Job Report

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Project Name: Biological Survey of Area M-7

Period Covered: September 1, 1960 to August 15, 1961 Job No. A-1

Survey of Commercial Shrimp Populations in Corpus Christi, Nueces and Oso Bays

Abstract: Shrimp were sampled at seven stations with otter trawls. The first wave of juvenile brown shrimp appeared in the mid-April trawl samples. A second and more numerous group appeared in the May samples. During June, brown shrimp reached their peak of abundance. They decreased in number during July and were practically gone by the end of August. They generally left the bay before reaching a length of 100 mm.

Juvenile white shrimp first appeared in the samples during the first part of July and they remained abundant through the last part of August, which was the end of this study period. (White shrimp remained in the bay until they attained an average length of about 120 mm.)

Objectives: To determine commercial shrimp species present, periods of their presence, relative abundance, and distribution.

Procedure: Shrimp samples were taken bimonthly at seven stations located in productive shrimp nursery grounds. Collections were made with a 10-foot otter trawl with a square mesh size of 1/2 inch and a 20-foot otter trawl with a square mesh size of 1 1/2 inches. A 1/4 inch square mesh liner was inserted in the throat and cod of the 10-foot otter trawl. A standard sampling period of 15 minutes was utilized. Size, weight, and abundance of shrimp were recorded at each station. Salinity, water temperature, wind speed and direction, current and turbidity were included for every collection.

Findings: Penaeus aztecus - Brown shrimp were first taken in Nueces and Oso Bays in mid-April. These secondary and tertiary bays, at this time, had lower salinities than Corpus Christi Bay. A second wave of shrimp appeared in May, and by June a peak of abundance was reached by the brown shrimp population. Brown shrimp began leaving the bays during July and were practically all gone by the end of August.

Figure 1 shows the annual average number of shrimp per trawl and Figure 2 shows the distribution pattern of brown shrimp in the bays under consideration.

Most brown shrimp left the bays before attaining an average length of 100 mm.

Penaeus setiferus - Juvenile white shrimp first appeared in the trawl samples in early July. These white shrimp appeared first in the relatively low salinity waters of Nueces Bay. During the second part of July, white shrimp appeared in Oso Bay and at the station by the Nueces Bay Causeway where

Nueces and Corpus Christi Bays meet. White shrimp increased during the first part of August and were still very plentiful during the last part of August, which marked the end of this study period.

It appears that juvenile white shrimp prefer the relatively lower salinity of Nueces Bay until they attain an average size of about 90 mm., at which time they move out into the saltier waters of Corpus Christi Bay. They remain in this bay until they reach an average size of about 120 mm.; then they start their migration towards the Gulf of Mexico. Figure 3 shows the distribution of white shrimp in Area M-7. The largest concentrations of white shrimp were found in Nueces Bay and in the Nueces Bay Causeway area. When the large white shrimp start to migrate towards the Gulf, they utilize the ship channel and the channel banks enroute. The commercial shrimping fleet works the channel heavily, and the progress of the schools of shrimp can be seen as the fleet works closer to the Gulf each day.

