

Commercial Landings of Red Snapper (*Lutjanus campechanus*) from the Gulf of Mexico 1964 - 2020

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Commercial Landings of Red Snapper (*Lutjanus campechanus*) from the Gulf of Mexico 1964 - 2020

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Commercial landings of Red snapper for the Gulf of Mexico from now referred to as the “Landings” were compiled from the Accumulated Landings System (ALS), a continuous commercial landings database that began in the 1962 and is being maintained by the NOAA Fisheries’ Southeast Fisheries Science Center (SEFSC) in Miami, Florida.

Seafood dealers report their data to the fisheries agencies in each State (Donaldson, 2004) in the Gulf of Mexico Fisheries Management Council (GMFMC) region where Red Snappers are landed. These landings are collected by each State’s own Trip Ticket Program (TTP). NOAA Fisheries has established cooperative agreements with all of the coastal states in the Southeastern US and relies on the states to collect and process these data which are uploaded to the ALS system housed in an ORACLE database that is accessed via SQL code.

Commercial landings statistics of Red Snapper had been described by Poffenberger (2004) as part of the first Red Snapper SEDAR (Southeast Data, Assessment and Review) process, which was SEDAR 7. The follow up to the Gulf of Mexico Red Snapper SEDAR stock assessments were SEDARs 31 and 52. A lot of the procedures developed for SEDAR 7 were continued in SEDARs 31 and 52, i.e. the vetted methodology of compiling the landings in the Gulf of Mexico, are also being applied in the current compilation of the commercial landings for SEDAR 74. For the historical commercial landing of Red Snapper please review Porch et al. (2004) which was also part of and provided to the Assessment Workshop (AW) of SEDAR 7.

Research Track Assessment and new Central Sub-region

The Red Snapper Stock had been divided in prior assessments into an Eastern and a Western stock unit and as area information was not available prior to 1964, the separation into the sub-regions was started in 1964. This was the standard procedure applied for SEDARs 7, 31 and 52 and its annual updates.

The Gulf of Mexico Red Snapper SEDAR 74, was designated as a “Research Track Assessment”. After discussions during the SEDAR 74 Stock ID workshop, the Stock ID panel recommended and decided on a

new division of the stock units and their areas in a way that there are now three sub-regions that are recognized as separate units:

- EAST, NMFS_Area_codes or Areas 1-6
- CENTRAL, Areas 7-12
- WEST, Areas 13-21 (unchanged)

The previous sub-region “East” from the Florida Keys to the Mississippi Delta, i.e. NMFS_Area_Codes 1 to 12, is now divided into two new sub-regions, East and Central. The new East sub-region comprises of Area codes 1-6, from the Florida Keys to the Big Bend area on the Florida’s Gulf coast, and a new Central sub-region, i.e. Area codes 7-12, reaching from the Big Bend to the Mississippi Delta. The sub-region West remained unchanged.

Data Sources

For the Gulf of Mexico commercial landings of Red Snapper starting in 1962, there are four tables used to aggregate the landings

- ALS_Landings table, the main commercial landings table that has monthly summaries of the landings beginning in 1977.
- TALS_GCANV6071, the annually summarized landings table covering landings from 1962-1971
- ALS_Landings7278, this table has mostly annualized landings but also some monthly summarized data covering landings from 1972-1976, and finally
- Florida General Canvass, the annually summarized landings table covering Florida (West and East) landings from 1977 to 1985 that is used to fill in area and gear data often missing from monthly ALS_Landings table.
- Florida TTP landings 1986-1989, was used for filling the missing gear and area information in those years
- Coastal Fisheries Logbook Program (CFLP), after 1990 gear and area information of the catches from the logbook was used instead of dealer provided gear and area information of the landings (please see below Use of CFLP Information to Assign Gear and Area to the Landings)

Landings are aggregated according to fisheries management council’s regional boundaries; e.g., between the GMFMC and South Atlantic Fisheries Management Council (SAFMC), by area of catch and reported water body or area information. When water body information regarding the area of catch was not available or was missing, then recorded county of landing was used to assign statistical area or NMFS_Area_Code and thereby region. The boundary of the Gulf of Mexico Fisheries Management Council (GMFMC) region is a line from Riley’s Hump, the Dry Tortugas and US 1, where areas north of US1 were assigned to the GMFMC and areas south of US 1 were considered outside of the GMFMC region and were assigned to the South Atlantic FMC region.

