

Commercial Shrimp Landings of Gulf of Mexico

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Introduction

The Gulf Shrimp Systems program was initiated in 1984 to provide comprehensive landings data for all shrimp species caught and landed at ports in the Gulf of Mexico. Shrimp landings data were collected by port agents that are located along the Gulf of Mexico, and were employed by the National Marine Fisheries Service. The data in the Gulf Shrimp System is referred to as “GSS”. These data are collected from dealers, who purchase the shrimp and where the shrimp are actually unloaded. Information gathered includes species, gear, value, size range, average price per pound, and area fished. As the data needs have changed over the years, The State Trip Ticket Reporting (STT) was developed by each of the Gulf States fisheries departments and implementation began in various years. The objective of this program is to collect commercial seafood landings and associated fishing information for each commercial fishing trip from the seafood dealers who purchase from the fishermen. Information gathered includes species and quantity harvested, gear used, market code, primary area harvested and the value of the catch sold.

Methods

Commercial Gulf Shrimp landings were compiled using data from several sources: the Gulf Shrimp System, an Oracle database housed at the Southeast Fisheries Science Center (SEFSC) in Miami, Florida; (2) the Gulf of Mexico Fisheries Information Network (GulfFIN) housed at the Gulf States Marine Fisheries Commission (GSMFC); and (3) Atlantic coast fishery-dependent data housed at Atlantic Coastal Cooperative Statistics Program (ACCSP). The variables in each data system (port, state, counties, gear, species and area fished) were translated into NMFS standard codes from the GS and FIN standards.

Data Sources

GSS System

The commercial shrimp data are available from 1956 to 2022. The data collection procedures have changed over the years. From 1956 to 1983, the federal port agents collected landings from dealers on to paper forms. These forms were sent to the National Marine Fisheries Service (NMFS) Headquarters in Silver Spring, MD for processing. Some changes were made during this period, including sporadic inclusion of the vessel identification number (i.e. The Coast Guard documentation number) in later records. The GSS System was started around 1984. Port Agents

began collecting and recording the landings data in the size ranges from the seafood dealers after the trips were unloaded. Because the number of fishing trips that occurred within the Gulf Shrimp fishery was so large, it was nearly impossible to record every trip. Therefore, the process for data collection was broken into two parts, depending on the size of the vessel. Port agents recorded landings data for individual trips made by large vessels (5 net tons or larger) that were fishing offshore. For smaller boats (less than 5 net tons) that were fishing inshore, the Port Agents consolidated the data and aggregated it to monthly totals of pounds, sizes, value and number of trips. Pounds and value were collected by size ranges in which the shrimp were purchased by the dealer. The overarching objective of the Gulf Shrimp systems was to provide catch, value, and area caught for individual commercial fishing trips. This information was entered into a desktop program with the GSS coding standard. The shrimp data was processed through the Desktop application then it was exported and sent to Galveston Lab for final processing. The final data is stored maintained at the SEFSC.

STT Reporting

Concurrent with the GSS data collection, state trip ticket reporting systems were implemented by each Gulf state in different landing years. The commercial seafood dealers are responsible for completing the tickets within 72 hours of taking possession of seafood purchased directly from commercial fishermen. Completed tickets must be submitted to the respective State office by the 10th of the month for the preceding month. Trip tickets may be submitted as often as dealers like as long as all of the trip tickets generated during a month are sent by the 10th.

There are two methods in which the dealers can complete and submit the trip tickets. The first method, an electronic computer program, allows a dealer to enter trip ticket data directly into a computer and submit it to the state office. The second method involves the completion of trip tickets on the paper forms provided by states. Most states have more than one type of form, which each state has developed to accommodate specific landing occurrences. The state then translates the gear, species, area fished, market/grade, disposition codes from the state code system to the FIN coding standard and submits the data to GSMFC.

