

## JOB REPORT

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Project No.: MS-R-5 Date: November 23, 1964  
Project Name: A Study of Texas Shrimp Populations  
Period Covered: January 1, 1963 to December 31, 1963 Job No.: 4

### A Study of Populations of Juvenile Shrimp In the San Antonio Bay Complex

#### Abstract:

Shrimp were sampled at six established stations in the San Antonio Bay complex. These ranged from near the mouth of the Guadalupe River to near the Gulf of Mexico. Most habitat types were represented, as related to depth, salinity, turbidity, and vegetation.

Brown shrimp were found to appear in April at a size of 50 to 60 millimeters. Only one major wave of browns was detected. These shrimp emigrated to the Gulf after attaining a size of approximately 90 millimeters. Sample catch was more than in 1962, but spread over a much less period of time.

White shrimp were found first in June at an average size of 50 millimeters. There were two population peaks detected, one in August and one in October. The first group attained a size of 120-130 millimeters before emigrating to the gulf, and the second wave was about twice as large as the first wave.

The commercial bay catch of brown shrimp during 1963 was reported as 90,109 pounds. The catch of white shrimp was reported as 359,165.

#### Objectives:

To determine the seasonal abundance and size of juvenile shrimp caught at sampling stations in the San Antonio Bay complex.

#### Procedures:

On the first and fifteenth day of each month (plus or minus 3 days) a fifteen minute shrimp sample was taken with: 1. A 10-foot trawl of one and one-fourth inch stretch mesh, with a bag liner of one half inch stretch mesh, in primary, secondary, and tertiary bay sampling stations (Figure 1). 2. A 20-foot trawl of one and one-half inch stretch mesh was used in the areas being worked commercially by the shrimp fleet. Night samples were made periodically in the areas the commercial shrimp fishing fleet worked.

Samples were weighed to the nearest ounce, and the shrimp were measured to the nearest millimeter.

Hydrographic data were taken at the time of sampling. These included water temperature in degrees Centigrade, salinity in parts per thousand, and turbidity in parts per thousand. Hydrographic data were treated in detail in Project MF-R-5, Job Number 17, of this publication.

Table 1 is a comparison of sample catch by gear, station, species, and month. Table 2 gives station descriptions. Figure 1a through 8b show size range and most common 10 millimeter size group of brown (Penaeus aztecus) and white (P. setiferus) shrimp by months. Figure 9 is a comparison of catch of brown shrimp in 10-foot trawl samples for the years 1960 through 1963. Figure 10 is a comparison of the catch of white shrimp in 10-foot trawl samples for the years 1960 through 1963. Figure 11 shows locations of 10-foot trawl sample stations. Stations 4 and 5 are primary bay stations. Stations 1 and 3 are secondary bay sample stations. Stations 2 and 6 are tertiary bay sample stations.

#### Findings:

##### Seasonal Occurrence:

Brown Shrimp -- Brown shrimp first appeared in March, but were not abundant until April. At the time of detection in the bay nursery area, the shrimp modal size was 50 to 60 millimeters.

Only one major wave of shrimp was detected in the area. The peak numbers taken were in May. The emigration to the Gulf was underway in July, and most of the shrimp were gone by August. Peak size attained in the bay nursery area was 90 millimeters.

Catch of shrimp, in samples, was considerably more than in 1962, but was caught over a much less period of time. Shrimp were caught in abundance April through June this year, and May through November, in 1962 (Figure 9).

White Shrimp -- White shrimp were first collected in June, but were not taken in abundance until July. At the time of detection in the bay the modal size was 50 millimeters. In July, the modal size was 100 millimeters.

There were two peaks of abundance noted, one in August and one in October. This would probably indicate two waves of shrimp (Figure 10).

The wave emigrating to the Gulf in August or September attained a maximum size of 120-130 millimeters. Those emigrating in October or November attained a size of 130-140 millimeters. The second wave of shrimp was about twice as large as the one in August. Sample catches were less than one-half as large as in 1962.

##### The Commercial Fishery:

The commercial catch of brown shrimp was approximately 314,700 pounds during the year 1962. This is considerably more than 1963, when 90,109 pounds were reported caught.

The commercial catch of white shrimp was reported as 359,165 pounds during 1963, a decrease of nearly fifty per cent over 1962, when 602,300 pounds were reported caught.

