

## Job Report

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Project No. MS-R-4 Date March 21, 1963  
Project Name: A Study of Texas Shrimp Populations  
Period Covered: September 1, 1961 to December 31, 1962 Job No. 7

### Populations of Juvenile Shrimp in the Corpus Christi Bay Complex

Abstract: White and brown shrimp were sampled twice each month for 16 consecutive months. The results indicated a drop in abundance of both species. A corresponding drop was also noted in commercial landings.

The first wave of juvenile brown shrimp appeared in the May 1 samples, 15 days later than in 1961. The major size class of the first wave was 28 mm. to 43 mm.

Juvenile white shrimp first appeared in the July 1 samples with a major size class of 35 mm. to 40 mm.

White shrimp showed a drop of 47 per cent in catch per unit of effort.

Objectives: To determine the seasonal abundance and size of juvenile shrimp in the Corpus Christi Bay area.

Procedure: On the first and fifteenth day of each month, 15-minute samples were made at six stations (Figure 1). A 10-foot otter trawl of 1 1/4-inch stretch mesh (bag liner of one-fourth of an inch mesh) and a 20-foot otter trawl of 1 1/2-inch stretch mesh were used. The 20-foot trawl was used in an area being fished by the commercial fleet.

Salinity, turbidity and water temperature were recorded at each station. Salinities were calibrated with specific gravity hydrometers and the use of Knudsen's Hydrographic Tables.

### Findings and

Discussion: Penaeus aztecus. The first wave of juvenile brown shrimp appeared on May 1 at Ingleside Cove, Shamrock Cove and in the East Flats of Corpus Christi Bay. These three areas are located on the east side of the bay and are closer to the Gulf than other stations in the bay (Figure 1). The major size class of this first wave was 28 mm. to 43 mm. On May 3, small browns appeared in the secondary and tertiary bays.

A second and more numerous wave appeared in the June samples. This wave remained in the bay until August. Indications of a third wave appeared in the October samples at a size of about 33 mm. The first group of brown shrimp had a growth rate of about one mm. per day.

The peak catch per unit of effort for brown shrimp came in June (Figure 2). The most productive trawl station for brown shrimp was in Redfish Bay. Table 1 shows average number of shrimp per trawl by station.

Brown shrimp entered the bay 15 days later than in 1961 and were less abundant. The overall average number of brown shrimp per trawl for 1960-1961 was 41.66, while the average for 1962 was only 29.27. Table 2 shows a comparison of average number of shrimp per trawl between 1960-1961 and 1961-1962 by month.

Penaeus setiferus. The first wave of juvenile white shrimp appeared on July 1 at the secondary bay stations. The major size class of this group was 35 mm. to 40 mm.

During the third week of July, white shrimp appeared in the tertiary bays. A second small wave appeared in August and a third wave appeared in September at about 33 mm.

During October, the major size class of white shrimp was 60 to 65 mm. in the tertiary bay, 70 to 75 mm. in the secondary bays and 80 to 85 mm. in the primary bay. Large white shrimp up to 180 mm. were taken in the causeway area of Corpus Christi Bay during November.

The major size class of white shrimp during December was 70 to 90 mm. and most of these shrimp were found in Redfish and Nueces Bays.

There was a drop of 47 per cent in catch per unit of effort compared with 1961 (Table 1). Commercial landings during the shrimping season showed a corresponding drop in production.

Figure 3 shows a comparison of white shrimp per trawl between 1960-1961 and 1961-1962. In virtually every month, the catch was greater in 1961 than in 1962.

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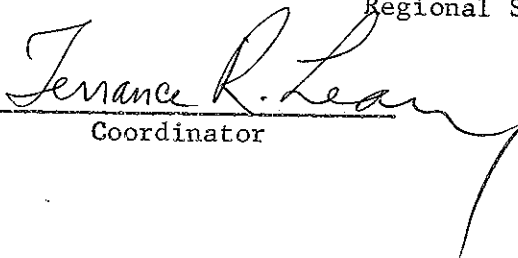
  
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Table 1  
Average Numbers of White and Brown Shrimp Per Trawl By Station  
from September 1, 1961 to December 31, 1962