Data Stratification

The Commercial Gulf Shrimp landings were compiled from Texas through the Gulf (West) Coast of Florida. The boundary was established by the GS program which uses the NMFS Statistical

Grid Zones for the Gulf of Mexico (Figure 1). For the purposes of this assessment, the Gulf of Mexico is divided has been aggregated into three statistical grids: SUBAREA 1-10, 11-17, and 18-21; however, 'UNK' is added for grid 0, and 'UNK' is also added in IN/OFF where grid is 0 and shore is 0. The shrimp sizes were grouped into three headless shrimp "Size Bins": more than 67 shrimp per pound, between 31 and 67 shrimp per pound, and fewer than 30 shrimp per pound and an additional group NULL (Table 2). The landing months were aggregated into three seasons, January to April (JFMA), May to August (MJJA), and September to December (SOND). The annual summary of brown, pink, and white shrimp landings are presented in Table 6, while Figure 2 shows the same information graphically for 1960-2022. More detailed data at the finer level of stratification have been provided to SEDAR and the SEDAR analysts.

Data Compilation

The SEFSC maintains the GS tables in ORACLE and the data are in the GS coding standard. The STT data housed at GSMFC are in the Fisheries Information Network (FIN) standard. Data that were provided for this SEDAR were translated to the NMFS coding standard. Additionally, new conversion factors were applied to convert from head-on to headless shrimp for Brown (1.548), Pink (1.565) and White (1.568) shrimp for the entire time period, 1960 to 2022 (GSMFC 2023: SEDAR87-RD-09). The data presented here is revised from the dataset provided in the previous version of this Working Paper with the following changes:

- Values for the shrimping area, "GRID," were expanded from 1 – 21 to also include "0" or "missing values" to take into account that, for Florida trip ticket data between 1986 and 1995, the area fished code was not reported for the majority of records.
- For GSS data between 1960 and 1983, size categories were assigned using the fixed codes from 0 to 9 as shown in Table 3. For this analysis the minimum and maximum bin size variables were assigned according to the minimum and maximum size codes for the corresponding codes in in Table 3.
- To avoid the problems associated with the historical practice of coding missing values as "9" or "999", records where the size categories were unknown or unreported were recoded as null. In addition, "null" is assigned for records with a maximum size category limit greater 300, as these were considered by the Working Group to most likely be errors.

The following data were used for each respective state and year ranges:

Texas

GS from 1960 – 2014

STT from 2015 – 2022

Louisiana

GS from 1960 – 2000

STT from 2001 – 2022

Mississippi

GS from 1960 – 2015

STT from 2016 – 2022

Alabama

GS from 1960 – 2001

STT from 2002 – 2022

Florida West Coast

GS from 1960 – 1983

STT from 1984 – 2022

Sources

Gulf Shrimp System

National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Southeast Fisheries Science Center
Contact: Alan Lowther, Fisheries Statistics Division
Address: 75 Virginia Beach Dr.
Miami, FL 33149
Email: Alan.Lowther@NOAA.gov
Phone: (305) 209 - 7586

State Trip Ticket

Gulf State Marine Fisheries Commission
Fisheries Information Network
Contact: Gregg Bray or Donna B. Bellais
Address: 2404 Government St
Ocean Springs, MS 39564
Email: info@gsmfc.org
Phone: (228) 875-5912

Atlantic Coastal Cooperative Statistics Program Commercial Data
Contact: Mike Rinaldi
Address: 1050 N Highland St 200a n
Arlington, VA 22201
Email: info@accsp.org
Phone: (703) 842-0780

Tables

Table 1: Shore Code

SHORE	DESCRIPTION
0	state offshore water, beach out to 3/9 miles
1-7	inshore water, estuary, bay
8,9	Federal Water, EEZ

Table 2: Count size per pound-condensed bins based on SEDAR 87 Terms of Reference

BIN_SIZE	SIZE_RANGE
1	Less than 31
2	Between 31 and 67
3	Greater than 67
U	NULL

Table 3: GSS Size Codes (1960-1983)