Use of CFLP Information to Assign Gear and Area to the Landings

For landings reported during 1990 and after, the SEDAR 7 panel decided to utilize the logbook gear and gear information to assign gear and area to the landings. For a description of the CFLP please review Poffenberger (2003). The process developed for SEDAR 7 has been used since for SEDAR 31 and SEDAR 52, and also now for SEDAR 74. This method involves calculating the proportion of logbook landings by gear (e.g., Handline+ and Longline) within the three subregions West, Central and East (as defined above).

Landings were compiled by gear groups following the procedures developed in SEDAR 7, with all gears other than Longline are grouped together as Handline+ (also called Vertical line+; Table 1a and 1b). Note in Table 1b that the Combined Gears NMFS Gear code 999, which had over 20% of reported landing gear(s) prior to 2016, has not been reported in the last 5 years.

IFQ Program

In 2007 the Gulf of Mexico Fisheries Council started a program whereby Fishermen own a portion of the annually allocated Red Snapper quota which is also tradeable from one permit holder to another. The Program is administered by the NOAA Fisheries Southeast Regional Office (SERO) and data are available to the public here: <https://secatchshares.fisheries.noaa.gov/getQuotasAndCatchAllowancesReport>. For more information on the IFQ program for Red Snapper please refer to SEDAR31-DW-02 (Stephen, 2012). The IFQ landings data does not have gear information which is needed for the assessment process. In order to assure that the landings in the ALS or TTP databases are matching what is reported to IFQ and which is deemed the most accurate data, ALS/TTP landings are corrected to match the IFQ landings data. As the IFQ is reported in gutted pounds and ALS landings are in whole pounds, conversions from gutted to whole pounds and vice versa are done using a conversion factor of 1.11.

IFQ corrections factor are calculated from the difference between the ALS/TTP and IFQ landings and the applied to ALS/TTP for the IFQ years 2007 to 2020 to match the IFQ landings. The percent difference between the ALS and IFQ landings are shown in Table 2 where positive values mean the reported IFQ landings were higher than what was reported in the ALS/TTP and negative values mean that IFQ landings were lower than what was reported in the ALS/TTP.

Commercial Landings 1964-2020

Landings by year, sub-region and gear group from 1964 to 2020 in whole pounds are shown Table 3. Although the ALS data base started in 1962, landings in 1962 and 1963 do not have area information and landings were labelled as landed in the General Gulf of Mexico category, i.e. ALS Water body code 5000 and is the reason for the omission of those years from the time-series. The landings shown in Table 3 are also shown in Figure 1 for better illustration.

Table 1a: Grouping of commercial fishing gears with reported Red snapper landings in the Gulf of Mexico 1964-2020. Two gear groups were defined: Handline+ (HL+) and Longline.

| GEARGROUP | NMFS GEAR CODE | GEAR_DESCRIPTION |
|-----------|----------------|-------------------------------|
| HANDLINE+ | 0 | Not Coded |
| | 20 | Haul Seines, Beach |
| | 100 | Encircling Nets (Purse) |
| | 187 | Skimmer Nets |
| | 189 | Butterfly Nets |
| | 200 | Trawls, Unspecified |
| | 215 | Otter Trawl Bottom, Shrimp |
| | 300 | pots And Traps, Cmb |
| | 330 | Pots And Traps, Crab, Blue |
| | 333 | Pots And Traps, Crab, Other |
| | 345 | Pots And Traps, Fish |
| | 355 | Pots And Traps, Spiny Lobster |
| | 400 | Entangling Nets (Gill) Unspc |
| | 475 | Gill Nets, Drift, Runaround |
| | 600 | Troll & Hand Lines Cmb |
| | 610 | Lines Hand, Other |
| | 611 | Rod and Reel |
| | 612 | Reel, Manual |
| | 613 | Reel, Electric or Hydraulic |
| | 657 | LINES TROLL, GREEN-STICK |
| | 660 | Lines Troll, Other |
| | 661 | Lines Power Troll Other |
| | 678 | Lines Long Drift With Hooks |
| | 680 | Lines Trot With Baits |
| | 735 | Cast Nets |
| | 760 | Spears |
| | 943 | Diving Outfits, Other |
| | 953 | By Hand, SCUBA |
| | 955 | By Hand, Other |
| | 989 | Unspecified Gear |
| | 999 | Combined Gears |
| LONGLINE | 614 | BUOY GEAR, VERTICAL |
| | 675 | Lines Long Set With Hooks |
| | 676 | Lines Long, Reef Fish |
| | 677 | Lines Long, Shark |

Table 1b: Gear codes reported to the ALS in the landings starting in 2007, the begin of the IFQ program, sorted by percent contribution to total landings for Handline+ and Longline gear groups for IFQ years 2007 to 2015, and the most recent five years, 2016-2020.

