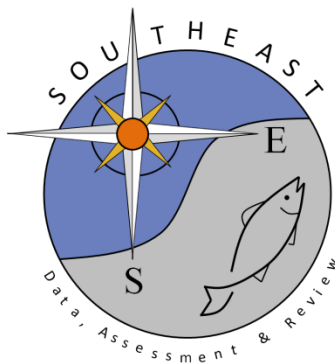


Commercial Landings of Gulf of America Gag Grouper (*Mycteroperca microlepis*) from 1962 - 2024

Sarina Atkinson and Micki Pawluk

SEDAR105-WP-06

9 April 2026



This information is distributed solely for the purpose of pre-dissemination peer review. It does not represent and should not be construed to represent any agency determination or policy.

Please cite this document as:

Atkinson, Sarina, and Micki Pawluk. 2026. Commercial Landings of Gulf of America Gag Grouper (*Mycteroperca microlepis*) from 1962 - 2024. SEDAR105-WP-06. SEDAR, North Charleston, SC. 19 pp.

SEDAR 105 Working Paper

Commercial Landings of Gulf of America Gag Grouper (*Mycteroperca microlepis*) from 1962 - 2024

Sarina Atkinson and Micki Pawluk

National Marine Fisheries Service, Southeast Fisheries Science Center, Sustainable Fisheries Division

Corresponding author: sarina.atkinson@noaa.gov

Introduction

Commercial landings statistics are the quantities and value of seafood products caught by fishermen in the U.S. and sold to established (licensed) wholesale and retail seafood dealers. These data have been collected as early as the late 1890s. Currently, these data are collected by trip ticket programs (TTPs) managed by state agencies. In addition to the quantity and value, basic information is recorded on the gear used to catch the fish, the area where the fishing occurred and the county and state where the catch was landed (Gloeckner, 2014).

Commercial landings of Gag Grouper (*Mycteroperca microlepis*) for the Gulf of America (formerly known as the Gulf of Mexico, and hereafter referred to as the Gulf) are provided in gutted weight (in pounds) for the period 1962-2024.

Methods

Commercial landings for Gulf Gag Grouper were compiled using several data sources. Most of these data were accessed from an Oracle database housed at the Southeast Fisheries Science Center (SEFSC) in Miami, Florida. All landings were converted to gutted weight using the conversion factor 1.057.

Data Sources

The Accumulated Landings System (ALS) is an Oracle database maintained by SEFSC. This database contains landings data from 1926 to present with data prior to 1962 considered historical. Most landings prior to 1977 are summarized annually. Beginning in 1977, landings were consistently provided as monthly summaries, while a few states for some species began reporting monthly in 1972. For more information on data collection of landings prior to the implementation of a state TTP (Trip Ticket Program) and ALS database structure, refer to Gloeckner (2014).

Data from state TTPs begin in various years, depending on the state (Donaldson, 2004). Trip ticket data for Texas, Louisiana, Mississippi, and Alabama were available through the Gulf States Marine Fisheries Commission (GSMFC). Florida trip ticket data were available through Atlantic Coastal Cooperative Statistics Program (ACCSP). Where data were available and considered reliable from state trip ticket programs, those data were used in lieu of data from ALS.

The Florida General Canvass dataset (housed within the ALS database) contains annual landings from 1976 to 1996. Originally collected by federal port agents at the county level, this dataset is primarily used to fill information gaps. Specifically, it provides estimated proportions of landings by gear and area. These proportions are applied to Florida ALS or Trip Ticket records from 1977 to 1996 whenever specific gear or location data is missing.

Stock Boundary

Commercial landings for Gulf Gag Grouper were compiled from Texas through West Florida. This boundary follows the Gulf Fisheries Management Council (Gulf FMC) boundary which is a line from Riley's Hump, the Tortugas and US 1, where the North of US 1 is assigned to the Gulf

FMC and South of US 1 is considered outside of the Gulf FMC region and is assigned to the South Atlantic FMC region (Figure 1).

Gear Groups

Similar to the previous assessment (SEDAR 72), commercial landings were summarized into 2 main gears (Handline+ and Longline). All other gears with reported Gag Grouper landings were assigned to the other gear group. For data compilation, handline and other were treated as separate groups and summed at the end. Table 1 highlights the NMFS and FIN gear codes associated with each gear group.

Data Compilation

The SEFSC maintained materialized view in ORACLE appropriately joins all data sources based on best practices. All data housed within ALS are in the NMFS coding system, whereas TTP data are provided in the Fisheries Information Network (FIN) standard. All gear, area, county, state, and species information are translated to the common FIN coding standard. The following landings data were used for each respective state:

Texas

- ALS from 1962-2013
- Trip ticket from 2014-2024

Louisiana

- ALS from 1962-1999
- Trip ticket from 2000-2024

Mississippi

- ALS from 1962-2014
- Trip ticket from 2015-2024

Alabama

- ALS from 1962-2001
- Trip ticket from 2002-2024

Florida

- ALS from 1962-1985
- Trip ticket from 1986-2024
- General Canvass to proportion landings by gear and area from 1977-1996

To align landings with specific stock boundaries, data are filtered using three primary variables: area fished, county landed, and state landed (Figure 1). County or state landing information alone are insufficient to determine whether a catch originated from the Gulf of America, the South

Atlantic, or foreign waters (Gloeckner, 2014). Therefore, the area of capture is prioritized when assigning catch to the appropriate region. However, in instances where area information is missing, the recorded county and/or state of landing is used to attribute those landings to the Gulf of America to ensure these removals are accurately accounted for in the stock biomass.