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# Size Range and Most Common 10mm Size Group

Figure 1a.  
Station 1

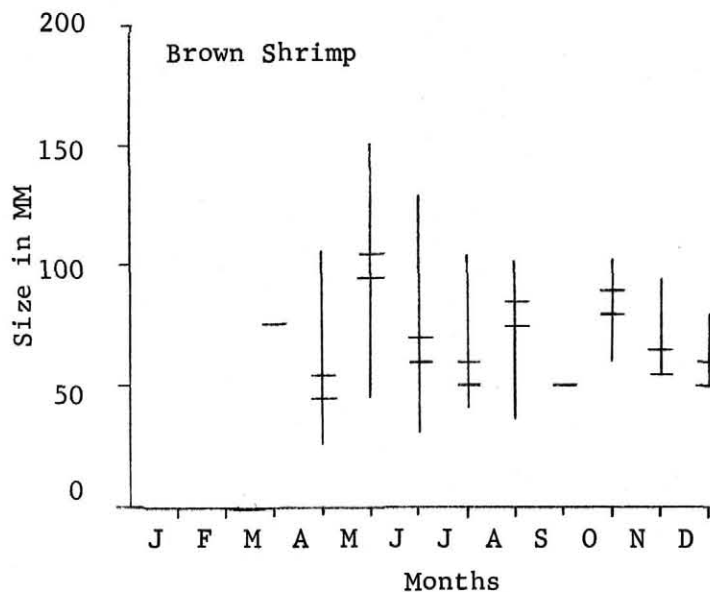
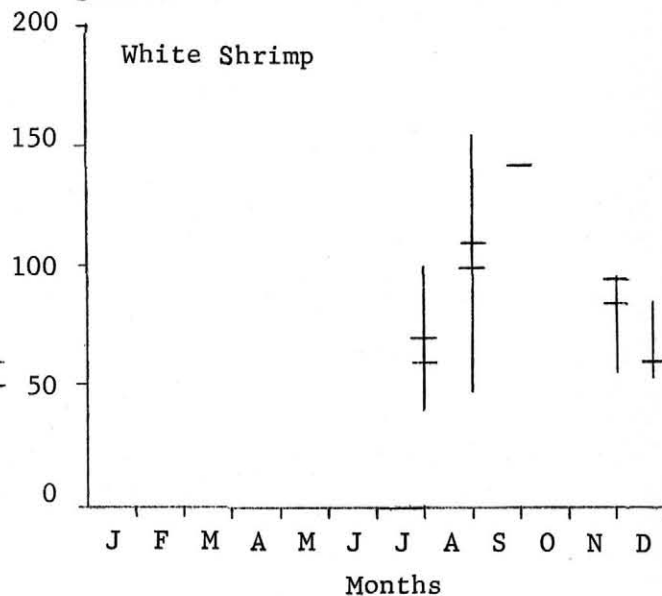


Figure 1b.  
Station 1



# Size Range and Most Common 10mm Size Group

Figure 2a.  
Station 2

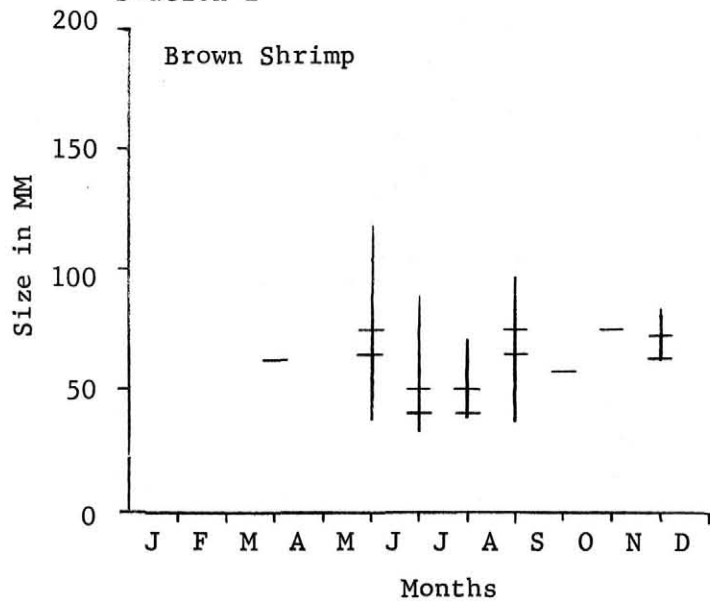
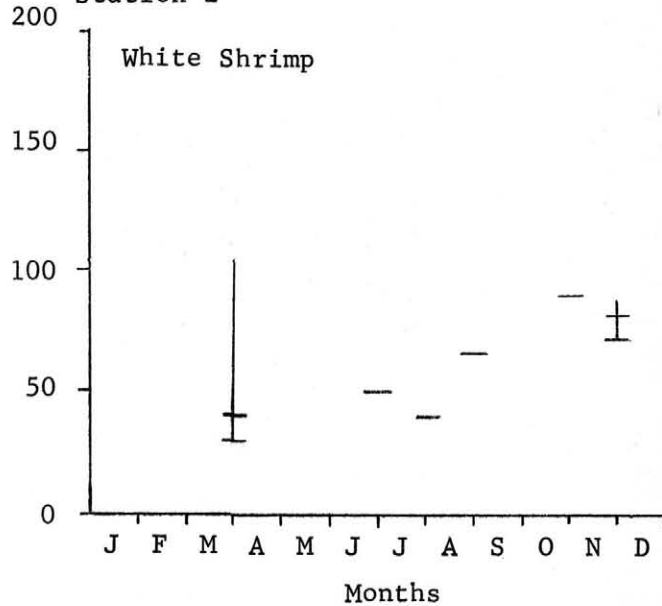