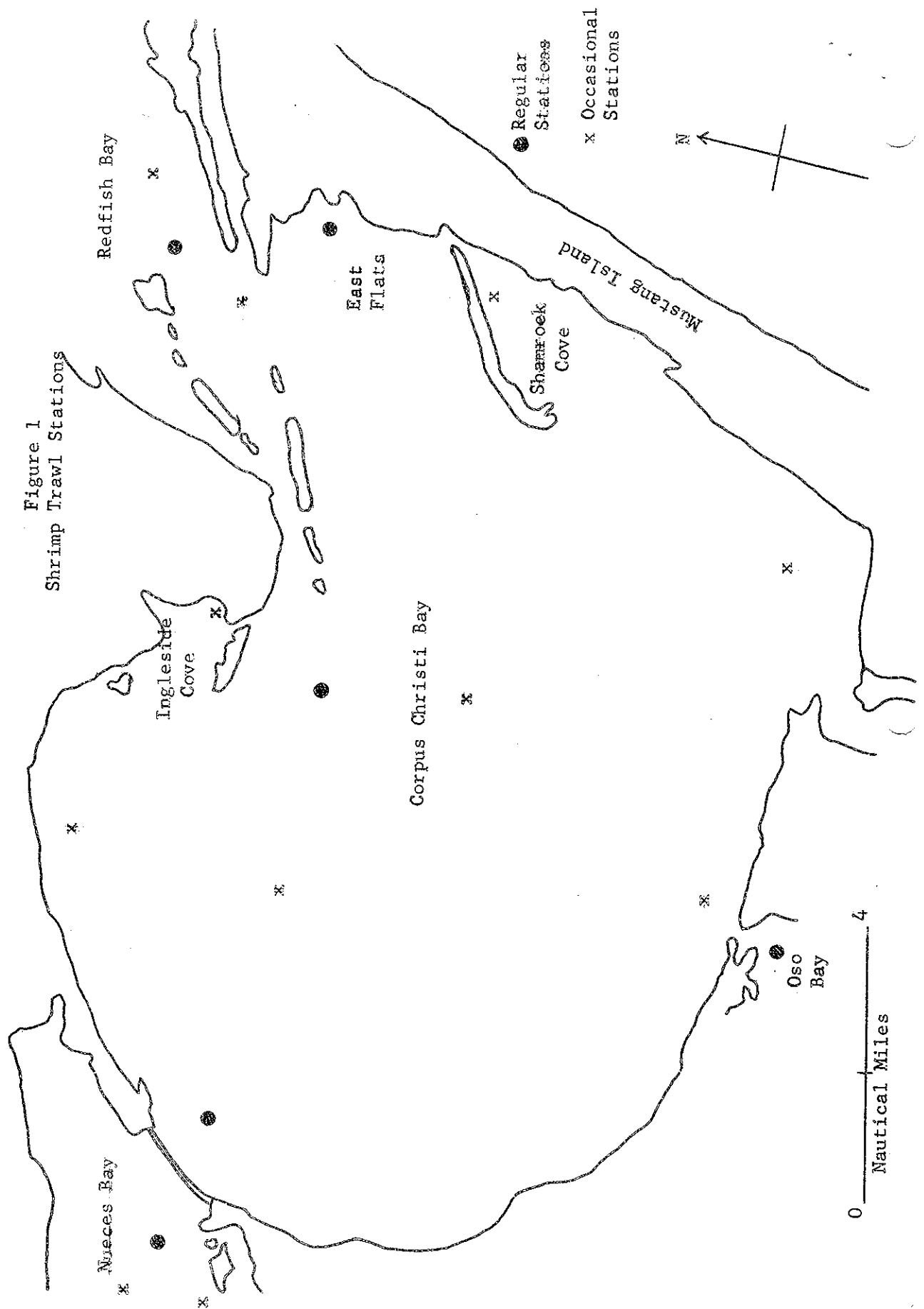
<u>Station</u>	<u>White</u>	<u>Brown</u>	<u>Total</u>
East Flats (Primary)	2.81	10.50	10.15
East Causeway (Primary)	19.25	41.93	30.59
Redfish Bay (Secondary)	4.75	75.50	40.12
Nueces Bay (Secondary)	21.69	17.68	19.68
Oso Bay (Tertiary)	30.25	40.25	35.25
Roving Trawl (20-ft.)	58.56	57.68	58.12

Table 2  
Comparison of Average Numbers of Shrimp Per Trawl  
Between 1960-1961 and 1961-1962 by month

	<u>White Shrimp</u>		<u>Brown Shrimp</u>	
	<u>1960-61</u>	<u>1961-62</u>	<u>1960-61</u>	<u>1961-62</u>
September	84	35	8	53
October	104	48	14	8
November	48	49	19	1
December	02	16	00	15
January	05	8	24	10
February	03	3	05	5
March	11	0	07	0
April	07	0	10	1
May	00	1	126	22
June	02	0	176	126
July	58	1	79	83
August	<u>65</u>	<u>8</u>	<u>32</u>	<u>21</u>
	389	183	500	350