Landings reported from Monroe County, Florida, follow a distinct procedure because the fishing areas off the coast of the county span the boundary between management councils. Rather than relying on dealer or port agent reports, the SEFSC Coastal Fisheries Logbook Program (CFLP) is used as the preferred data source for these records. Because area of capture in the CFLP is reported directly by fishers, it is considered more accurate than other sources until 2010, at which point dealer-reported data from the Florida trip ticket system is considered reliable. For the period of 2010–2024, the area of capture is used to attribute Gag Grouper landings to the Gulf of America stock. Following standard practice, if area information is missing, Monroe County landings are defaulted to the Gulf of America. For Gag Grouper, all Monroe County landings starting in 2008 had area reported.

For pre-2010 data, specific proportioning methods are applied to Monroe County to maintain consistency across the assessment. From 1993 to 2009, the annual proportion of Monroe County landings harvested in Gulf of America waters by gear from CFLP was used to apportion dealer landings. For the 1962–1992 period, CFLP data from 1993–1997 were used to calculate proxy proportions by gear (Table 2). This methodological approach was formally established during the SEDAR 90 South Atlantic Red Snapper Data Workshop and is now considered standard practice for most stock assessments across both the South Atlantic and Gulf of America regions.

To account for missing information, annual proportions from ALS or trip ticket data were used to assign gear types and fishing areas to all Gag Grouper landings. This method was applied to all states with the exception of Texas from 1978–1983. Because gear information for Texas landings is entirely absent for 1978 and 1979, gear proportions by area were estimated as the average of proportions from 1973–1977. Additionally, from 1980–1983, the only gear reported by Texas is trawl gear. These landings are assumed to be non-trawl, meaning an average from 1984–1988 was used to proportion 1980–1983 Texas landings by gear and area. This method is consistent with SEDAR 72.

Coastal Logbook Proportioning to Assign Gear and Area to the Landings

For landings reported during 1993 and after, gear and area information from the SEFSC Coastal Fisheries Logbook Program (CFLP) were used to assign gear and area to the landings. This decision was based on the general acceptance that records regarding gear(s) used and area(s) fished were probably more accurately reported on the fishermen’s coastal logbook, which are completed by the fishing boat captains or designees rather than on the dealer reported trip tickets, often reported online by secretarial staff. For a general description of the logbook data please review Atkinson et al. (2021) and Poffenberger (2003).

This method involves calculating the proportion of logbook landings by year, state, gear (e.g., Handline, Longline, and Other) and fishing area. These proportions are applied to the annual landings by month and state.

Unclassified Groupers

Prior to 1986, most grouper landings were reported as "unclassified," with the exception of Warsaw and Goliath Grouper. Methods for apportioning these unclassified landings to specific species have historically been inconsistent across stock assessments. For example, previous assessments for Yellowedge Grouper, Scamp, and Gag Grouper utilized varying time series (e.g., 1986–1989 vs. 1986–1995) and disparate data sources, such as the Prytherch (1983) study for specific gear types. When apportioned independently across species, the sum of individual species landings may fail to equal the total reported unclassified landings. To ensure consistency in future assessments, several analyses were conducted to establish a universal apportionment standard. The findings are summarized below:

- A four-year reference period (1986–1989) was selected over a longer ten-year period (1986–1995). While a longer series used in SEDAR 33 was intended to capture more stable proportions for Gag and Black Grouper, the shorter time series is likely more representative of historical catch compositions and follows more common practice in previous data provisions for stock assessments.
- The Prytherch (1983) proportions were excluded from the standard. As a limited study, it lacked the geographic breadth necessary for all species (e.g., it recorded no Scamp off Texas, where they still occur in low levels).
- Gear and fishing areas are critical drivers of species composition. Proportions of groupers to the total unclassified grouper (except Goliath and Warsaw) differed by gear (handline, longline, and other) and general subregion (East: fishing areas 1-6, Central: 7-12, and West: 13-21).
- To optimize the spatial scale of the apportionment, a hierarchical cluster analysis using Ward's method was performed. The goal was to ensure that area groupings were specific enough to capture regional variation but broad enough to avoid proportions calculated from single data points. This analysis resulted in the following refined area groupings: fishing areas 1, 2, 3, 4, 5, 6, 7, 8, 9–14, and 15–21. Because the majority of groupers are harvested along the West Florida Shelf, these fishing areas (1–8) maintained sufficient sample sizes and variation to remain individual strata, while areas with lower sampling density were clustered.

Based on these findings, the following standardized procedure was adopted for Gag and Black Grouper:

1. **Pre-1986 Landings (1962–1985):** Unclassified groupers are apportioned using fixed proportions derived from 1986–1989 data. These proportions are stratified by gear (handline, longline, and other) and refined area groups (1, 2, 3, 4, 5, 6, 7, 8, 9–14, and 15–21) (Table 3).
2. **Post-1986 Landings (1986–Present):** While species-specific reporting improved after 1986, some unclassified landings remain. These are apportioned using annual species compositions within the same gear and area strata defined above (Table 4).

Black Grouper (*Mycteroperca bonaci*) Misidentification

Following the methodology established in SEDAR 72 (Smith et al., 2021), proportions of Gag Grouper relative to the combined Gag and Black Grouper catch were derived from Trip Interview Program (TIP) data. These proportions were stratified by gear group (handline, longline, and other), fishing area, and management period (1986–1989, 1990–1999, and 2000–2009). The resulting stratum proportions were applied to Black Grouper landings from 1986 to 2009, while the 1986–1989 proportions were used as a proxy for landings reported between 1962 and 1985.