Size_Code	Min/Max_Size
0	No sizes
1	01/14
2	15/20
3	21/26
4	26/30
5	31/40
6	41/50
7	51/66
8	67/100
9	Pieces

Table 4: Shrimp Species Codes Cross Reference between Gulf Shrimp, FIN and NMFS System

GS_SPC	ITIS	NMFS_SPC	COMMON_NAME
1	551570	7310	Brown shrimp
1	095605	7310	Brown shrimp
2	095608	7320	Pink shrimp
2	551574	7320	Pink shrimp
3	551680	7340	White shrimp
3	095610	7340	White shrimp

Table 5: State, County and GS Port Reference codes

STATE_NAME	NMFS_STATE	FIN_STATE	NMFS_COUNTY	FIN_COUNTY	GS_PORT
Florida Westcoast	11	12	001	005	08
Florida Westcoast	11	12	003	015	12
Florida Westcoast	11	12	005	017	16
Florida Westcoast	11	12	007	021	02
Florida Westcoast	11	12	009	029	18
Florida Westcoast	11	12	011	033	11
Florida Westcoast	11	12	013	037	06
Florida Westcoast	11	12	015	045	07
Florida Westcoast	11	12	017	053	19
Florida Westcoast	11	12	019	057	04
Florida Westcoast	11	12	023	071	03
Florida Westcoast	11	12	025	075	13
Florida Westcoast	11	12	027	081	15
Florida Westcoast	11	12	029	087	01
Florida Westcoast	11	12	031	091	28
Florida Westcoast	11	12	033	101	29
Florida Westcoast	11	12	035	103	05
Florida Westcoast	11	12	037	113	10
Florida Westcoast	11	12	039	115	14
Florida Westcoast	11	12	043	129	17
Florida Westcoast	11	12	045	131	09
Alabama	01	01	001	003	20
Alabama	01	01	003	097	21
Mississippi	27	28	001	045	32
Mississippi	27	28	003	047	31
Mississippi	27	28	005	059	30

Table 4 Cont.: State, County and GS Port Reference codes

STATE_NAME	NMFS_STATE	FIN_STATE	NMFS_COUNTY	FIN_COUNTY	GS_PORT
Louisiana	21	22	009	023	52
Louisiana	21	22	009	023	56
Louisiana	21	22	011	045	50
Louisiana	21	22	013	051	45
Louisiana	21	22	013	051	53
Louisiana	21	22	015	053	54
Louisiana	21	22	019	057	47
Louisiana	21	22	021	071	42
Louisiana	21	22	023	075	44
Louisiana	21	22	025	087	43
Louisiana	21	22	027	089	46
Louisiana	21	22	033	101	49
Louisiana	21	22	035	103	40
Louisiana	21	22	037	105	41
Louisiana	21	22	039	109	48
Louisiana	21	22	039	109	55
Louisiana	21	22	041	113	51
Texas	46	48	001	007	78
Texas	46	48	003	039	73
Texas	46	48	005	057	76
Texas	46	48	005	057	83
Texas	46	48	005	057	88
Texas	46	48	005	057	89
Texas	46	48	007	061	81
Texas	46	48	007	061	82
Texas	46	48	009	071	71
Texas	46	48	011	167	72
Texas	46	48	011	167	85
Texas	46	48	013	201	84
Texas	46	48	015	245	70
Texas	46	48	019	321	74
Texas	46	48	019	321	86
Texas	46	48	019	321	87
Texas	46	48	021	355	79
Texas	46	48	021	355	80
Texas	46	48	025	391	77
Texas	46	48	029	489	75