Figure 2b.  
Station 2



# Size Range and Most Common 10 mm Size Group

Figure 3a.  
Station 3

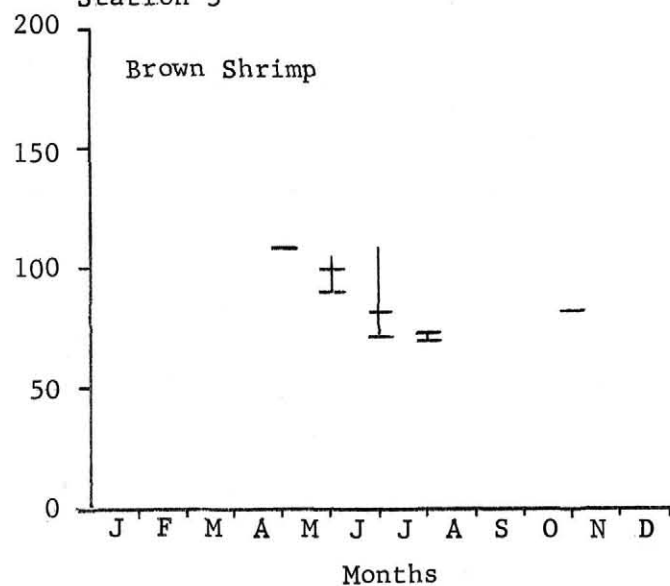
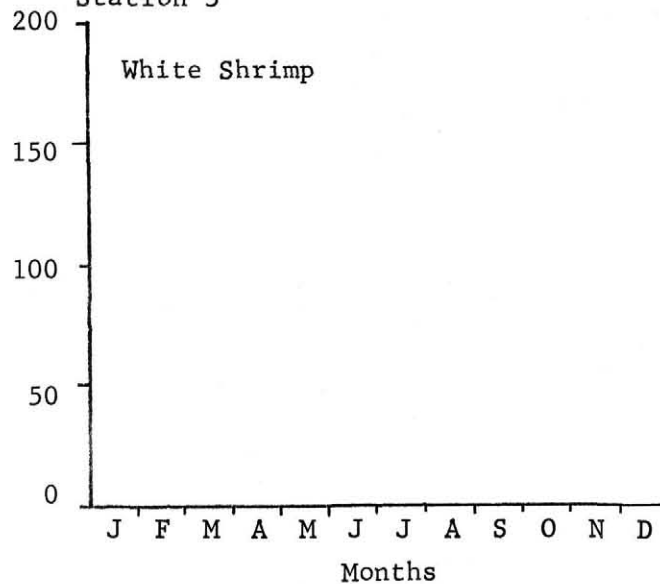


Figure 3b.  
Station 3



Size in mm

# Size Range and Most Common 10 mm Size Group

Figure 4a.  
Station 4

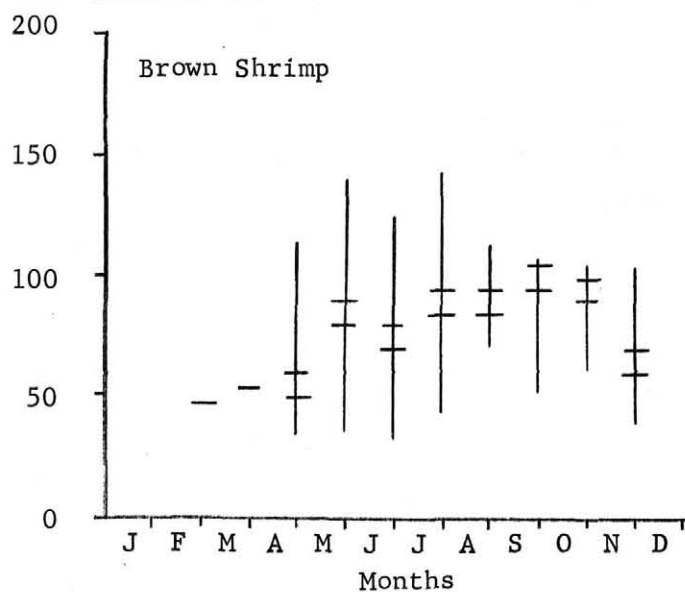
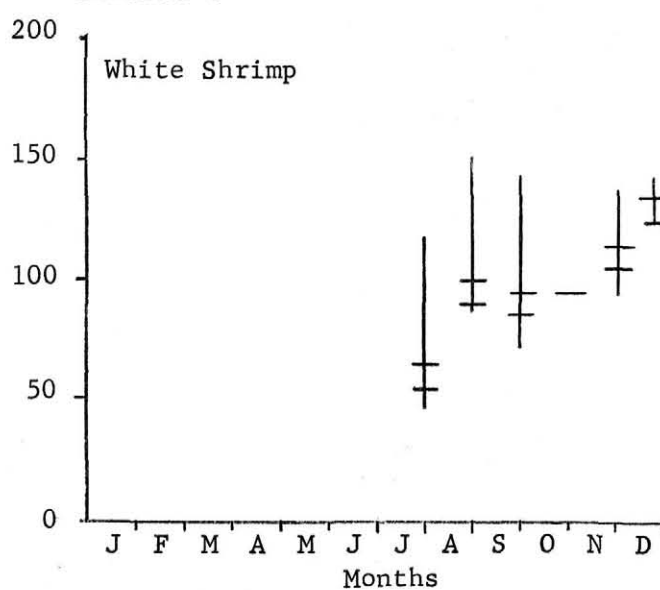