IFQ Program

In 2010, the Gulf Council started a program whereby fishermen own a portion of the annually allocated Gag Grouper quota which is also tradeable from one permit holder to another. The Program is administered by the NOAA Fisheries Southeast Regional Office (SERO). IFQ landings records lack gear and area information, both of which are needed for the assessment process. In order to ensure that the landings in the SEFSC Oracle databases are matching what is reported to SERO and which is deemed the most accurate data, Gag Grouper landings are corrected to match the IFQ landings data. Annual IFQ correction factors are calculated from the difference between the SEFSC landings to SERO landings and applied to the SEFSC landings from 2010-2024 (Table 5).

Results

Annual calculated Gag Grouper landings totals are summarized in Figure 2. Prior to 2000, landings were relatively stable at approximately 1.5 million pounds (gutted weight), before peaking in the early 2000s. The significant decline in 2006 is a result of a trip limit for the shallow-water and deep-water groupers (Table 6). IFQ was implemented in 2010, where reported Gag landings were on average 69% of the allowable quota (Sagarese et al. 2025). The recent decline in landings is attributed to a significant decrease in the annual Gag quota. Figure 3 shows the annual landings totals summarized by gear group (handline + other and longline), with the majority of landings coming from the handline fishery. A comparison between SEDAR 105 and SEDAR 72 are shown in Figure 4.

Changes from SEDAR 72

- The Life History Topical Working Group calculated a new whole-to-gutted weight conversion factor of 1.057. To integrate this updated factor, all landings were maintained in whole weight throughout the initial data processing and apportionment steps. The conversion to gutted weight was applied only after Gag Grouper landings had been separated from the unclassified grouper totals and the misidentified Black Grouper records. This sequence was necessary for the following reasons: (1) ALS landings are stored in whole weight, and the original "native" units (as reported by dealers) cannot be recovered for back-calculation and (2) It would be biologically and methodologically inappropriate to apply a conversion factor derived for Gag Grouper to Black Grouper records. According to state trip ticket data, which records landings in gutted or whole weight, the vast majority of Black and Gag Grouper are landed in gutted weight.

Therefore, the application of this updated conversion factor is expected to have a minimal impact on the total estimated landings.

- For SEDAR 72, fishing area was used to assign landings to the Gulf or South Atlantic stocks for the entire time series. When fishing area was missing, county landed was used with Monroe county, FL being assigned to the Gulf. For the current assessment, Monroe county landings were apportioned to the Gulf and the South Atlantic (regardless of reported fishing area) using coastal logbook data and applied to the landings from 1962 to 2009. This resulted in landings totals that were slightly different from the previous assessment, however, the impact of this procedure was minimal. By 2010, fishing area reported on trip tickets are considered reliable and the methodology to define the stock boundary are the same between assessments.
- The standardized method for apportioning unclassified grouper landings to Gag Grouper yielded the largest discrepancy between SEDAR 105 and SEDAR 72. For the SEDAR 72 assessment, proportions were calculated by state, gear, and area (1-21). There were instances where FL landings caught in the western Gulf waters received a high proportion (up to 30%), but derived from a very small sample size. By aggregating areas in the western Gulf and removing state landed, the proportions for Gag and Black Grouper are reduced and more stable. This led to the overall reduction in landings for SEDAR 105.

Uncertainty estimates by state and shifts in data collection specificity are summarized in Table 7. Prior to 1986, when all grouper landings were reported as “unclassified”, the uncertainty is considered bidirectional since changes in the apportionment methodology can significantly shift landings in either direction. With the implementation of state trip ticket programs, uncertainty is estimated at 5% and becomes unidirectional to reflect potential under-reporting of total landings. Following the transition to an Individual Fishing Quota (IFQ) system in 2010, uncertainty is further minimized as SERO manages all transactions.

Literature Cited

- Atkinson, S., M. Judge, and R. Orhun. 2021. Coastal Fisheries Logbook Program Metadata. SEDAR74-DW-3. SEDAR, North Charleston, SC. 17 pp.
- Donaldson, D.M. 2004. Overview of the State Trip Tickets Programs in the Gulf of Mexico. SEDAR7-DW-20. SEDAR, North Charleston, SC. 11pp.
- Gloeckner D.R. 2014. Description of Commercial Landings Programs in the Southeast and ALS Database. SEDAR-PW-RD57. SEDAR, North Charleston, SC. 13pp.
- Poffenberger, J. 2003. Description of the Southeast Fisheries Science Center's Logbook Program for Coastal Fisheries. SEDAR-DW-29. SEDAR, North Charleston, SC. 9pp.
- Prytherch, H. F. 1983. *A descriptive survey of the bottom longline fishery in the Gulf of Mexico* (NOAA Technical Memorandum NMFS-SEFC-122). U.S. Department of Commerce, National Marine Fisheries Service, Southeast Fisheries Center.
- Sagarese, S. R., Atkinson, S., Malone, G., Rios, A. B., McCarthy, K. J., & Matter, V. M. 2025. *Synthesis of management histories for Gulf of America reef fishes through 2024* (NOAA Technical Memorandum NMFS-SEFSC-793). U.S. Department of Commerce, Southeast Fisheries Science Center. <https://doi.org/10.25923/h0jt-xe51>.
- Smith, S. G. M. R. Orhun, K. J. McCarthy, L. Beerkircher, S. F. Atkinson, S. Martínez-Rivera, M. H. Stevens. 2021. Re-Analysis of Gag/Black Grouper Mis-Reporting Correction Factors in the Gulf of Mexico. SEDAR72-DW-15. SEDAR, North Charleston, SC. 17 pp.