1960-61 Average Number of Whites Per Trawl	32.42
1961-62   "       "       "       "       "       "	<u>15.28</u>
Difference	17.14

1960-61 Average Number of Browns Per Trawl	41.66
1961-62   "       "       "       "       "       "	<u>29.24</u>
Difference	12.42



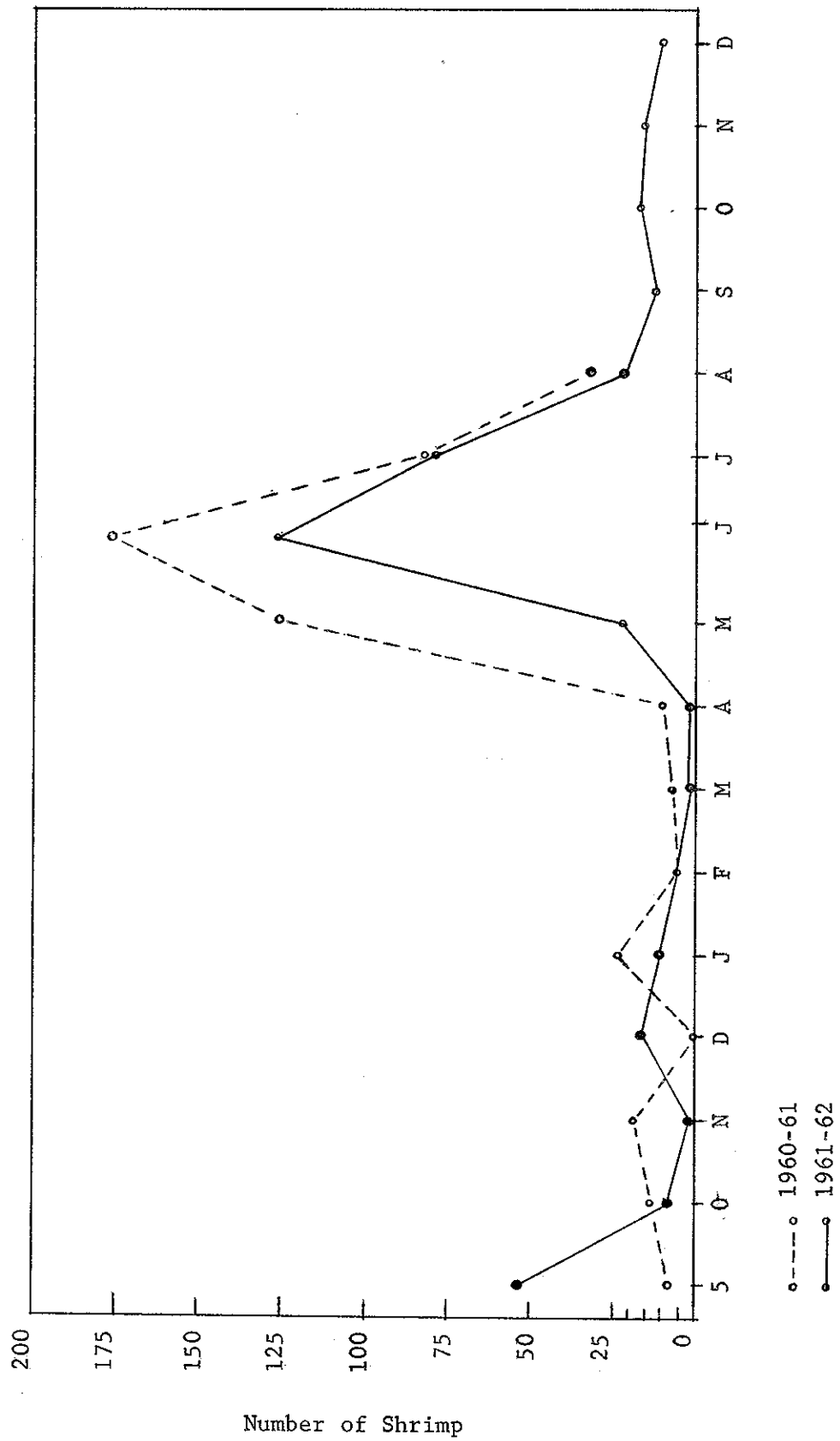


Figure 2  
Comparison of 1960-61 with 1961-62 Brown Shrimp Per Trawl

Figure 3  
Comparison of 1961-62 White Shrimp Per Trawl

