | 206.912 |
| 2016 | 91.219 | 963.622 | 21.111 | 672.268 | 4518.973 | 42.420 |
| 2017 | 320.400 | 2727.022 | 61.761 | 0.000 | 5539.613 | 198.966 |
| 2018 | 380.821 | 1052.638 | 123.727 | 0.000 | 3972.806 | 523.313 |
| 2019 | 844.184 | 1186.893 | 61.010 | 0.000 | 4577.792 | 334.141 |