Tables

Table 1: Gears observed in the Gag Grouper (*Mycteroperca microlepis*), Black Grouper (*Mycteroperca bonaci*), and unclassified grouper datasets, and their respective gear groupings used to aggregate the data.

FIN Gear Code	Gear Name	SEDAR Gear Group
300	HOOK AND LINE	HANDLINE
301	HOOK AND LINE, MANUAL	HANDLINE
302	HOOK AND LINE, ELECTRIC	HANDLINE
303	ELECTRIC/HYDRAULIC, BANDIT REELS	HANDLINE
320	TROLL LINES	HANDLINE
321	TROLL LINE, MANUAL	HANDLINE
322	TROLL LINE, ELECTRIC	HANDLINE
324	TROLL LINE, GREEN-STICK	HANDLINE
700	HAND LINE	HANDLINE
701	TROLL AND HAND LINES CMB	HANDLINE
400	LONG LINES	LONGLINE
402	LONG LINES, SURFACE	LONGLINE
403	LONG LINES, BOTTOM	LONGLINE
404	LONG LINES, SURFACE, MIDWATER	LONGLINE
405	LONG LINES, TROT	LONGLINE
408	BUOY GEAR	LONGLINE
010	HAUL SEINES	OTHER
060	FYKE NETS	OTHER
080	BEAM TRAWLS	OTHER
092	OTTER TRAWL BOTTOM, FISH	OTHER
095	OTTER TRAWL BOTTOM, SHRIMP	OTHER
110	OTHER TRAWLS	OTHER
116	TRAWL, SKIMMER	OTHER
118	BUTTERFLY NETS	OTHER
130	POTS AND TRAPS	OTHER
132	POTS AND TRAPS, BLUE CRAB	OTHER
138	POTS AND TRAPS, EEL	OTHER
139	POTS AND TRAPS, FISH	OTHER
140	POTS AND TRAPS, SPINY LOBSTER	OTHER
145	POTS AND TRAPS, STONE CRAB	OTHER
164	POTS AND TRAPS, COLLAPSIBLE CRAB	OTHER

180	POTS AND TRAPS, OTHER	OTHER
200	GILL NETS	OTHER
205	GILL NETS, RUNAROUND	OTHER
207	GILL NETS, OTHER	OTHER
210	TRAMMEL NETS	OTHER
410	GILL NETS, CRAB	OTHER
500	DREDGE	OTHER
551	CAST NETS	OTHER
552	BULLY NETS	OTHER
660	SPEARS	OTHER
661	SPEARS, DIVING	OTHER
671	SPONGE HOOKS	OTHER
750	BY HAND, DIVING GEAR	OTHER
760	BY HAND, NO DIVING GEAR	OTHER

Table 2: The logbook proportion of Gag and Black Grouper landings from Monroe county, Florida fished in Gulf of America waters, where the complementary proportion listed is the proportion being assigned to the South Atlantic. These proportions were calculated by gear group (spearfishing, handline, longline, pots and traps, and unknown). The average proportion using 1993-1997 data was used to apportion Monroe landings between 1962-1992. Given landings were restricted to a single county, there are more issues with confidentiality. The (*) cells indicate confidential data.

Species	Year	Spearfishing	Handline	Longline	Unknown	Pots and Traps
GROUPE, BLACK	1993 - 1997	0.4756	0.3627	0.9383	0.8452	0.996
GROUPE, BLACK	1993	0.4687	0.3955	0.7557	*	0.9955
GROUPE, BLACK	1994	0.5855	0.4018	0.9948	0.9468	1
GROUPE, BLACK	1995	0.6734	0.4229	0.9865		0.9948
GROUPE, BLACK	1996	0.3658	0.3018	0.9669	*	0.9941
GROUPE, BLACK	1997	0.3108	0.285	0.9129	0.8201	0.9964
GROUPE, BLACK	1998	0.2031	0.3042	0.9456		1
GROUPE, BLACK	1999	0.4898	0.3683	1	*	0.984
GROUPE, BLACK	2000	0.3251	0.3348	0.9138	0.9737	0.9798
GROUPE, BLACK	2001	0.2331	0.3409	0.8523	0.2057	1
GROUPE, BLACK	2002	0.2482	0.4247	0.9607	0.9033	0.9861
GROUPE, BLACK	2003	0.1457	0.3524	0.9074	0.612	1
GROUPE, BLACK	2004	0.248	0.2706	0.8335	*	*
GROUPE, BLACK	2005	0.1775	0.2388	0.9529		*

