

SPECIAL REPORT

Shrimp Landings and Production of the State of Texas for the Period 1956-1959. With a Comparison With Other Gulf States

by
Gordon Gunter
Field Laboratory
Texas Game and Fish Commission
Seabrook, Texas.

INTRODUCTION

A few years ago the United States Fish and Wildlife Service introduced a new, better and more complete system of collecting production statistics on the shrimp fishery. This program was carried on in collaboration with the various states. These statistics and some earlier ones collected by the Texas Game and Fish Commission were utilized in an assessment of the present status of the shrimp industry of Texas. We are concerned here with landings and production and not with price variations and other economic factors.

COMPARISON OF TEXAS SHRIMP LANDINGS WITH OTHER GULF STATES

a. Total Gulf Landings

During the years 1956 to 1959, inclusive, the total Gulf landings of shrimp tails was 426,950,352 pounds. Shrimp with the heads off are multiplied by a factor of 1.68 to give the total weight. The total Gulf landings of whole shrimp during this four year period was 717,276,771 pounds. (It should be noted that these figures do not represent total production of the Gulf states, for some of the shrimp were caught outside of territorial waters of the United States. Similarly, the figures do not represent the total production figures for the Gulf of Mexico, for we do not have statistics on Gulf shrimp landed in Mexico and Cuba.)

It should be noted in passing that the total United States landings during the same four year period, including the South Atlantic states, was about 825,000,000 pounds in terms of whole shrimp, with an average of about 206,000,000 pounds a year. The South Atlantic production comes from North and South Carolina, Georgia, and the Atlantic coast of Florida. Due to the high price of the product, the shrimp fishery is the most important one in the United States, exceeding any of the others in value, such as the menhaden fishery, although in 1956 and again in 1959 over two billions pounds of menhaden were landed.

During the 1956-1959 period the total Gulf landings of headed shrimp fluctuated from a low of 99 million pounds in 1957 to a high of 115 million pounds in 1959, with an average of slightly less than 107 million pounds a year. The figures are shown in Table 1 and are portrayed graphically in Figure I.

b. Landings by States

The annual Texas landings during the four year period varied from a little less than 37 million pounds in 1956 to over 50 million in 1959, with an average of over 44 million pounds a year. Texas landings were 41.5 per cent of the Gulf total during this period. The figures are given in Table 1 and shown graphically in Figure II.

Table 2 shows the variations in landings of headed shrimp for the several Gulf states, with averages and percentages. Several interesting facts are apparent. The Texas shrimp fishery is larger than that of any state in the union. Texas, Louisiana and Florida are the states with high landings and 90 per cent of the Gulf coast landings come into ports of these three states. The remaining 10 per cent go into Mississippi and Alabama ports. Louisiana and Florida landings are almost equal, but actually Louisiana stands higher as a producer than shown in the table because a considerable portion of the Mississippi and Alabama landings are caught in Louisiana waters. Furthermore, a considerable proportion of Texas and Florida landings come from the Campeche Banks, but Louisiana landings come primarily from waters of that state.

Among the high producing states the Louisiana landings fluctuated most from the averages, 32.0 per cent, and Texas landings fluctuated least, 16.7 per cent. Florida landings fluctuated 23.6 from the mean. These facts are noted here because stability of landings is of great importance to the industry.

Table 2 also shows that 1959 was the year of highest landings for Texas, Louisiana and Alabama and 1956 was the best year for Florida and Mississippi.

Figure III shows graphically the average annual shrimp landings of the various Gulf states for the four year period.

c. Landings by Species

Four species of shrimp are fished commercially in the Gulf of Mexico. The annual average landings in pounds of headed shrimp, for the four year period, by species were: seabobs (Xiphopeneus krøyeri) 1,264,633 (1.2 per cent); white shrimp (Penaeus setiferus) 21,479,019 (20.1 per cent); pink shrimp (Penaeus duorarum) 24,072,423 (22.5 per cent); brown shrimp (Penaeus aztecus) 59,921,361 (56.2 per cent). These figures are shown graphically in Figure IV.

Mississippi and Alabama landed only 1,101 pounds of seabobs, during the period under discussion. Florida landings of seabobs averaged 100,540 pounds annually or 8.0 per cent of the Gulf landings. Texas landed an average of 154,492 pounds a year or 12.2 per cent of the Gulf landings of this species. In Louisiana an average of 1,009,326 pounds of seabobs were landed a year, or 79.8 per cent of the Gulf catch of the species.

In Texas the seabob landings amounted to very slightly more than 0.3 per cent of the state total and in Florida the percentage was only 0.4. Actually, the seabob is only of importance to the State of Louisiana, where it amounted to 3.8 per cent of the landings. In 1959 seabob landings were 6.1 per cent of the Louisiana total. Seabobs are generally caught in United States waters, but they are not of much importance to Texas, and as pointed out above they make up only about 1.2 per cent of the Gulf landings.