Figure 4b.  
Station 4



# Size Range and Most Common 10 mm Size Group

Figure 5a.  
Station 5

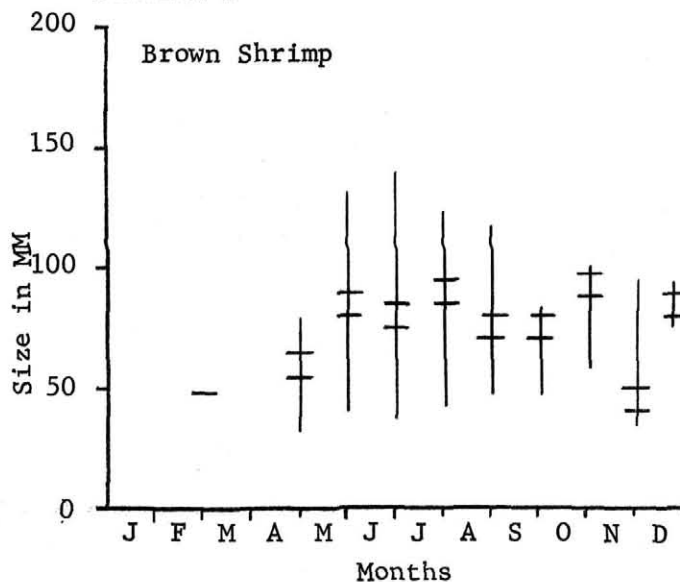
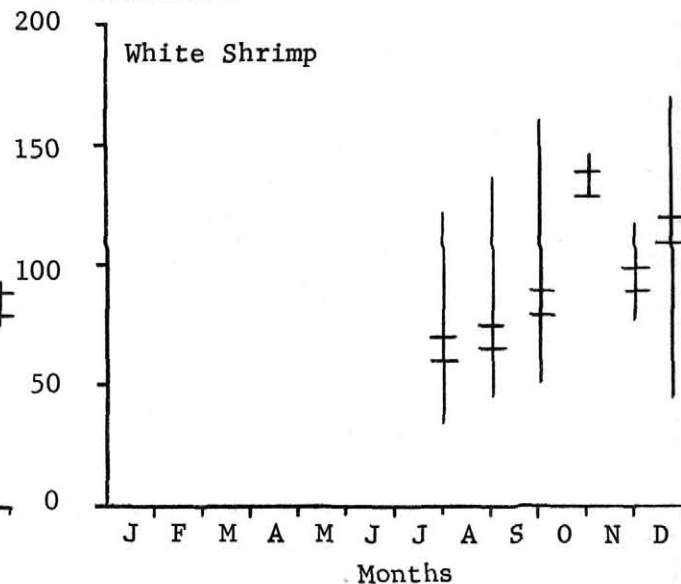