Table 6: GOM Annual Landings of Brown, Pink and White Shrimp in Million Pounds

YEAR	Brown Mil.	Pink shrimp	White shrimp	YEAR	Brown Mil.	Pink shrimp	White shrimp
1960	64.05	21.09	27.51	1991	91.81	5.86	45.02
1961	30.41	9.66	13.00	1992	72.15	5.86	47.04
1962	30.96	15.84	22.34	1993	71.36	8.47	38.19
1963	52.60	18.78	45.79	1994	71.58	7.73	44.75
1964	38.35	21.75	42.91	1995	81.94	12.09	48.28
1965	59.08	14.99	32.55	1996	80.21	16.22	35.33
1966	59.49	14.28	29.16	1997	70.91	10.84	38.31
1967	97.45	10.51	23.62	1998	83.95	14.88	53.90
1968	73.89	11.88	29.69	1999	85.52	6.98	53.98
1969	63.88	11.51	43.58	2000	101.39	5.96	70.43
1970	78.31	13.07	44.72	2001	93.88	7.95	53.86
1971	84.28	10.50	41.07	2002	78.39	8.03	52.50
1972	84.31	11.21	36.67	2003	88.31	8.05	59.88
1973	53.54	14.82	33.29	2004	77.88	8.49	66.49
1974	57.66	15.44	30.11	2005	61.07	7.09	63.65
1975	53.36	14.99	27.30	2006	91.52	6.02	84.89
1976	80.87	13.31	35.86	2007	74.88	3.28	64.90
1977	100.79	16.56	45.38	2008	53.61	4.51	64.79
1978	90.91	16.37	47.15	2009	78.84	3.80	73.57
1979	74.24	14.16	34.22	2010	46.61	5.21	57.91
1980	70.86	13.17	41.95	2011	75.41	4.36	56.86
1981	103.49	19.19	45.28	2012	66.98	3.50	66.26
1982	77.80	11.90	38.52	2013	68.27	3.64	55.46
1983	63.81	12.91	41.44	2014	66.60	5.95	59.58
1984	85.33	14.97	55.03	2015	66.95	5.13	53.96
1985	89.96	16.24	57.86	2016	49.95	5.11	68.95
1986	103.07	9.59	69.66	2017	57.86	11.21	68.65
1987	96.24	9.02	52.80	2018	71.75	12.74	51.45
1988	85.07	7.28	44.84	2019	41.61	7.56	65.60
1989	98.96	6.71	36.24	2020	41.54	7.53	58.84
1990	108.69	6.02	43.70	2021	42.80	7.70	62.60
				2022	32.06	9.66	67.90