GROUPER, BLACK	2006	0.3633	0.3637	0.9945		*
GROUPER, BLACK	2007	0.3413	0.1937	1		*
GROUPER, BLACK	2008	0.4784	0.2967	0.9921		
GROUPER, BLACK	2009	0.5021	0.2863	0.9942		
GROUPER, BLACK	2010	0.3011	0.287	*		
GROUPER, BLACK	2011	0.2762	0.2645	*		
GROUPER, BLACK	2012	0.0881	0.3449	*		
GROUPER, BLACK	2013	0.0652	0.1528	*		
GROUPER, BLACK	2014	0.1241	0.122	*		
GROUPER, BLACK	2015	0.0378	0.0351			
GROUPER, BLACK	2016	0.0662	0.0167	*		
GROUPER, BLACK	2017	0.0249	0.0342			
GROUPER, BLACK	2018	0.0632	0.0424			
GROUPER, BLACK	2019	*	0.0987	*		
GROUPER, BLACK	2020	0.0255	0.1985	*		
GROUPER, BLACK	2021	0.0723	0.074	*		
GROUPER, BLACK	2022	*	0.0688	*		
GROUPER, BLACK	2023	*	0.0467	*		
GROUPER, BLACK	2024	*	0.0268	*		
GROUPER, GAG	1993 - 1997	0.715	0.4873	0.9704	1	1
GROUPER, GAG	1993	0.9496	0.6875	*		1
GROUPER, GAG	1994	0.9607	0.6983	*	*	1
GROUPER, GAG	1995	0.8914	0.5965	1		1
GROUPER, GAG	1996	0.3784	0.268	0.9065		1
GROUPER, GAG	1997	*	0.3519	0.9878	*	*
GROUPER, GAG	1998	*	0.2944	0.935		
GROUPER, GAG	1999		0.761	1		*
GROUPER, GAG	2000	0.5993	0.4266	0.9882	*	*
GROUPER, GAG	2001	0.2302	0.5333	0.9588		*
GROUPER, GAG	2002	0.8067	0.6854	1		*
GROUPER, GAG	2003	*	0.3916	0.9793		*
GROUPER, GAG	2004	*	0.2753	1		*
GROUPER, GAG	2005	0.696	0.2938	1		
GROUPER, GAG	2006	0.6391	0.8919	1		
GROUPER, GAG	2007	0.2466	0.1085	*		
GROUPER, GAG	2008	*	*	*		
GROUPER, GAG	2009	0.388	0.4438	*		
GROUPER, GAG	2010	*	0.7867	*		
GROUPER, GAG	2011	*	0.4588	*		

GROUPER, GAG	2012	0.6181	0.372	*
GROUPER, GAG	2013	*	*	*
GROUPER, GAG	2014	0.1591	0.105	
GROUPER, GAG	2015	0.6012	0.3315	
GROUPER, GAG	2016	0.3203	0.2294	*
GROUPER, GAG	2017	*	0.2125	
GROUPER, GAG	2018	0.305	0.0864	*
GROUPER, GAG	2019	*	0.1364	*
GROUPER, GAG	2020	0.7732	0.295	*
GROUPER, GAG	2021	*	0.2209	*
GROUPER, GAG	2022	*	0.6073	*
GROUPER, GAG	2023	*	*	*
GROUPER, GAG	2024	*	*	*

Table 3: Stratum proportions for to assign unclassified grouper to Gag Grouper. These proportions were calculated by gear (handline, longline, and other) and area groups using 1986-1989 data. Fishing areas 744, 748, 749 were aggregated with 001. The (*) cells indicate confidential data.

Species	Area	Handline	Longline	Other
GROUPER, BLACK	East 001	0.228	0.298	0.263
GROUPER, BLACK	East 002	0.222	0.11	0.192
GROUPER, BLACK	East 003	0.055	0.049	0.013
GROUPER, BLACK	East 004	0.032	0.038	0.035
GROUPER, BLACK	East 005	0.083	0.09	0.486
GROUPER, BLACK	East 006	0.197	0.135	0.407
GROUPER, BLACK	East 007	0.374	0.137	0.006
GROUPER, BLACK	East 008	0.221	0.183	0.705
GROUPER, BLACK	Central 009-014	0.191	0.018	0.284
GROUPER, BLACK	West 015-021	0.031	0.003	0.034
GROUPER, GAG	East 001	0.005	*	0.002
GROUPER, GAG	East 002	0.053	0.05	<0.001
GROUPER, GAG	East 003	0.072	0.024	<0.001
GROUPER, GAG	East 004	0.132	0.065	0.012
GROUPER, GAG	East 005	0.078	0.054	0.017
GROUPER, GAG	East 006	0.129	0.121	0.012
GROUPER, GAG	East 007	0.076	0.013	*
GROUPER, GAG	East 008	0.054	0.008	0.213
GROUPER, GAG	Central 009-014	0.116	0.009	0.476

GROUPEr, GAG	West 015-021	0.022	0.013	0.014
--------------	--------------	-------	-------	-------

Table 4: Annual stratum proportions by gear (handline, longline, and other) and area groups to assign unclassified grouper to Gag Grouper. Fishing areas 744, 748, 749 were aggregated with 001. This table is showing a single year as an example. The (*) cells indicate confidential data.

Species	Year	Area	Handline	Longline	Other
GROUPEr, BLACK	1986	East 001	0.215	0.468	0.095
GROUPEr, BLACK	1986	East 002	0.107	0.111	0.15
GROUPEr, BLACK	1986	East 003	0.033	0.039	0.017
GROUPEr, BLACK	1986	East 004	0.039	0.045	0.026
GROUPEr, BLACK	1986	East 005	0.104	0.091	0.245
GROUPEr, BLACK	1986	East 006	0.278	0.248	*
GROUPEr, BLACK	1986	East 007	0.343	0.118	0.987
GROUPEr, BLACK	1986	East 008	0.358	0.111	0.517
GROUPEr, BLACK	1986	Central 009-014	0.123	*	*
GROUPEr, BLACK	1986	West 015-021	*	*	*
GROUPEr, GAG	1986	East 001	0.008		
GROUPEr, GAG	1986	East 002	0.053	0.037	0.001
GROUPEr, GAG	1986	East 003	0.07	0.055	0.001
GROUPEr, GAG	1986	East 004	0.139	0.086	0.024
GROUPEr, GAG	1986	East 005	0.057	0.025	0.036
GROUPEr, GAG	1986	East 006	0.149	0.132	*
GROUPEr, GAG	1986	East 007	0.182	0.052	*
GROUPEr, GAG	1986	East 008	0.235	0.036	0.483
GROUPEr, GAG	1986	Central 009-014	0.146	0.023	0.933
GROUPEr, GAG	1986	West 015-021	0.078	0.118	*

Table 5: Individual Fishing Quota (IFQ) landings correction factor to scale Accumulated Landings System (ALS) and state trip ticket totals to the official IFQ reported totals managed by the Southeast Regional Office (SERO).