Figure 5b.  
Station 5



# Size Range and Most Common 10 mm Size Group

Figure 6a.  
Station 6

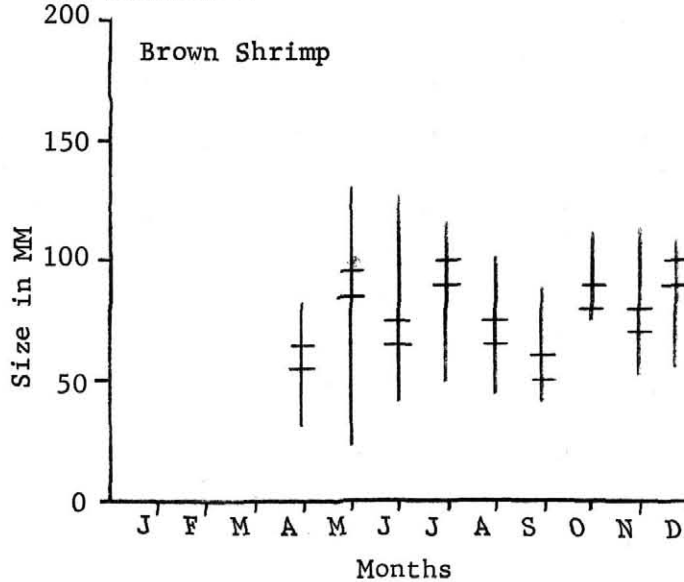
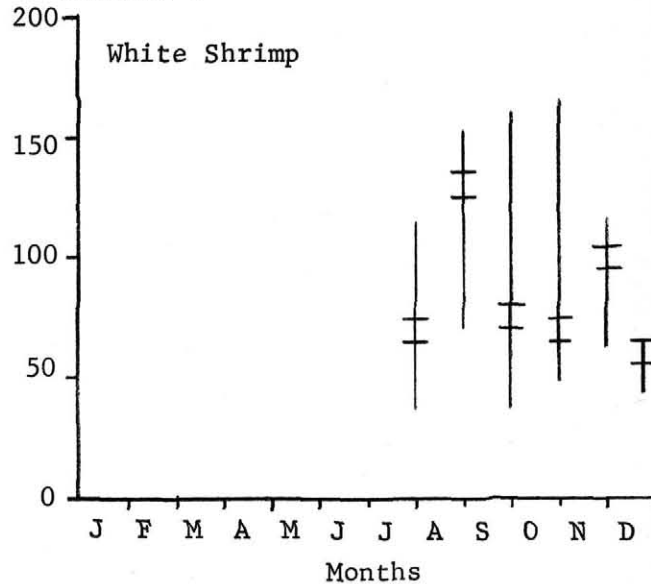


Figure 6b.  
Station 6



# Size Range and Most Common 10 mm Size Group

Figure 7a.  
Station 7

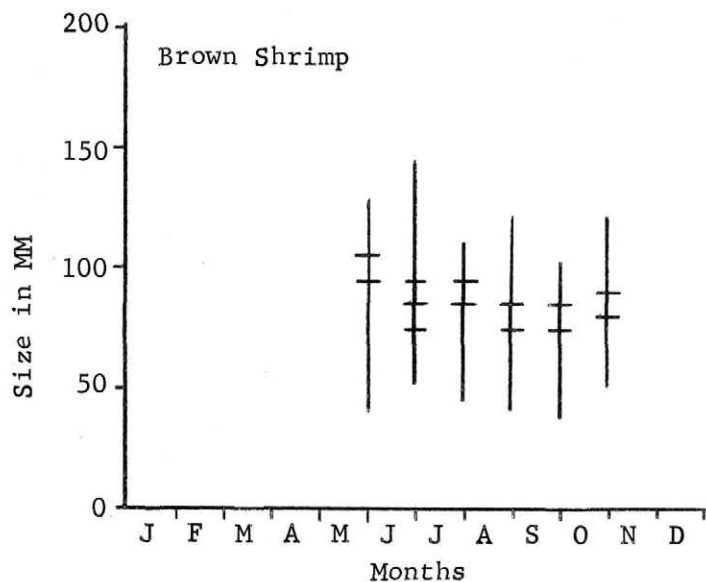
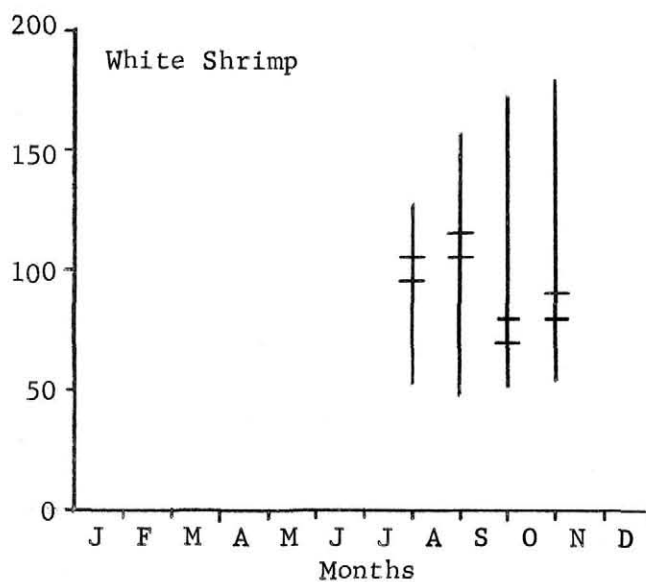