Figures

Figure 1: NMFS Statistical Grid Zones for the Gulf of Mexico

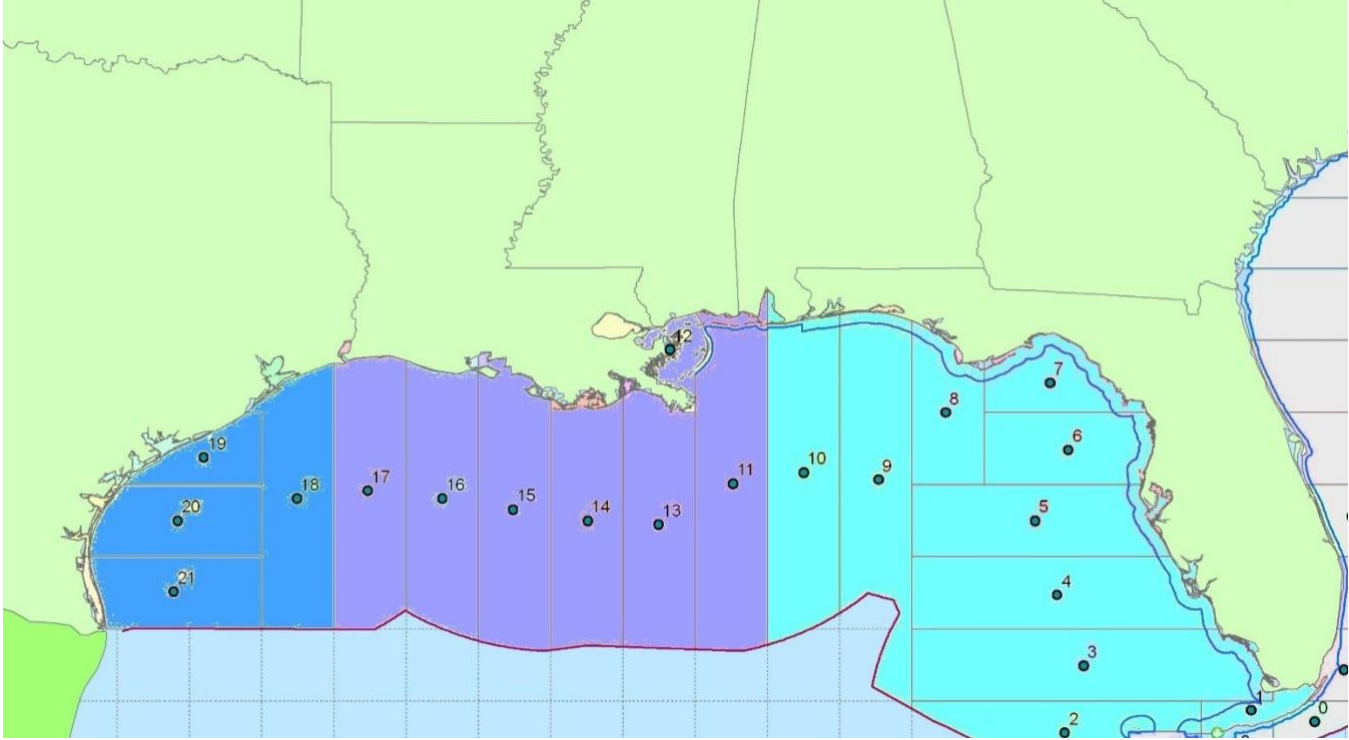