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Figure 1

Average Number of Shrimp per Trawl

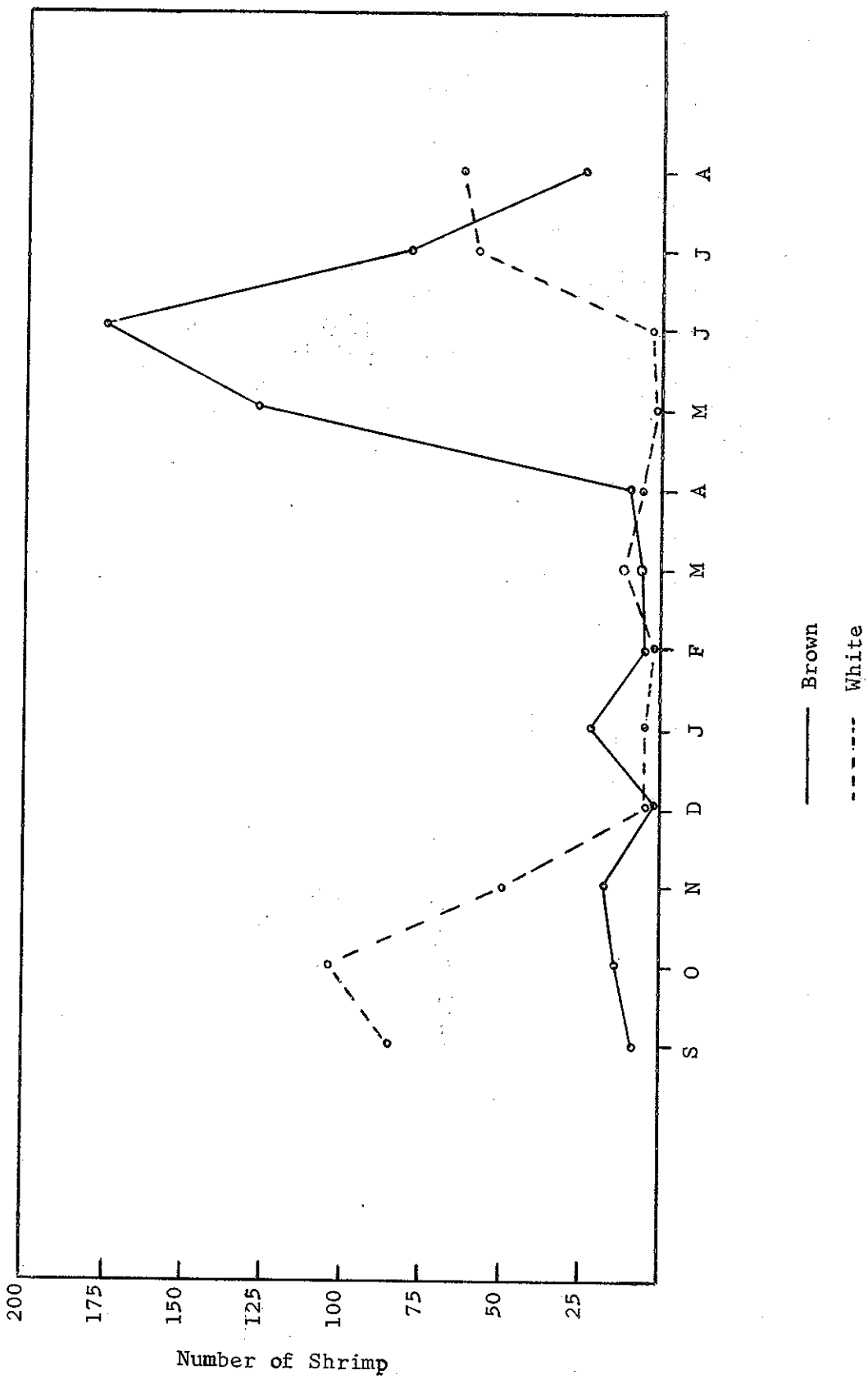

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Figure 2
Distribution Pattern
April-August, 1961
Penaeus aztecus