In 1956-59 Florida landings of pink shrimp amounted to 23,265,323 pounds a year or 96.6 per cent of the Gulf total of pinks. Texas was second with 395,758 pounds a year or 1.6 per cent of the Gulf total. Mississippi, Alabama and Louisiana trailed in pink shrimp landings with less than 1.0 per cent each. The average annual landings for these three states were: 206,839, 130,330 and 74,172 pounds respectively. Florida dominates the pink shrimp landings in the Gulf of Mexico and this shrimp is of little importance to the other states.

The average annual landings of pink shrimp, white shrimp and brown shrimp are given by the states in Table 3, with percentages of Gulf landings. In addition to the facts brought out above, it should be noted that Louisiana led

in white shrimp landings and Texas led in brown shrimp production. The whites and browns are of little importance to Florida, but these two shrimp are of major importance to the other Gulf states. Texas ranks first in landings of the browns and second for each of the other three shrimp (seabobs, pinks and whites). Louisiana ranks first in landings of whites and seabobs, second in browns and last in pinks. The pink shrimp industry is predominantly Floridian.

The average annual landings of all shrimp in Texas by species are given in Table 5 with percentages of the State total. It is clear that Texas shrimp problems are concerned mostly with the brown and white shrimp.

Table 5 is a master table on Gulf shrimp production, from which all the others presented above may be derived.

TEXAS SHRIMP PRODUCTION

Actual production figures of shrimp taken in Texas waters from 1956-59 ranged from 24,873,550 pounds of headed shrimp to 34,399,946 and averaged 30,866,077 pounds annually. A comparison with Table 1 shows that Texas produced an average of 68.3 per cent of the shrimp landed in the state and 31.7 per cent or 14,030,003 pounds a year came from waters outside the state.

A breakdown by species is also of interest. The figures are shown in Table 6. It is clear that Texas waters produce few seabobs and few pinks. Probably the seabobs and extra white shrimp come from Louisiana waters. The extra browns and pinks probably come from other waters of the western Gulf. It is also clear from Table 6 that 99.9 per cent of the shrimp caught in Texas is made up of brown and white shrimp, the former making up 86.3 per cent of the total and the latter amounting to 13.6 per cent.

The total white shrimp production was equivalent to slightly less than 7,000,000 pounds of whole shrimp. During the thirties the average annual shrimp production of Texas averaged 12.3 million pounds of whole shrimp. These were entirely white shrimp, which was the only species fished at that time. In the 1940's the white shrimp production averaged 18.3 million pounds a year. During the late forties the brown shrimp fishery was begun. In 1950 Texas produced 12.7 million pounds of white shrimp, but the next year the catch fell off and for the years in which we have statistics (1951, 1952, 1956 to 1959) the average annual production of white shrimp in Texas has been only 6.7 million pounds, a little more than half what it was in the 1930's and a little more than a third of what it was in the 1940's.

There are several possible explanations of this decline in the white shrimp catch. For one thing, after the brown shrimp fishery got started in 1947 larger boats were built and the fishermen put more effort into Gulf fishing, which is in general devoted to the brown shrimp. They have never returned to bay fishing on the scale of the forties. However, shrimp fishermen turned to brown shrimp because the white shrimp declined in parallel with the greatest drouth this country has ever known. This drouth began in 1947 and became worse in the fifties. It was not broken until the spring of 1957. It is interesting that the annual production of white shrimp in 1958-59 jumped to 9,852,000 pounds of whole shrimp as compared to 3,985,000 for the previous two years. The increase was about 125 per cent when the rains came. The writer has previously shown that Texas shrimp production is correlated with rainfall of the States, especially that of the same year and the two previous years. (Bull. Marine Science, Gulf and Caribbean, vol. 4, pp. 95-103, 1954).

However, there are other changes which tend to cause a decline in shrimp production statistics, especially in the bays where mostly white shrimp are caught. The relatively recent production of powerful outboard motors has led to the acquisition of hundreds of small cabin cruisers by sports fishermen. These people buy Bait Shrimp Licenses and do their own trawling, not only for bait but for edible shrimp. The bait fishery has increased greatly, too, and these shrimp are not reported in the commercial catch. Chin (Trans. Am. Fisheries Soc. vol. 89, pp. 135-141, 1960) recently showed that the two year catch of bait in Galveston Bay amounted to 676,000 pounds. During the same period the commercial shrimp catch in Galveston Bay was 1,537,257 pounds. Not all of the shrimp reported were white shrimp but the majority of them were.

White shrimp production along the Texas coast has certainly fallen sharply in the past ten years and the fishing for shrimp is probably as heavy as it ever was -- and increasing. These facts highlight the necessity for adequate laws to protect the shrimp especially at the smaller sizes.

TEXAS SHRIMP CATCH BY AREAS

The Texas coast was divided into four areas for the purpose of collecting statistics on shrimp catches. Area 18 extends from the Louisiana line to north of Freeport. It includes the offshore area of the Gulf and Galveston Bay. Area 19 includes the Gulf area south of Freeport and off Matagorda Bay and San Antonio Bay, Aransas and Copano Bays. Area 20 includes Corpus Christi Bay and offshore waters of the upper Laguna Madre. Area 21 extends along the lower Laguna to Mexico. These areas are shown in Figure VI.