Year	Correction Factor
2010	0.975
2011	0.939
2012	0.931
2013	0.911
2014	0.941
2015	0.938
2016	0.953
2017	0.946
2018	0.950
2019	0.961
2020	0.958
2021	0.968
2022	0.980
2023	0.889
2024	0.907

Table 6: The annual calculated Gag Grouper landings by gear (handline + other and longline) from 1962 - 2024. The (*) cells indicate confidential data.

Year	Handline Plus	Longline
1962	1,156,674	
1963	1,181,881	
1964	1,446,373	
1965	1,594,366	
1966	1,352,513	
1967	1,065,862	
1968	1,146,965	
1969	1,281,572	
1970	1,186,880	
1971	1,295,802	
1972	1,315,284	
1973	1,044,928	

1974	1,149,776	
1975	1,401,159	
1976	1,158,407	
1977	1,000,177	
1978	900,419	
1979	1,400,681	1,210
1980	1,356,592	95,920
1981	1,347,948	476,731
1982	1,210,901	1,017,229
1983	1,004,693	696,007
1984	1,108,122	444,176
1985	1,366,155	406,671
1986	1,231,229	547,212
1987	895,379	690,244
1988	811,452	443,145
1989	1,302,824	453,623
1990	1,218,540	667,722
1991	1,043,361	537,953
1992	1,228,059	465,467
1993	1,381,035	521,669
1994	1,257,395	360,669
1995	1,248,226	392,521
1996	1,152,807	394,387
1997	1,166,717	413,691
1998	1,937,285	587,437
1999	1,528,691	547,342
2000	1,696,883	578,791
2001	2,163,104	945,186
2002	1,939,108	1,022,803
2003	1,515,970	1,090,657
2004	1,808,913	1,091,567
2005	1,600,554	878,472
2006	866,976	525,237
2007	792,214	470,223
2008	952,700	371,072
2009	593,405	155,090
2010	390,067	106,759
2011	234,543	84,120
2012	390,105	133,033

2013	381,817	193,518
2014	369,419	216,943
2015	285,424	257,350
2016	507,386	403,610
2017	308,739	183,356
2018	316,458	176,476
2019	352,224	179,791
2020	296,380	179,334
2021	349,893	212,956
2022	424,390	269,226
2023	137,860	96,719
2024	86,940	51,289

Table 7: Commercial landings uncertainty estimates by state and time period.

Year	TX	LA	MS	AL	FL	Comments
1962-1976	0.2	0.2	0.2	0.2	0.2	Annual state summaries; Gag Grouper reported as “unclassified” grouper
1977-1985	0.1	0.1	0.1	0.1	0.1	Monthly state summaries; Gag Grouper reported as “unclassified” grouper
1986-1999	0.1	0.1	0.1	0.1	0.05	FL starts state trip ticket in 1985; used starting in 1986
2000-2001	0.1	0.05	0.1	0.1	0.05	LA starts state trip ticket in 1997; used starting in 2000
2002-2009	0.1	0.05	0.1	0.05	0.05	AL starts state trip ticket and used starting in 2002
2010-Present	0.025	0.025	0.025	0.025	0.025	Start of IFQ Program where Gag landings monitored by SERO