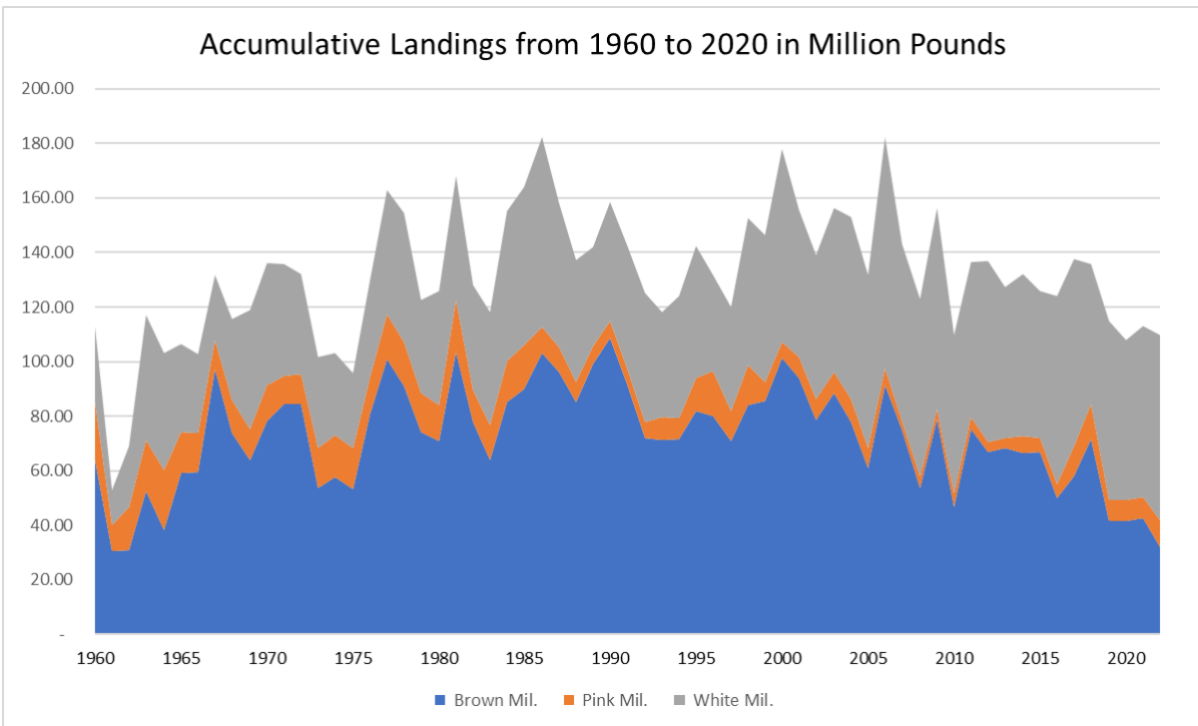
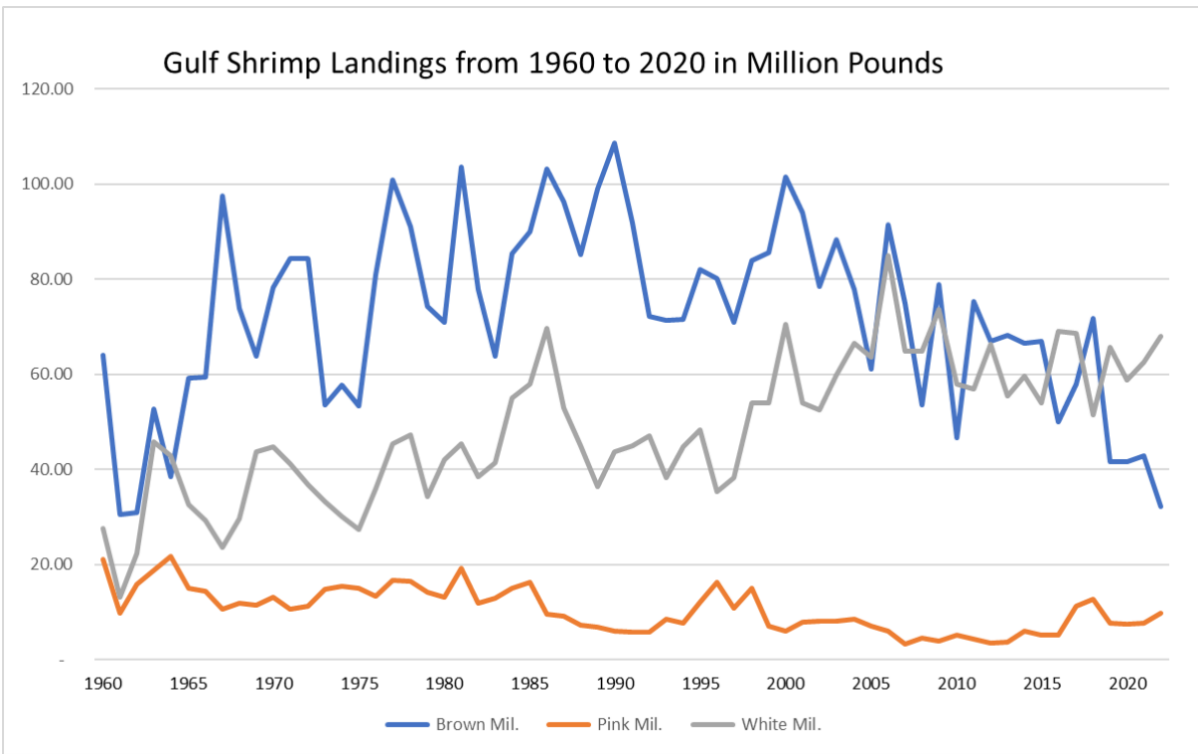