Figure 7b.  
Station 7



# Size Range and Most Common 10 mm Size Group

Figure 8a.  
Station 8

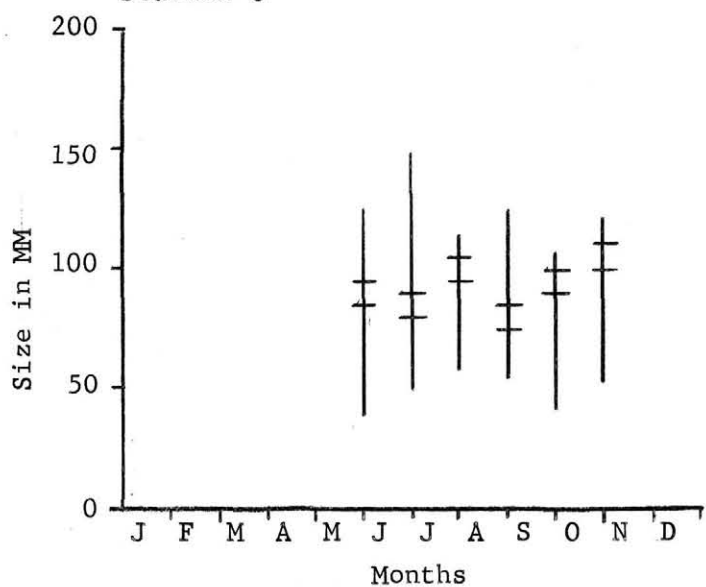


Figure 8b.  
Station 8

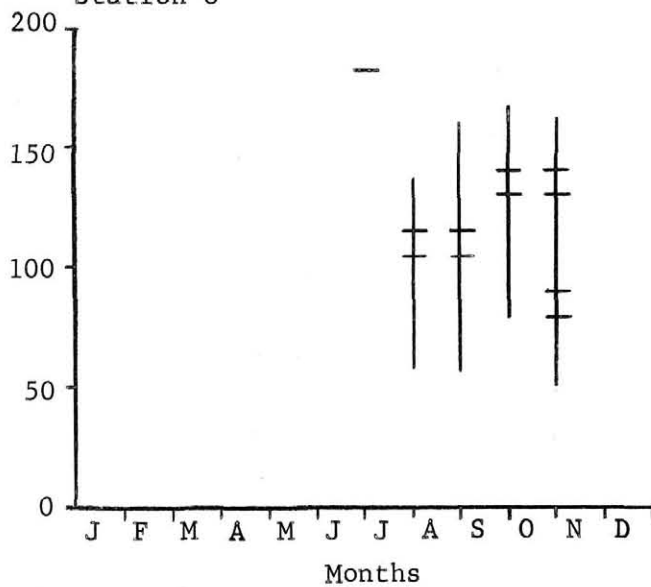


Figure 9.