* labeled records are confidential data, and

– labeled mean zero landings were reported in that gear code.

| GEARGROUP | NMFSGEAR | GEAR_DESCRIPTION | % 2007-2015 | % 2016-2020 |
|-----------|----------|-----------------------------|-------------|-------------|
| HANDLINE+ | 613 | Reel, Electric or Hydraulic | 59.0% | 76.4% |
| | 999 | Combined Gears | 21.2% | - |
| | 610 | Lines Hand, Other | 10.1% | 7.3% |
| | 611 | Rod and Reel | 2.5% | - |
| | 600 | Troll & Hand Lines Cmb | 1.8% | 5.8% |
| | 612 | Reel, Manual | 1.5% | 3.3% |
| | 660 | Lines Troll, Other | 0.2% | * |
| | 678 | Lines Long Drift With Hooks | 0.2% | * |
| | 943 | Diving Outfits, Other | 0.1% | - |
| | 760 | Spears | 0.1% | 0.4% |
| | 0 | Not Coded | 0.0% | - |
| | 657 | LINES TROLL, GREEN-STICK | - | * |
| | 735 | Cast Nets | * | * |
| | 20 | Haul Seines, Beach | - | * |
| | 955 | By Hand, Other | * | - |
| | 680 | Lines Trot With Baits | * | - |
| | 953 | By Hand, SCUBA | * | 0.03% |
| | 989 | Unspecified Gear | - | * |
| | 187 | Skimmer Nets | * | - |
| | 100 | Encircling Nets (Purse) | - | * |
| | 989 | Unspecified Gear | - | * |
| | 333 | Pots And Traps, Crab, Other | * | * |
| | 300 | pots And Traps, Cmb | - | * |
| LONGLINE | 676 | Lines Long, Reef Fish | 2.9% | 6.4% |
| | 614 | BUOY GEAR, VERTICAL | 0.1% | 0.0% |
| | 675 | Lines Long Set With Hooks | 0.0% | 0.2% |

Table 2: IFQ correction values shown in percent deviation +/- of the differences between landings reported in the ALS/TTP programs, where the ALS is mirroring State TTP landings, and landings reported to the IFQ program.

| YEAR | +/- % | +/- Whole lbs |
|------|--------|---------------|
| 2007 | 3.26% | 103,780 |
| 2008 | 2.23% | 55,273 |
| 2009 | -0.74% | (18,272) |
| 2010 | 1.88% | 63,703 |
| 2011 | 0.65% | 23,533 |
| 2012 | -0.05% | (2,068) |
| 2013 | -0.24% | (12,972) |
| 2014 | -2.58% | (143,686) |
| 2015 | 3.28% | 235,350 |
| 2016 | 0.71% | 47,802 |
| 2017 | 1.13% | 78,556 |
| 2018 | 1.58% | 110,051 |
| 2019 | 2.06% | 158,008 |
| 2020 | -2.24% | (165,341) |

Table 3: Commercial landings of Red Snapper for the Gulf of Mexico 1964-2020 in whole pounds by gear group and sub-region (West, Central and East).