As was noted before, the seabob is produced primarily in Louisiana waters. Therefore, it is not surprising to find that all but 12 pounds of the Texas seabob came from Area 18, which borders Louisiana. The total catch for the whole coast was only 348 pounds a year.

Table 7 gives the average annual catch of pinks, white and brown shrimp for all four of the Texas areas described above. It is clear that most of the pink shrimp were taken from Area 20, which lies off Corpus Christi Bay and the upper Laguna Madre. Sixty per cent of the pink shrimp catch came from that area. Most of the white shrimp were taken from there northward and eastward to the Louisiana line, Areas 19 and 18. The catch of these two areas was 82.6 per cent of the coast total. Brown shrimp were taken all along the coast but were caught more than twice as abundantly in the two middle areas, 19 and 20, as in the other two, the catch from these two areas being 66.2 per cent of the Texas total.

Table 8 gives the average monthly catch of the whole coast for pink, white and brown shrimp.

Almost half of the pink shrimp were taken in June and 94.3 per cent of the catch was taken in the months of April to July.

September was the month of greatest white shrimp catch and 63.3 per cent of the Texas catch was made during the months of September and October, and 84 per cent of the catch fell in the four months August to November. The only other month of sizeable production was in May, which is apparently a reflection of the spring run that appears in some years.

August was the month of greatest production of brown shrimp, and almost 74 per cent of the brown shrimp catch was in the months of July to October.

When the total catch is considered it is seen that March and April are the times of lowest production, only 3.2 per cent of the annual total being taken in those months. In contrast, 40.0 per cent of the catch was taken during August and September and 73.3 of the total catch was taken in the four months, July to October.

Table 9 shows the average white shrimp production by months for each area during the four year period. February was the low month in all areas. The spring increase in shrimp began to show in March and reached a peak in May in each area. This is the well known "spring run" of the fishermen. Another interesting fact concerns the fall fishery. In every area, except 18, there was a decrease from September to October and in all areas there was a decrease from September to December and the percentage decrease was less from north to south.

The percentage declines from September to December for the four areas 18, 19, 20 and 21 (from north to south) were 93.7, 84.6, 75.4, and 22.3, respectively. The percentage changes are even greater if we consider the period October to November. During that period the trend reversed in the southernmost area and the catch increased from October to December. The percentage changes in catch for this period for the area from north to south are: -94.4, -79.1, -55.0 and 8,675. The only reasonable explanation of this set of figures is that, after the shrimp go into the Gulf in the fall, they drift southward along the coast.

Table 10 gives the monthly production of brown shrimp by areas. The monthly variations in catches have already been discussed. The total production declined steadily from the high in August to the April low but this decline was much less in the two southern areas from October to February. In October the two northern areas produced 67.5 per cent of the brown shrimp taken on the Texas coast. In February this figure was 20.6 per cent. The trend was reversed in March. These facts are clearly shown in Table 11. It is clear that the brown shrimp population tends to drift southward down the Texas coast during the fall and winter.

UNIT OF EFFORT AND THE CATCH

In addition to the production statistics from the various areas, the Fish and Wildlife Service workers have collected information by the interview method on days and hours fished in each of the four Texas areas during the years 1958 and 1959. These data cover 138,716 hours of trawling, which produced 3,974,923 pounds of headed shrimp. This is quite the most extensive data ever collected so far on the shrimp fishery.

During the two year period the boats on which the data were collected caught 28.7 pounds of shrimp per hour. In 1958 the catch was 26.2 pounds per hour; in 1959 it was 29.7 pounds. A comparison made with Table 1 shows that the shrimp catch increased in 1959 above the 1958 catch by 6,013,464 pounds, or 13.6 per cent. The catch per unit of effort increased 3.5 pounds per hour at the same time, or 13.2 per cent. The correspondence is remarkably close. This means that the increased catch in 1959 was due solely to better fishing and not to increased effort by the fishermen.

The tables of data on catch and unit effort by months for each of the four years are quite bulky and will not be presented here. They are on file at the Marine Fisheries Division office of the Game and Fish Commission at Rockport. Table 12 gives the two year average catch of shrimp per hour each month for the whole coast, in combination with the total production.

In general there was strong correspondence between the unit of effort catch and the total catch. During the eight months November to June, with a low catch of 941,000 pounds a month, the catch per hour of trawling was 16.2

pounds. During the high production months, with an average of 5,757,000 pounds production, the catch per hour of trawling was 32.4 pounds. It should be noted that the catch per hour of trawling fell only one half, but the total catch was six times less in the low months than in the high months. If these data are typical of the whole fleet, as they are supposed to be, this means that the shrimpers relax their fishing effort a great deal during the late fall, the winter and spring months.

The hourly catch of shrimp in pounds for each month and the total Texas production for the same months are shown graphically in Figure V.