Numbers of Shrimp Per 10 Ft. Sample Trawl 1960-1963

BROWN SHRIMP

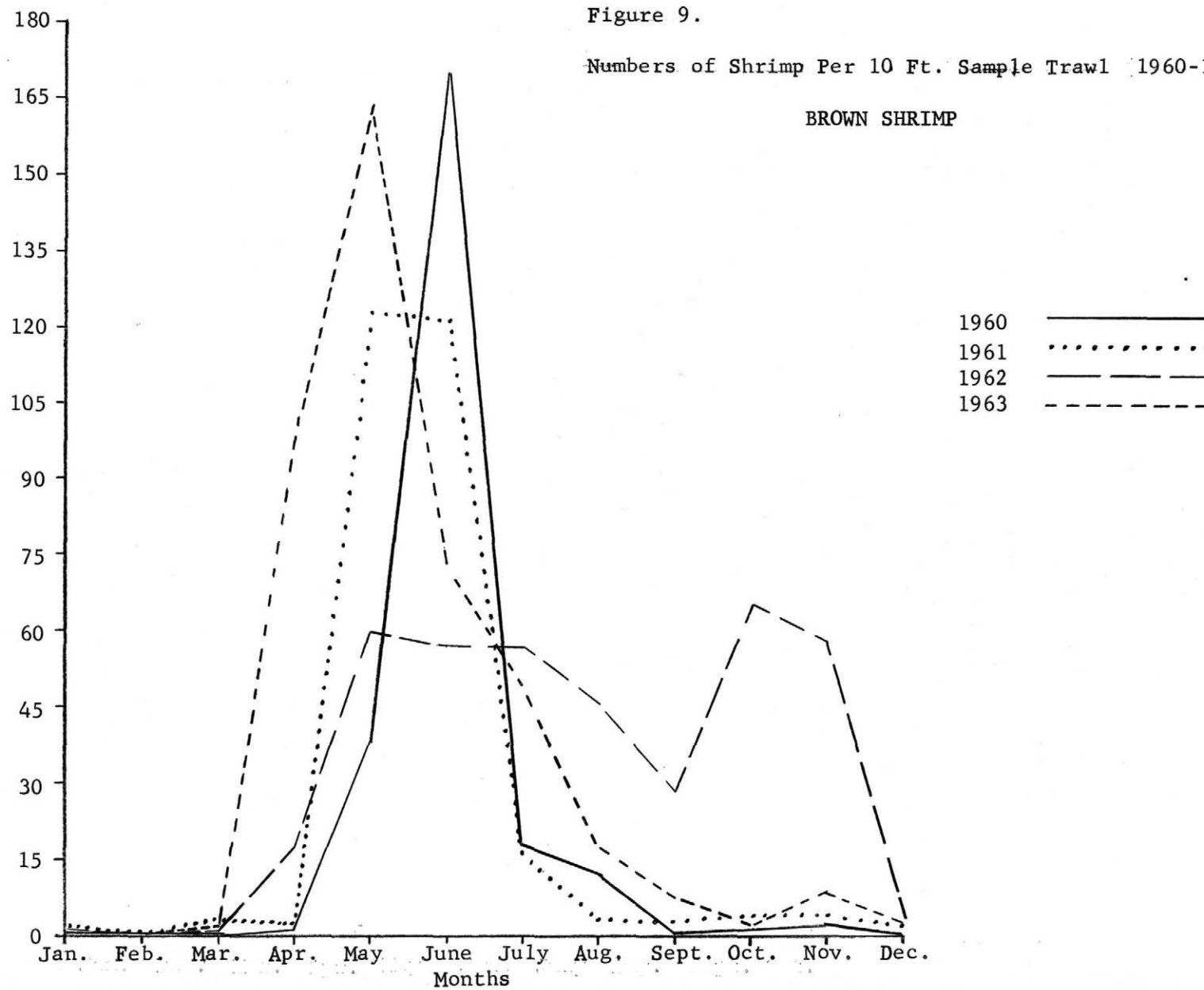
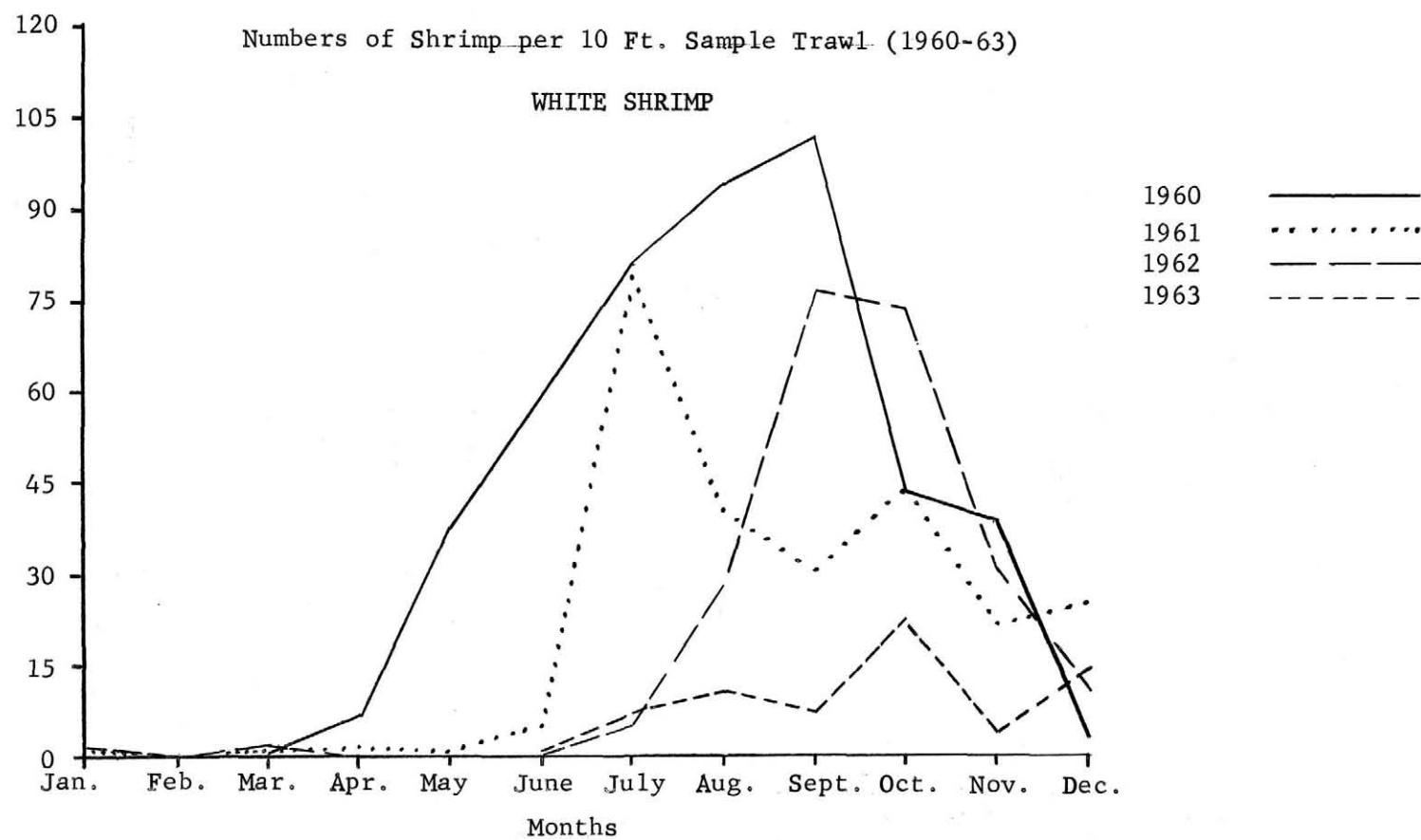


Figure 10.