Figures

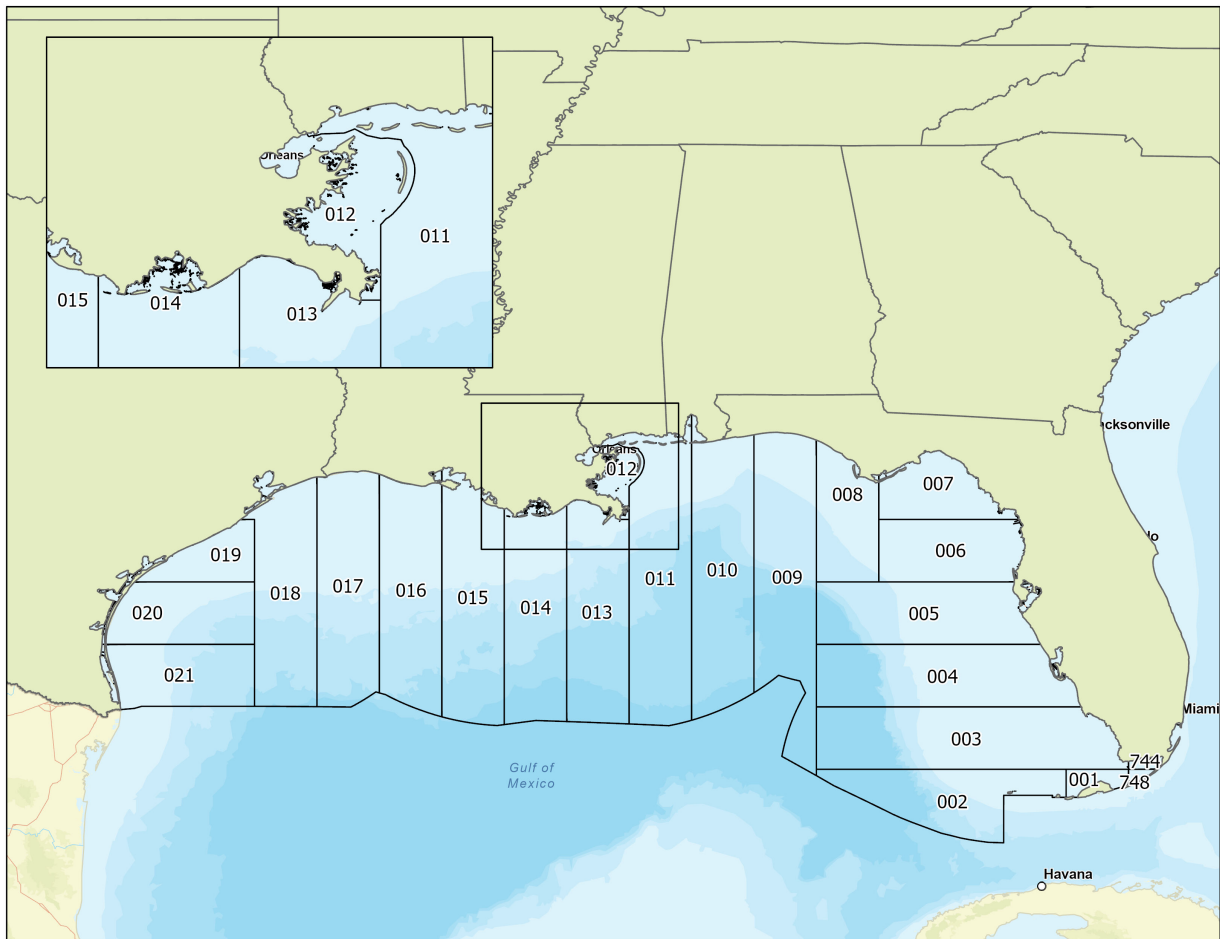


Figure 1: Gulf of America commercial fishing areas.

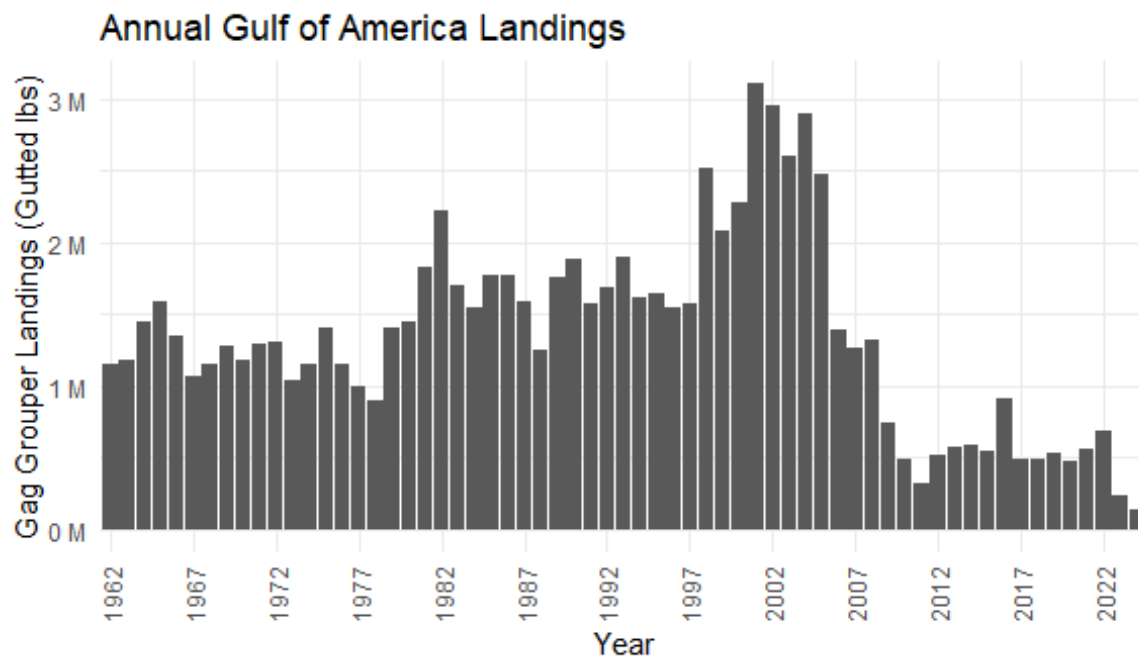


Figure 2: Annual calculated Gag Grouper commercial landings from 1962 to 2024.