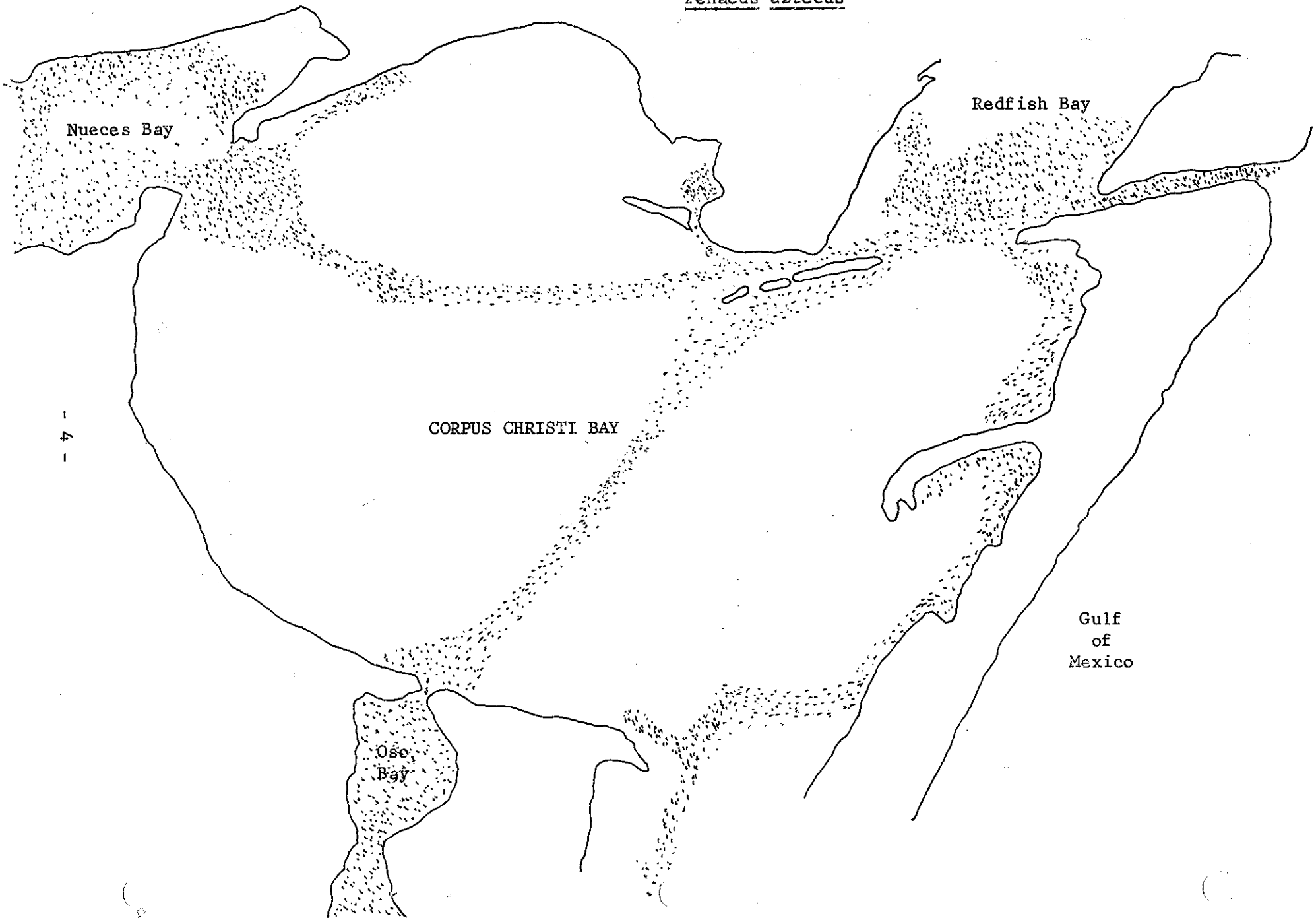
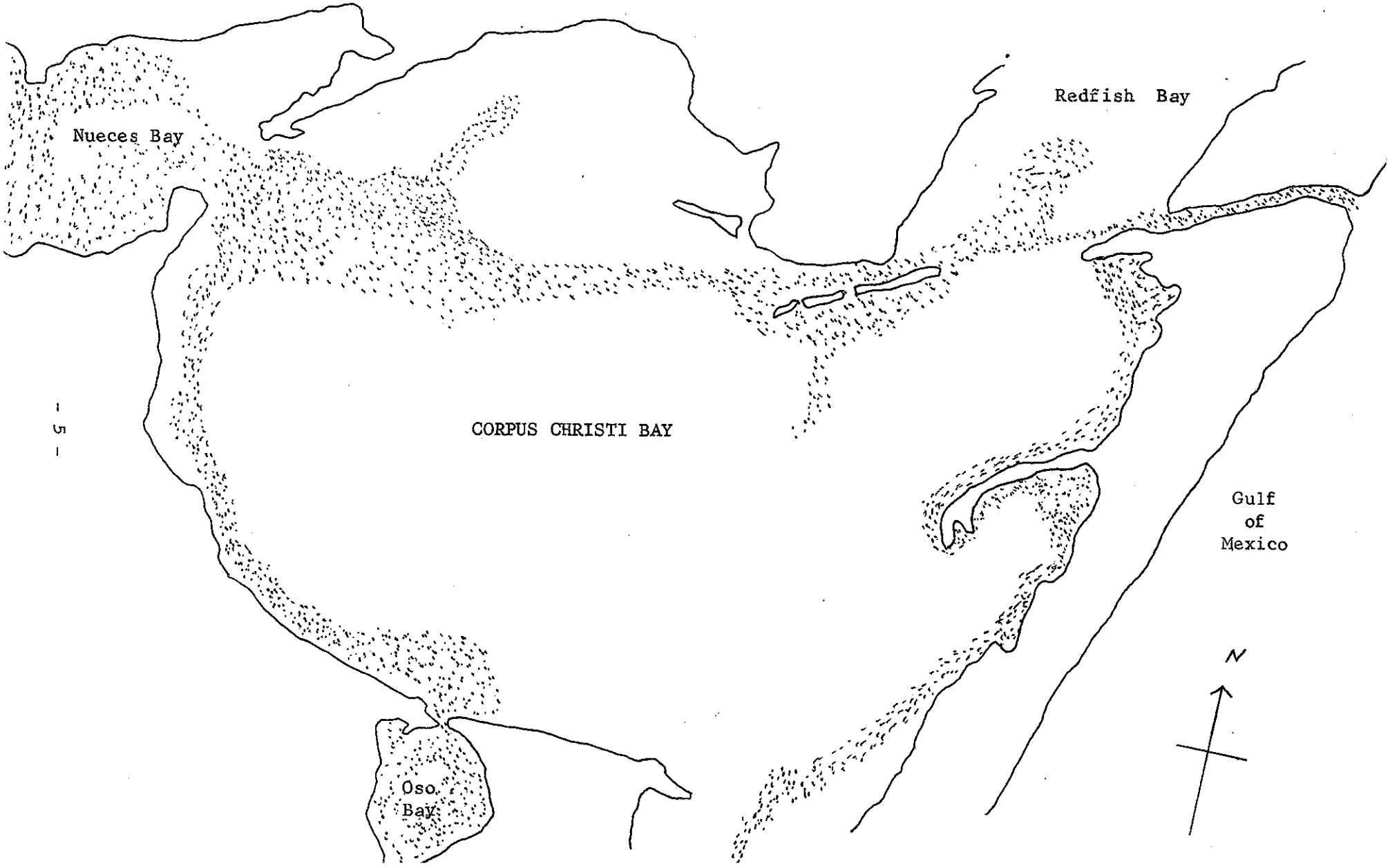


Figure 3
Distribution Pattern
July-August, 1961
Penaeus setiferus



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