Figure 2: Shrimp landings by species (Brown, Pink & White) in the Gulf of Mexico, 1960-2022, and accumulated landings for the same species and periods.



Metadata – Raw Data File (Trip Level)

SOURCE

Which system is the data coming from: Gulf Shrimp System (GSS), State Trip Ticket reporting (GFIN, MV_ACCSP)

NMFS_ST

NMFS State Codes were translated from either GSS or FIN

NMFS_CNTY

NMFS County codes were translated from either GSS or FIN

NMFS_SPC

Species codes were translated from GSS or ITIS

COMMON_NAME

Shrimp species common name

NMFS_GEAR

NMFS gears were translated from either GSS or FIN

GEAR_NAME

Gear used common name

CGST_VSNO

US Coast Guard documentation or state registration number

YEAR

Year of landing

MONTH

Month of landing

DAY

Day of landing

DEALER_NUMBER

GSS, dealer codes were created/assigned by Fed. Port agents. 2001 the State commercial wholesale registered license numbers are being used

SCHEDULE_NUMBER

Only occur in GSS, these numbers were created/assigned by Fed. Port agents or generated by the GSS application

TT_NUMBER

Only occur in STT, this number is coming from the state trip ticket reporting

RIVER

This Data is derived from the first digit of the ALS_WATERBODY which translated from the FIN AREA_CODE and SUB_AREA_CODE

GRID

This Data is derived from two digits in the second position of the ALS_WATERBODY which translated from the FIN AREA_CODE and SUB_AREA_CODE

SHORE

This Data is derived from the last digit of the ALS_WATERBODY which translated from the FIN AREA_CODE and SUB_AREA_CODE

IN/OFF

This data is derived from shore code:

OFF (0) state water off shore (beach out to 3 or 9 miles),

IN (between 1 & 7) inshore water (estuary, bay, beach inward)

EZZ (8 or 9) Federal water

UNK, unknow area fished or missing data

CON_LANDED

Condition of the shrimp when it was landed head-on (1); head-less, tail (0) or mix (2)

SZMIN/SZMAX

Size data from 1960-1983 was translated from size codes 1-8 to standard size categories, see Table 3. MV_ACCSP, The Market Code is translated; GFIN, the data was derived from MARKET_COUNT_MIN/MAX or MARKET_CODE and all missing data are set to NULL

CAL_SIZE

This is the calculation from $((SZMIN + SZMAX)/2) + 0.5$

BIN_SIZE

This value is determined by CAL_SIZE, 1 as large (CAL_SIZE < 31); 2 as medium (CAL_SIZE between 31 and 67); 3 as small (CAL_SIZE < 31); U (CAL_SIZE is NULL)

HL_LBS

Rename from New HL_LBS where new conversion factors were applied to brown (HL_LBS * 1.61/1.548), pink (HL_LBS * 1.60/1.565), & white (HL_LBS * 1.54/1.568)

VALUE

Pound*PPP (GSS); dealer report total value (STT)

PPP

Price per pound, the actual Ex-vessel price was collected and recorded (GSS); the price is Calculated as Dollars/pounds (STT)

Metadata – Strata Summary Data File

SOURCE

Which system is the data coming from: Gulf Shrimp System (GSS), State Trip Ticket reporting (GFIN, MV_ACCSP)

NMFS_ST

NMFS State Codes were translated from either GSS or FIN

YEAR

Year of landing

NMFS_SPC

Species codes were translated from GSS or ITIS

COMMON_NAME

Shrimp species common name

SEASON

JFMA for month from January to April; MJJA for month from May to August and SOND for month from September to December

SUBAREA

This is derived from GRID variable, UNK, 0; '01-10', grid between 1 and 10; '11-17', grid between 11 and 17; '18-21', grid between 18 and 21

IN/OFF

This data is derived from shore code: OFF (0) state water off shore (beach out to 3 or 9 miles); IN (between 1 & 7) inshore water (estuary, bay, beach inward); EZZ (8 or 9) Federal water; UNK, missing data

BIN_SIZE

This value is determined by CAL_SIZE, 1 as large (CAL_SIZE < 31); 2 as medium (CAL_SIZE between 31 and 67); 3 as small (CAL_SIZE < 31); U (CAL_SIZE is NULL)

HL_LBS

Annual summary

VALUE

Annual summary

CONF

Determined if the confidentiality of the summary base on the count of distinct dealer license number; if the count is less than 3 then YES otherwise NO