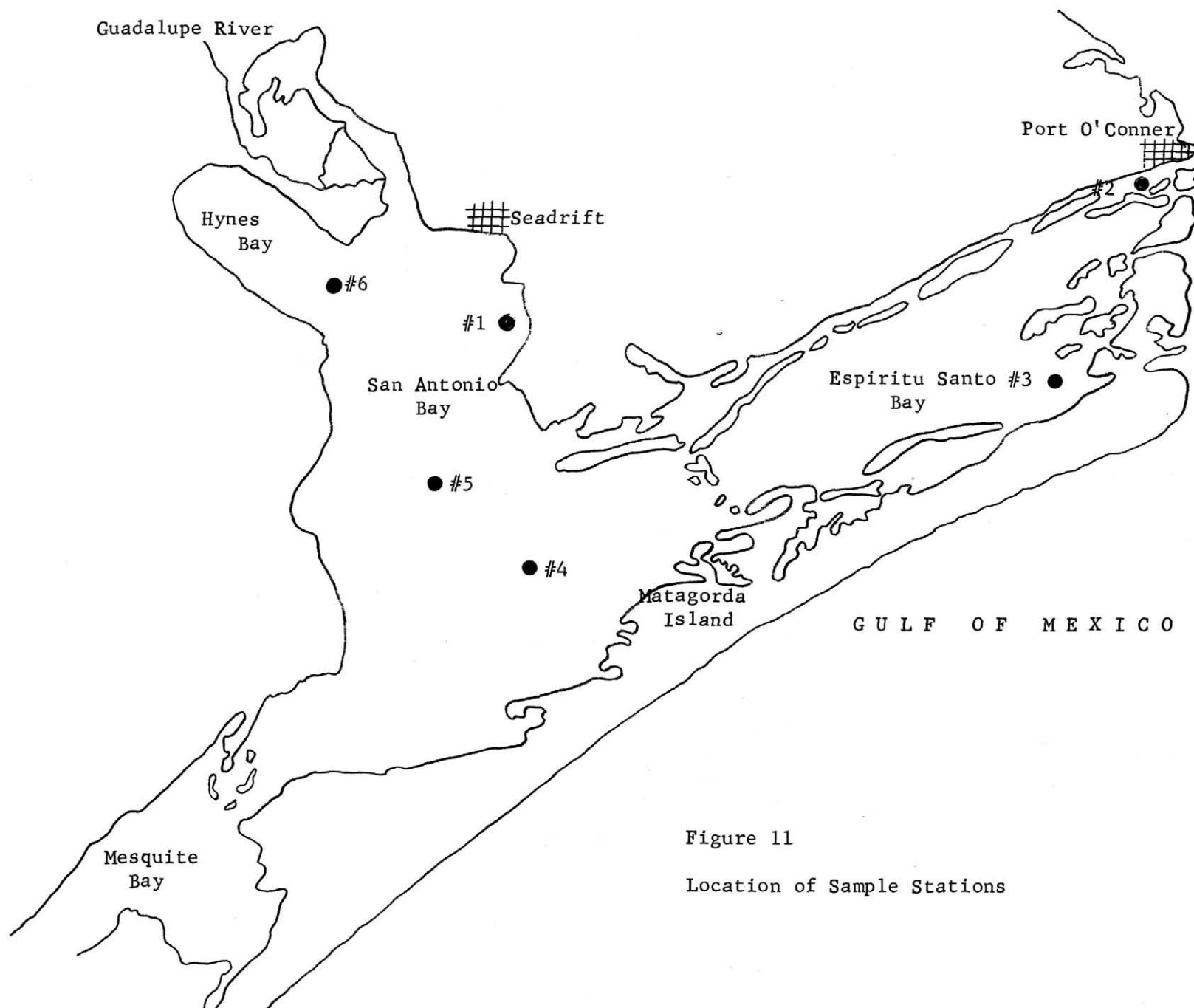


Figure 11  
Location of Sample Stations

### Comparison of Sample Catch, by Gear, Station, Species and Month

Total Number of Shrimp in All Samples:

Brown	-	7,192
White	-	1,882

(88)

Table 2  
Station Descriptions

Station	Water Depth	Bottom Type	Vegetation	Salinity Range
1 Swan Cove	2 to 3 feet	Light gray mud and some sand	Not normally vegetated	24 to 34 ppt
2 Bar Room Bay	2 to 3 feet	Light gray mud and some sand	Heavily vegetated during summer	32 to 38 ppt
3 Light House Cove	3 to 5 feet	Sand	Vegetated in summer and bare in winter	33 to 40 ppt
4 ICW Mk. 21	6 to 7 feet	Brown Mud	No Vegetation	25 to 39 ppt
5 Turtle Reef Area	5 to 6 feet	Brown Mud	No Vegetation	17.5 to 38 ppt
6 Hynes Bay	3 to 4 feet	Highly organic gray mud	No Vegetation	8 to 37 ppt