| | WEST | WEST | CENTRAL | CENTRAL | EAST | EAST |
|------|-----------|----------|-----------|----------|-----------|----------|
| YEAR | HANDLINE+ | LONGLINE | HANDLINE+ | LONGLINE | HANDLINE+ | LONGLINE |
| 1964 | 3,590,301 | | 1,949,662 | | 1,657,008 | |
| 1965 | 3,646,081 | | 2,087,968 | | 624,596 | |
| 1966 | 3,041,229 | | 1,659,432 | | 1,439,333 | |
| 1967 | 4,230,951 | | 1,883,080 | | 1,023,864 | |
| 1968 | 5,160,886 | | 1,555,387 | | 1,062,159 | |
| 1969 | 4,187,460 | | 1,501,106 | | 940,836 | |
| 1970 | 4,652,728 | | 1,360,293 | | 949,161 | |
| 1971 | 5,366,029 | | 1,424,258 | | 799,311 | |
| 1972 | 4,841,776 | | 1,508,522 | | 865,800 | |
| 1973 | 4,867,197 | | 1,952,058 | | 760,974 | |
| 1974 | 4,433,800 | | 1,942,947 | | 1,824,618 | |
| 1975 | 3,932,964 | | 1,960,575 | | 1,616,049 | |
| 1976 | 3,325,599 | 1,074 | 1,740,786 | | 1,547,340 | |
| 1977 | 2,873,097 | | 1,347,609 | | 916,140 | |
| 1978 | 2,694,000 | | 1,238,528 | | 757,823 | |
| 1979 | 2,472,483 | | 1,280,359 | | 757,536 | |
| 1980 | 2,516,508 | 44,054 | 1,302,555 | 60,601 | 593,193 | 33,404 |
| 1981 | 3,143,304 | 49,261 | 1,572,572 | 88,141 | 555,083 | 91,717 |
| 1982 | 3,661,535 | 71,617 | 1,754,198 | 81,139 | 537,709 | 145,435 |
| 1983 | 3,820,146 | 98,736 | 1,954,159 | 108,273 | 433,381 | 336,750 |
| 1984 | 2,906,413 | 762,672 | 1,230,559 | 104,198 | 401,357 | 264,251 |
| 1985 | 1,846,043 | 604,890 | 1,211,465 | 30,978 | 412,307 | 83,360 |
| 1986 | 1,933,384 | 831,375 | 719,097 | 32,293 | 140,734 | 43,604 |
| 1987 | 1,474,284 | 734,038 | 691,675 | 28,380 | 105,143 | 35,094 |
| 1988 | 2,355,109 | 670,131 | 752,113 | 54,320 | 105,845 | 22,346 |
| 1989 | 1,891,961 | 454,743 | 609,907 | 54,811 | 63,178 | 23,762 |
| 1990 | 1,757,785 | 120,420 | 577,232 | 13,473 | 120,384 | 61,318 |
| 1991 | 1,724,709 | 72,592 | 370,173 | 5,597 | 25,005 | 15,111 |
| 1992 | 2,674,495 | 19,820 | 392,018 | 902 | 14,476 | 4,788 |
| 1993 | 2,901,543 | 20,291 | 400,297 | 2,315 | 36,561 | 12,921 |
| 1994 | 2,671,459 | 15,809 | 503,057 | 2,580 | 24,067 | 5,379 |
| 1995 | 2,735,402 | 17,506 | 159,714 | 1,232 | 13,027 | 7,228 |
| 1996 | 4,044,132 | 27,362 | 224,209 | 4,090 | 9,772 | 3,498 |
| 1997 | 4,589,500 | 31,418 | 176,250 | 1,190 | 8,161 | 3,437 |
| 1998 | 4,267,518 | 27,224 | 365,877 | 2,254 | 13,526 | 3,261 |
| 1999 | 4,227,816 | 91,321 | 501,877 | 704 | 48,427 | 5,811 |

| | WEST | WEST | CENTRAL | CENTRAL | EAST | EAST |
|------|-----------|---------|-----------|---------|-----------|---------|
| YEAR | HANDLINE+ | LOGLINE | HANDLINE+ | LOGLINE | HANDLINE+ | LOGLINE |
| 2000 | 3,979,513 | 184,426 | 632,529 | 1,039 | 32,093 | 7,519 |
| 2001 | 3,705,640 | 124,972 | 749,136 | 662 | 35,447 | 9,418 |
| 2002 | 3,565,505 | 146,691 | 1,016,265 | 6,572 | 36,180 | 11,608 |
| 2003 | 3,204,760 | 170,163 | 969,243 | 3,675 | 52,540 | 10,293 |
| 2004 | 3,224,112 | 456,817 | 898,310 | 3,594 | 54,376 | 15,760 |
| 2005 | 3,000,269 | 282,912 | 725,355 | 1,817 | 74,012 | 19,334 |
| 2006 | 3,615,632 | 256,820 | 670,201 | 1,110 | 95,144 | 15,511 |
| 2007 | 2,101,832 | 189,356 | 816,734 | 10,048 | 55,734 | 5,642 |
| 2008 | 1,582,401 | 56,204 | 754,661 | 18,686 | 55,910 | 14,509 |
| 2009 | 1,498,216 | 51,763 | 809,500 | 6,476 | 109,326 | 8,151 |
| 2010 | 1,880,162 | 38,356 | 1,188,292 | 11,069 | 208,566 | 64,568 |
| 2011 | 1,879,064 | 18,391 | 1,360,013 | 4,678 | 254,480 | 77,772 |
| 2012 | 2,120,547 | 13,504 | 1,612,829 | 1,284 | 237,573 | 50,662 |
| 2013 | 2,997,578 | 50,717 | 1,985,033 | 2,277 | 304,678 | 108,228 |
| 2014 | 3,261,930 | 55,486 | 1,712,170 | 7,850 | 414,051 | 112,624 |
| 2015 | 3,970,288 | 49,943 | 2,364,981 | 39,192 | 541,447 | 210,646 |
| 2016 | 3,950,774 | 71,219 | 2,119,735 | 20,997 | 398,291 | 162,467 |
| 2017 | 3,997,846 | 65,565 | 2,243,309 | 7,117 | 494,756 | 169,188 |
| 2018 | 3,936,448 | 66,639 | 2,098,679 | 45,579 | 570,560 | 257,489 |
| 2019 | 4,120,426 | 157,549 | 2,206,933 | 32,976 | 751,388 | 385,610 |
| 2020 | 3,931,978 | 68,747 | 2,234,664 | 22,477 | 696,916 | 410,612 |