SUMMARY

1. The total landings of shrimp tails at United States Gulf Coast ports during the period of 1956 to 1959, inclusive, was 426,950,352 pounds. During the same period the total landings of whole shrimp for the South Atlantic and Gulf States was approximately 206,000,000 pounds a year.
2. During the 1956-59 period Gulf landings of headed shrimp fluctuated between 99 and 115 million pounds with a yearly average of slightly less than 107 million pounds.
3. In terms of per cent of total landings the rank of the Gulf states for the four year period was: Texas 41.5, Louisiana 24.7, Florida 23.6, Mississippi 6.5, Alabama 3.8. Of the three top states the annual fluctuation in per cent was Louisiana 32.0, Florida 23.6 and Texas 16.7. Texas has the most stable industry. Texas landings varied from 37 to 50 million during the period and averaged 44,295,000 pounds a year.
4. The Gulf landings by species consisted of seabobs (1.2 per cent), white shrimp (20.1), pink shrimp (22.5) and brown shrimp (56.2). Florida led in pink shrimp landings and Louisiana led in white shrimp and seabob landings. Texas led in brown shrimp landings and was second in landings of the other three species.
5. Texas production of shrimp for the four year period amounted to 30,866,077 million pounds; 14,030,003 pounds or 31.7 per cent of the landings came from out of the state.
6. Texas annual production averaged 26,114,000 pounds of brown shrimp, 4,118,000 pounds of whites, 32,000 pounds of pinks and 359 pounds of seabobs.
7. During the 1930's Texas production of white shrimp averaged 12.3 million pounds of whole shrimp. During the 1940's the comparable figure was 18.3 million pounds. During the fiftys the production has been only 6.7 million pounds. The decline in white shrimp production during the past ten years has been over 63 per cent.
8. The Texas coast has been divided into four areas, from the Sabine to the Rio Grande. Most of the pink shrimp catch is taken off Corpus Christi Bay. Most white shrimp are taken in the two easternmost areas. The greatest brown shrimp production is from the the two middle areas, Freeport south to Aransas Pass.
9. September is the peak month for production of white shrimp. August is the peak month for brown shrimp productions. Over 73.0 per cent of the Texas shrimp catch is made during the four months July to October.

10. The total catch of white and brown shrimp declines from the peak months or into the winter but the percentage decline is less and less southward down the coast. This means that both white and brown shrimp move southward, down the Texas coast during the winter.

11. During the years 1958 and 1959 Texas shrimp boats caught an average of 28.7 pounds of headed shrimp an hour. In general the catch per hour rose and fell with the total production, but the percentage of production fell much greater in the eight low months of the year than the catch per hour.

Prepared by: Dr. Gordon Gunter

Accepted by Howard T. Lee
Howard T. Lee

Date 19 December 1960

Table 1

Total Landings in Pounds of Headed Shrimp at
United States Gulf Coast Ports and Texas Ports
1956-1959.

	Gulf	Texas
1956	109,442,000	36,891,047
1957	99,248,000	45,690,693
1958	103,107,000	44,292,804
1959	115,153,000	50,306,268
Average	106,738,000	44,295,003

Table 2

The Average Annual Landings of Headed Shrimp. The Percentages and the Range of Variation are Shown for the Five Gulf States for the Years 1956-1959.

	Range		Average	Per Cent Total Gulf	Greatest Percentage Fluctuation from the Means	
Texas	1956 36,891,047	-	1959 50,306,268	44,295,228	41.5	16.7
Louisiana	1957 18,027,047	-	1959 33,354,990	26,346,425	24.7	32.0
Florida	1959 19,197,996	-	1956 29,235,186	25,133,165	23.6	23.6
Mississippi	1958 4,589,278	-	1956 8,651,669	6,936,851	6.5	33.8
Alabama	1958 3,159,573	-	1959 4,772,326	4,026,045	3.8	21.5

Table 3
Annual Average Landings of Pink, White and Brown Shrimp for all Gulf States for the Period 1956-59,
Inclusive with Percentages

		Pink Shrimp			
		Florida	Texas	Mississippi	Alabama
Annual Landings		23,265,323	395,578	206,839	130,330
Gulf Percentage		96.6	1.6	0.9	0.6
		White Shrimp			
		Louisiana	Texas	Mississippi	Florida
Annual Landings		13,335,091	4,641,303	1,679,868	956,794
Gulf Percentage		62.0	21.6	7.8	4.5
		Brown Shrimp			
		Texas	Louisiana	Mississippi	Alabama
Annual Landings		39,103,675	11,927,735	5,049,988	3,029,633
Gulf Percentage		65.2	19.9	8.4	5.1
		Florida			
					810,356
					1.4

Table 4

Average Shrimp Landings of Texas by Species for the Period 1956-1959.