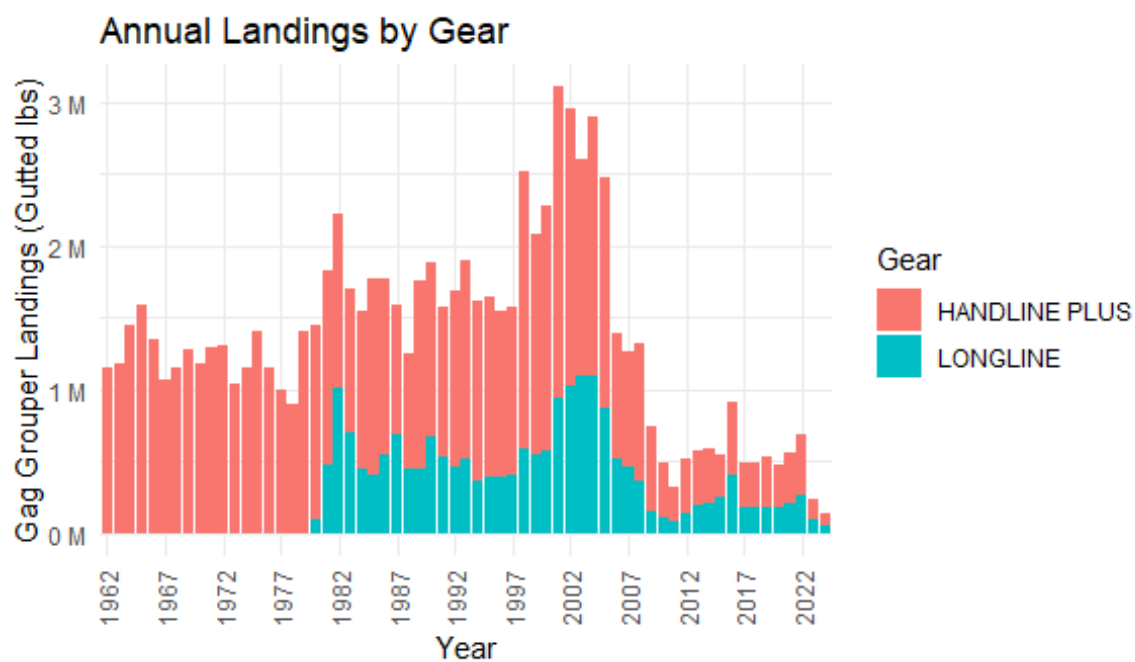


Figure 3: Annual calculated Gag Grouper commercial landings for Handline + Other and Longline gears. Confidential landings have been excluded.

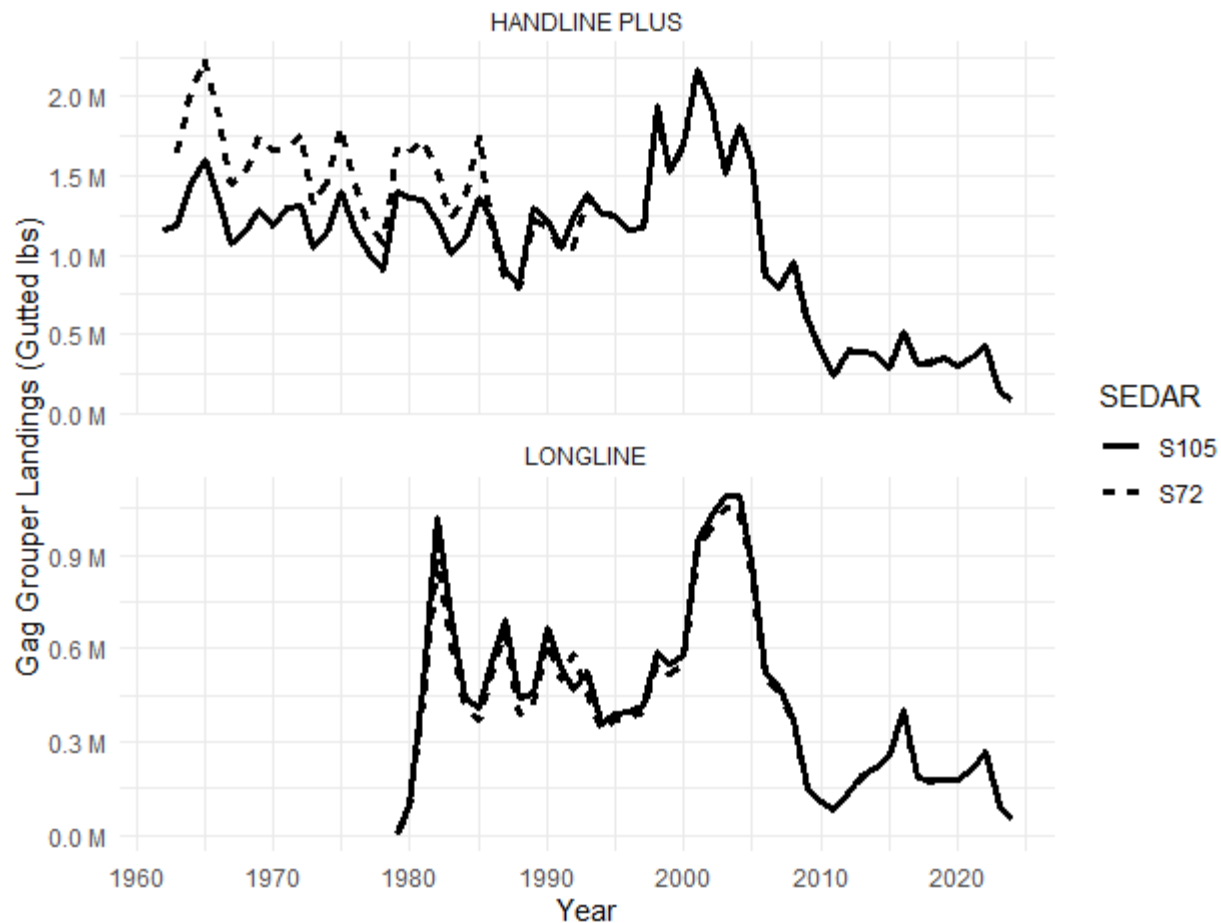


Figure 4: Annual calculated Gag Grouper commercial landings (in gutted weight pounds) by gear for the current SEDAR 105 compared to the previous assessment SEDAR 72 from 1962 - 2024. Confidential landings have been excluded.