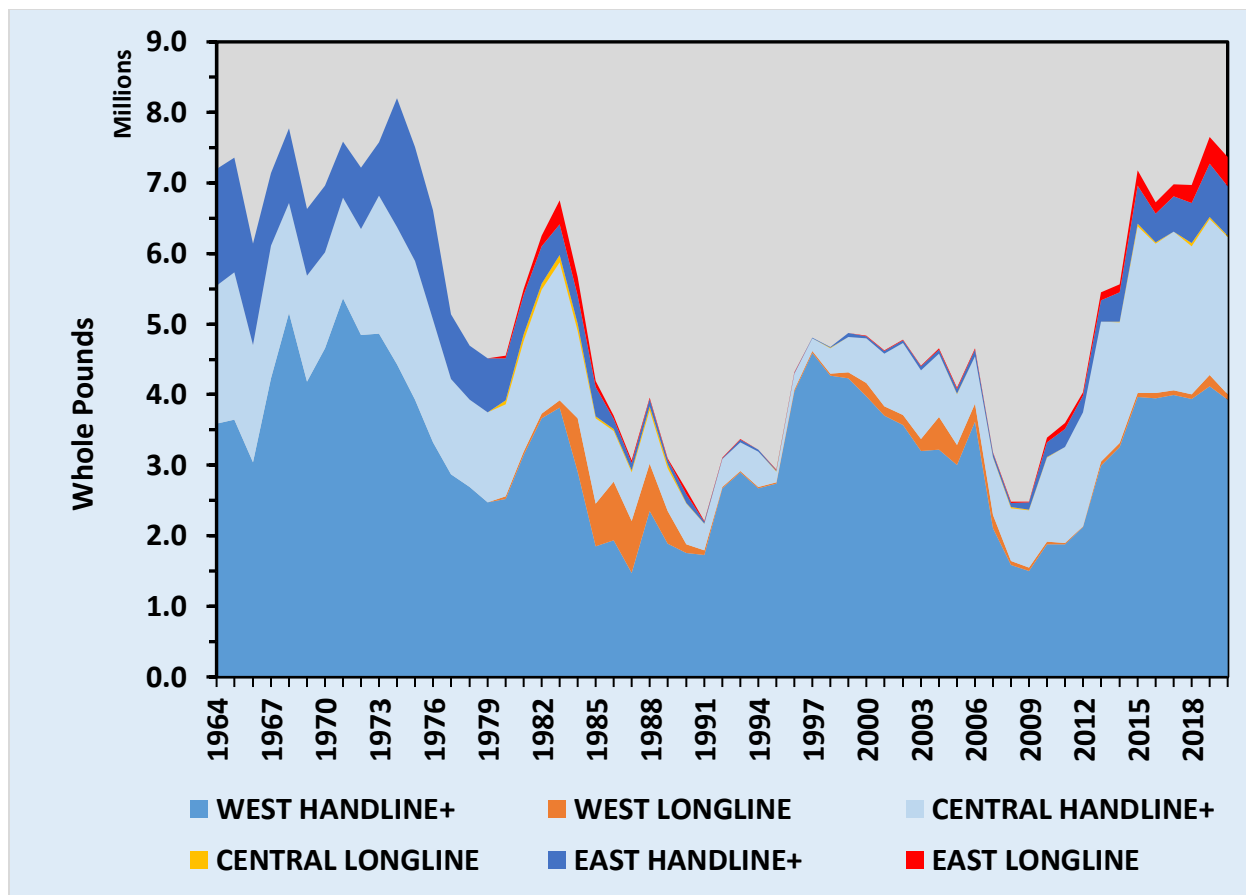


Figure 1. Gulf of Mexico commercial landings in millions of pounds gutted weight of Red Snapper 1964 to 2020 by sub-regions, West, Central and East, and gear groups, Handline+ and Longline. see Table 1 for gear grouping details.

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