	Annual Landings	Percentage
Brown Shrimp	39,103,650	88.3
White Shrimp	4,641,303	10.5
Pink Shrimp	395,758	0.9
Seabobs	154,492	0.3
Total	44,295,203	

Table 5

Gulf Shrimp Landings: Pounds, Heads Off

Species	Florida	Alabama	1956			Grand Total
			Mississippi	Louisiana	Texas	
Brown	556,997	3,067,848	6,095,390	12,123,228	33,179,663	55,023,126
Pink	28,013,357	261,920	200,400	765	496,281	28,972,723
White	617,399	1,249,945	2,355,629	17,131,580	3,135,661	24,490,214
Seabobs	47,433		250	828,647	79,442	955,772
Total	29,235,186	4,579,713	8,651,669	30,084,220	36,891,047	109,441,835

Species	Florida	Alabama	1957			Grand Total
			Mississippi	Louisiana	Texas	
Brown	707,137	2,993,847	5,673,824	11,120,068	43,136,212	63,631,088
Pink	23,155,810	188,302	354,302	46	138,908	23,837,368
White	881,161	410,417	957,084	6,581,743	2,298,533	11,128,938
Seabobs	207,985			325,190	117,040	650,215
Total	24,952,093	3,592,566	6,985,210	18,027,047	45,690,693	99,247,609

Species	Florida	Alabama	1958			Grand Total
			Mississippi	Louisiana	Texas	
Brown	1,024,035	2,261,455	2,972,957	8,324,163	36,669,887	51,252,497
Pink	24,539,434	68,906	103,754	294,383	9,876	25,016,353
White	1,573,384	829,212	1,512,567	14,454,824	7,369,827	25,739,814
Seabobs	9,919			845,672	243,214	1,098,805
Total	27,146,772	3,159,573	4,589,278	23,919,042	44,292,804	103,107,469

Species	Florida	Alabama	1959			Grand Total
			Mississippi	Louisiana	Texas	
Brown	953,254	3,795,381	5,457,779	16,143,481	43,428,838	69,778,733
Pink	17,352,690	2,193	168,900	1,495	937,968	18,463,246
White	755,230	974,276	1,894,192	15,172,218	5,761,192	24,557,108
Seabobs	136,822	476	375	2,037,796	178,270	2,353,739
Total	19,197,996	4,772,326	7,521,246	33,354,990	50,306,268	115,152,826

Table 6

The Average Annual Catch of Headed Shrimp in Texas Waters for the Year 1956 to 1959, Inclusive, Compared to Shrimp Landed From Out of State.

Species	State Waters		Out of State	
	Pounds	Per Cent	Pounds	Per Cent
Seabobs	359	0.2	154,133	99.8
Pinks	32,040	2.0	1,550,993	98.0
Whites	4,118,210	88.7	523,093	11.3
Browns	26,114,318	66.8	12,989,357	33.2
Total	30,264,927	68.3	14,030,003	31.7

Table 7

The Average Annual Catch by Species of Shrimp from the Four Areas of the Texas Coast.

Area	18	19	20	21
Pink	4,947	4,657	19,223	3,212
Whites	1,448,123	2,290,328	302,216	37,634
Browns	4,984,640	9,199,973	8,237,424	3,692,266

Table 8

The Average Monthly Production of Headed Shrimp by Species of the Texas Coast
for the Four Year Period, 1956-1959, Figures are in Pounds

Species	January	February	March	April	May	June
Pinks	31		603	2,334	8,369	15,336
Whites	11,380	2,181	23,051	84,466	249,421	66,233
Browns	556,046	430,212	377,514	341,742	588,012	1,430,524
Total	567,457	432,393	401,168	428,542	845,802	1,512,113

Species	July	August	September	October	November	December
Pinks	4,154	125		697	308	65
Whites	42,356	319,275	1,405,323	1,202,032	525,771	186,190
Browns	4,722,558	5,742,581	5,136,878	4,159,394	1,707,868	921,031
Total	4,769,068	6,061,981	6,542,201	5,362,123	2,233,947	1,107,286

Table 9

The Average Monthly Production of White Shrimp for the Four Areas of the Texas Coast for the Period 1956-1959

Areas	January	February	March	April	May	June
18	3,743	1,876	7,203	15,116	26,431	24,623
19	6,396	240	14,259	63,619	176,979	29,771
20	627	65	1,575	5,140	38,132	9,475
21	615	0	14	590	7,879	2,365
Total	11,381	2,181	23,051	84,465	249,421	66,234

Areas	July	August	September	October	November	December
18	9,802	65,503	513,502	570,740	216,901	32,183
19	29,114	237,676	774,123	573,415	265,549	119,150
20	3,436	16,096	106,217	57,774	37,760	25,922
21	0	0	11,481	103	5,562	8,936
Total	42,352	319,275	1,405,323	1,202,032	525,772	186,191

Table 10

Monthly Production of Headed Brown Shrimp from the Four Statistical Areas from North to South. The Figures are Averages of the Four Years 1956 to 1959.

Areas	January	February	March	April	May	June
18	31,902	27,954	22,401	21,138	37,639	210,367
19	125,054	60,616	106,012	103,814	270,664	359,449
20	223,648	204,900	141,816	121,417	166,794	698,410
21	175,439	136,741	107,283	95,373	101,908	162,297
Total	556,043	430,211	377,514	341,742	588,012	1,430,523

Areas	July	August	September	October	November	December
18	1,205,296	1,425,423	709,476	1,046,588	196,736	49,715
19	1,524,638	2,301,824	1,778,108	1,762,593	526,876	280,317
20	1,231,140	1,590,739	1,762,659	1,014,850	695,146	374,946
21	761,486	424,594	886,635	335,363	289,112	216,052
Total	4,722,560	5,742,580	5,136,878	4,159,394	1,707,870	921,030

Table 11

The Percentages of the Total Catch of Brown Shrimp of the Two North and South Areas by Months, 1956 - 1959.

Areas	October	November	December	January	February
18 and 19	67.5	42.4	35.8	28.2	20.6
19 and 20	32.5	57.6	64.2	71.8	79.4

Table 12

The Monthly Average of Pounds of Shrimp Caught Per Hour for the Years 1958 and 1959, with Averages of the Total Catch for the Same Period (Second Column) in Millions of Pounds

January	February	March	April	May	June	July	August
16.2	15.4	15.0	11.5	11.0	11.7	45.5	36.5
.436	.228	.278	.312	.609	1.427	5.456	6.709

September	October	November	December
38.9	38.5	25.9	23.0
7.084	5.912	2.077	1.066

FIGURE I

Total Landings in Millions of Pounds of Headed Shrimp at Gulf Coast Ports for the Years 1956-1959 and the Four Year Average

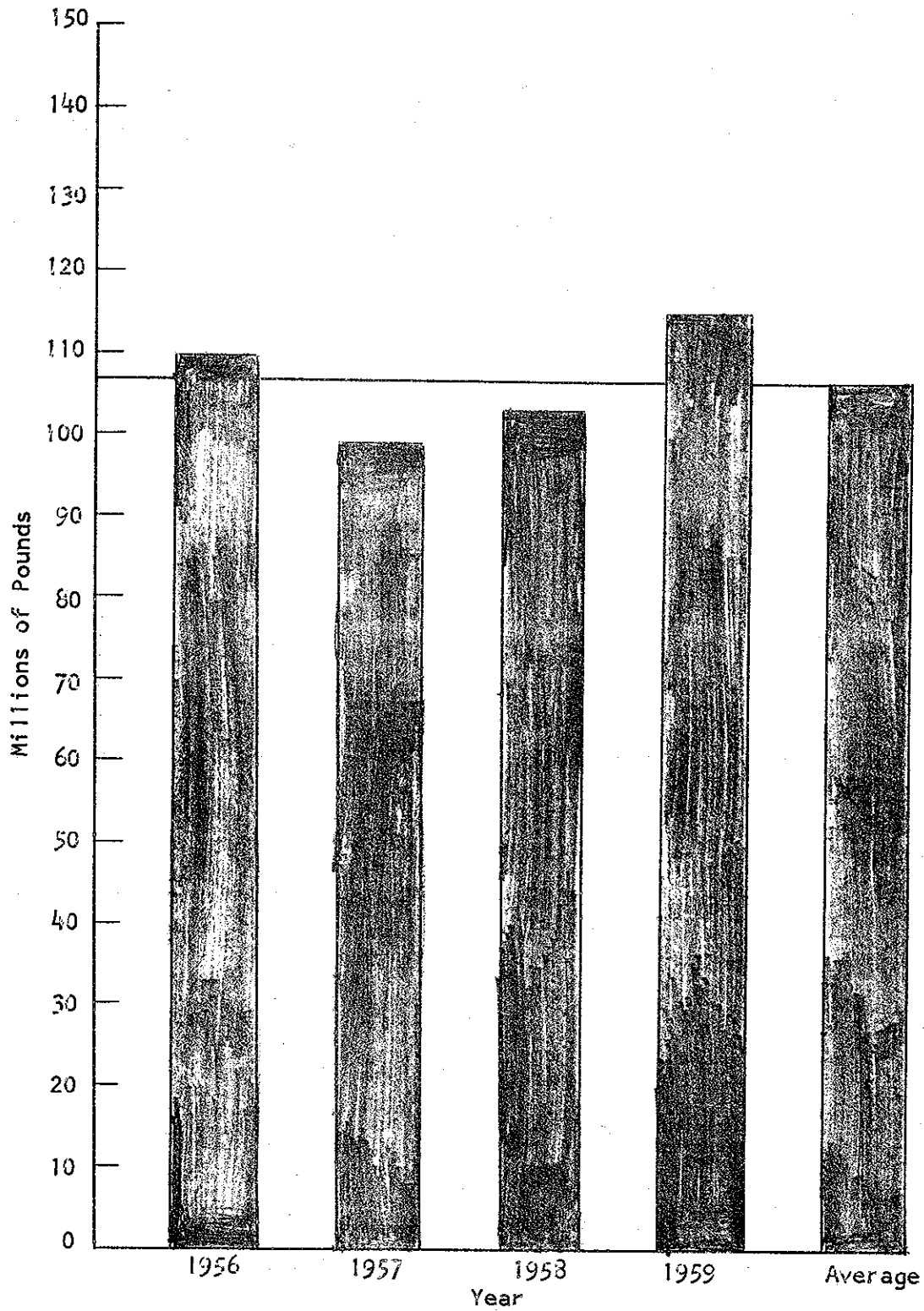


Figure II

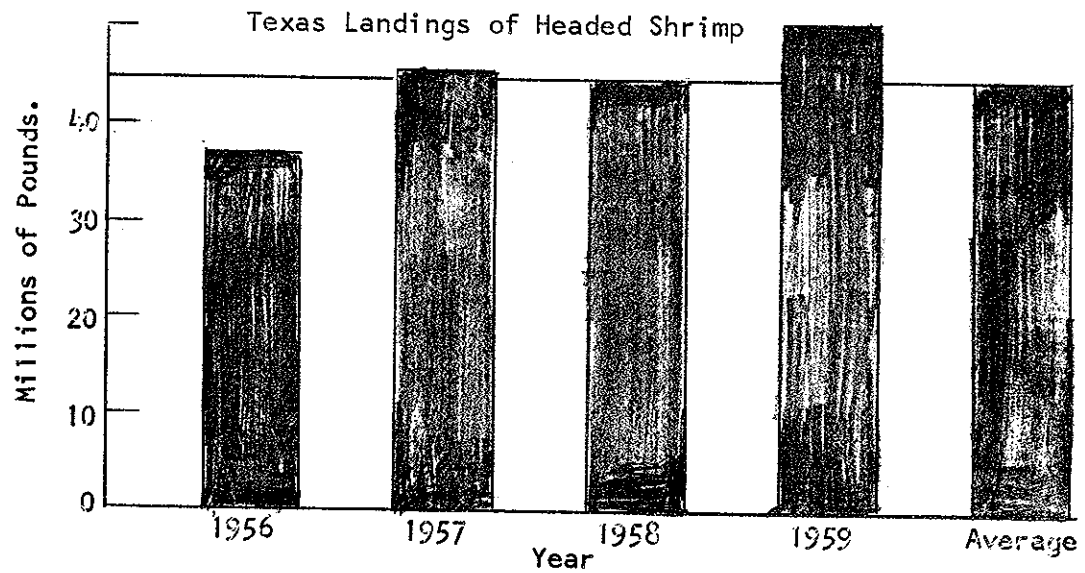


Figure III

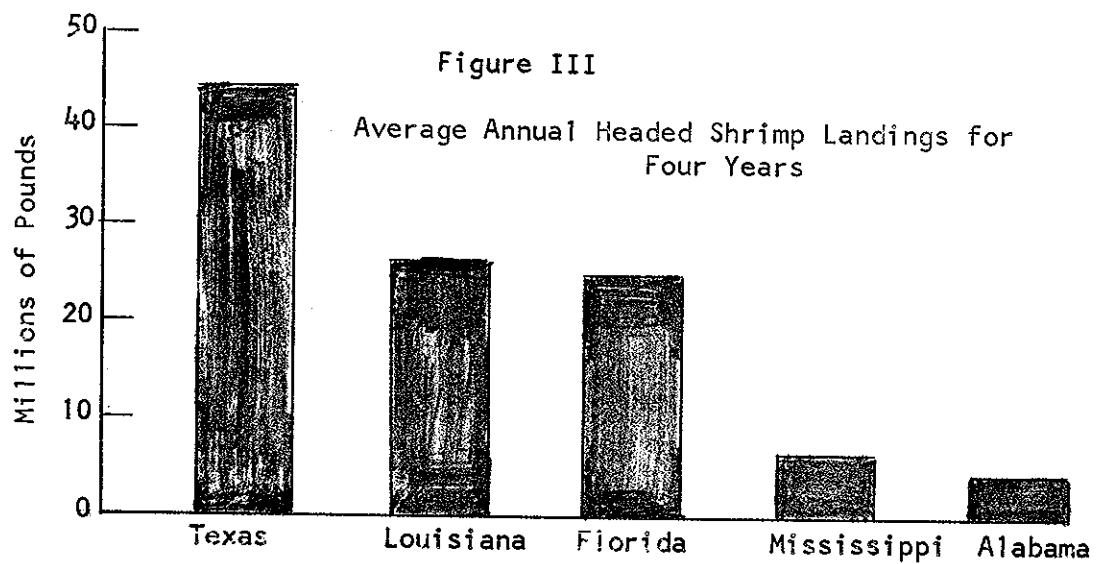


Figure IV

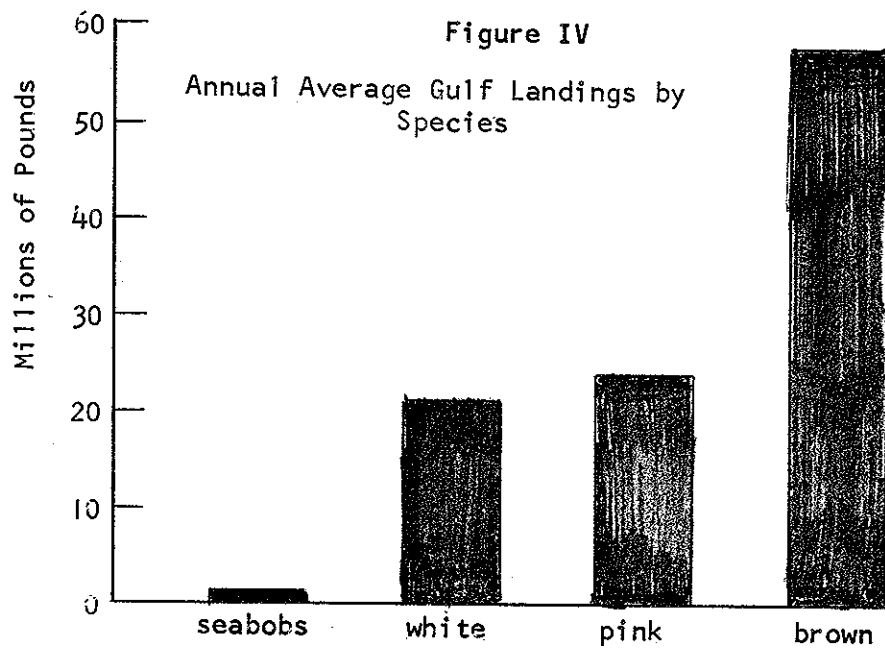


Figure V

The Monthly Average of Pounds of Shrimp Caught Per Hour for the Years 1958 and 1959 With Averages of the Total Catch for the Same Period (broken line) in Millions of Pounds.

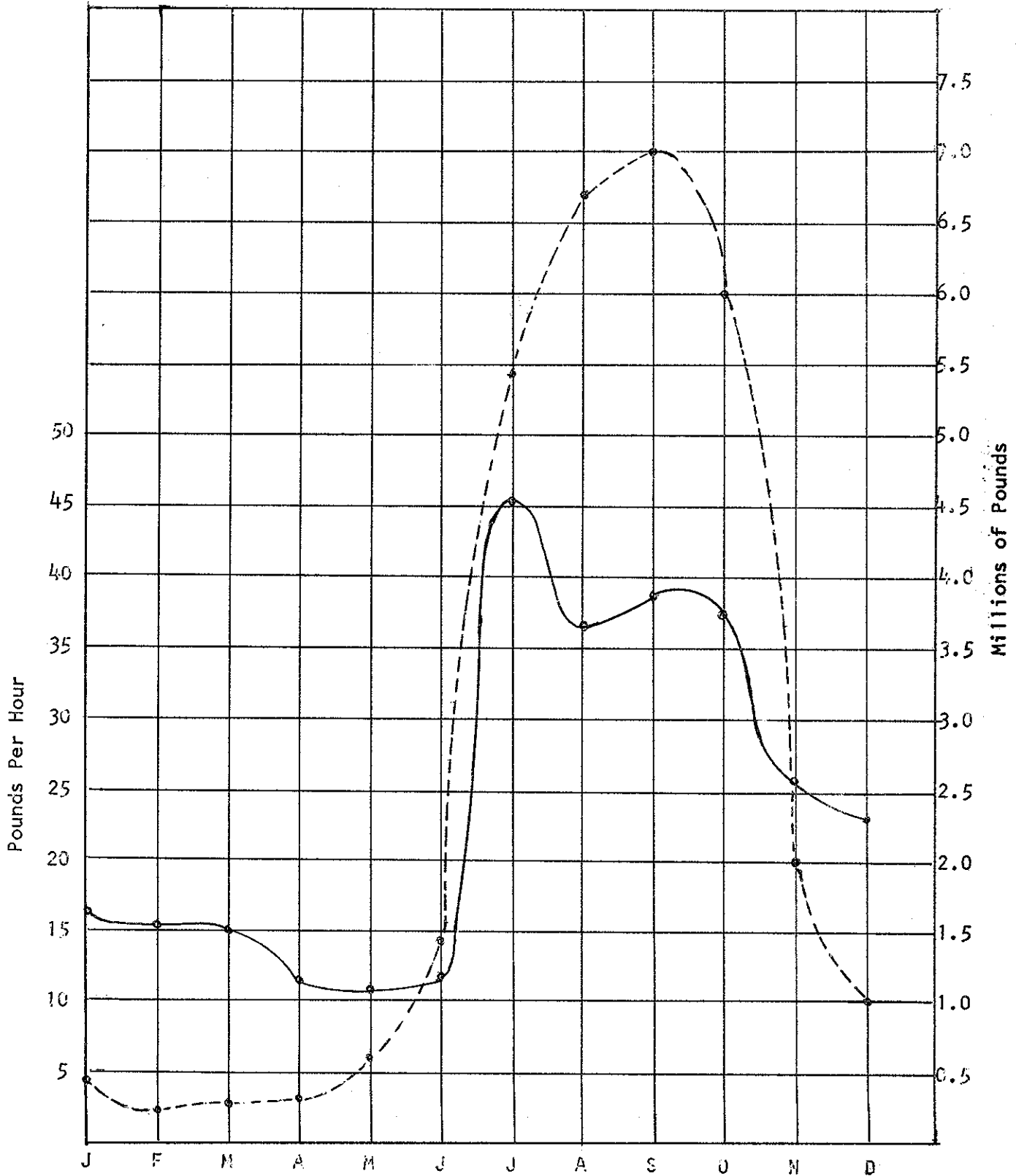


Figure VI

Areas of the Gulf of Mexico as Used by the U.S. Fish and Wildlife Service
For Reporting Area of Capture

