

Job Report

William Hawley
Marine Biologist

Project No.: MS-R-5

Date: May 11, 1964

Project Name: A Study of Texas Shrimp Populations

Period Covered: January 1, 1963 to December 31, 1963

Job. No. 7

Populations of Juvenile Shrimp in the Upper Laguna Madre

Abstract: Semimonthly trawl samples collected during the past two years show that brown and pink shrimp were more abundant in 1963. Both brown and pink shrimp catches increased in numbers while white shrimp remained scarce.

Objectives: To determine the seasonal abundance, growth rate, and size of juvenile shrimp in the Upper Laguna Madre.

Procedure: Shrimp samples were collected within three days of the first and fifteenth of each month (between March 1 and December 1, 1963) with a 10-foot trawl of 1 1/2 inch stretched mesh, and a 1/4 inch bar mesh liner, at three stations. A sample was collected by trawling for 15-minutes. One station was in three to four feet of water east of Pita Island. The other stations were 12 feet deep and in the Intracoastal Waterway at Marker 23 and at the north end of the Land Cut. A 60-foot bag seine, of 3/4 inch stretched mesh, 8 feet deep, was used during the summer to sample a dead-end channel four miles south of the Padre Island Causeway and to sample the Land Cut. A 6-foot bar seine was used during the summer without success. The bar seine would either bog down with dead vegetation or skim over the top of the dead grass without catching small fish and shrimp. Water temperatures and salinities were recorded at each station (Job Report No. 18, "Hydrographic and Meteorographic Study of the Upper Laguna Madre", 1963). Shrimp were measured from the rostrum tip to the tip of the telson to the nearest millimeter.

Findings: Table 1 summarizes shrimp data collected during 1963. Figure 1 is a graphic comparison of the 1962 and 1963 shrimp trawl samples by month and species. Figure 2 is a map of the area showing station locations.

Mud lumps and dense vegetation hampered trawling and seining. At times the trawl would fill up with dead grass in less than two minutes towing time. In which case, several trawl catches were added together to equal a standard sample, or the catch from a single trawl was multiplied to equal the catch of a standard sample. These difficulties reduced the catch of shrimp, but were also encountered in 1962 so catches in these years were comparable.

Penaeus aztecus - Brown shrimp were present in the Upper Laguna Madre from April through October, with the largest concentrations appearing in May and July (Figure 1). Trawl sampling indicate a larger year class in 1963, but seine data indicated a smaller class. Average salinity in the Upper Laguna increased from 45 parts per thousand in July to 53 ppt in August. Apparently this rise in salinity limited the number of shrimp that entered the Upper Laguna Madre after July.

Penaeus duorarum - Pink shrimp sample sizes increased in 1963 (Figure 1). They were the dominant species of shrimp in the May trawl samples.

Penaeus setiferus - White shrimp were scarce in the Upper Laguna Madre during 1962 and 1963. A small group of white shrimp, living in a dead-end channel, was sampled by seining the channel in the summer of 1963. A similar group was also found here during the summer of 1962. Scattered white shrimp were found in the spring and fall months of both years, but large concentrations were not located during the past summer. High salinity was probably a limiting factor.

Prepared by: William Hawley
Marine Biologist

Alan Moffett
Project Leader

Ernest Simmons
Regional Supervisor

Approved by:

Terrance R. Leamy
Coordinator

4

Table 1: Shrimp Data Collected in 1963 in the Upper Laguna Madre.

TRAWL SAMPLES	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
No. Trawls Made	2	3	5	4	4	2	4	4	5	2
No. Browns Caught	0	0	64	3	188	1	3	1	0	0
No. Browns/Trawl	0	0	12.8	0.7	47.0	0.5	0.7	0.2	0	0
No. Pinks Caught	0	2	198	0	0	0	0	0	0	0
No. Pinks/Trawl	0	0.7	39.6	0	0	0	0	0	0	0
No. Whites Caught	0	0	1	0	0	0	0	0	6	0
No. Whites/Trawl	0	0	0.2	0	0	0	0	0	1.2	0

SEINE SAMPLES

No. Seines Made	2	2	2	3	1	2
No. Browns Caught	0	725	349	843	27	5
No. Pinks Caught	1	18	0	0	0	1
No. Whites Caught	0	0	0	66	102	0

SHRIMP SIZES

<u>Date</u>	<u>Species</u>	<u>Size Range in mm.</u>	<u>Peak in mm.</u>
May 1	Pink	68-113	90-100
	Brown	42-90	65-75
May 15	Pink	80-115	85-95
	Brown	50-99 *65-75,	80-90
June 15	Brown	58-97	70-80
July 1	Brown	50-108	75-85
July 15	Brown	35-117 45-55	* 80-90
	White	30-88	75-85
Aug. 15	Brown	57-99	80-90
	White	55-93	65-75
Sept. 15	Brown	62-80	65-75

Note: Size range and peaks are listed only for those periods in which enough shrimp were measured to indicate their major size.

* Major size peak containing the most shrimp.

Figure 1: Number of shrimp collected per trawl sample by species and month (1962 & 1963).

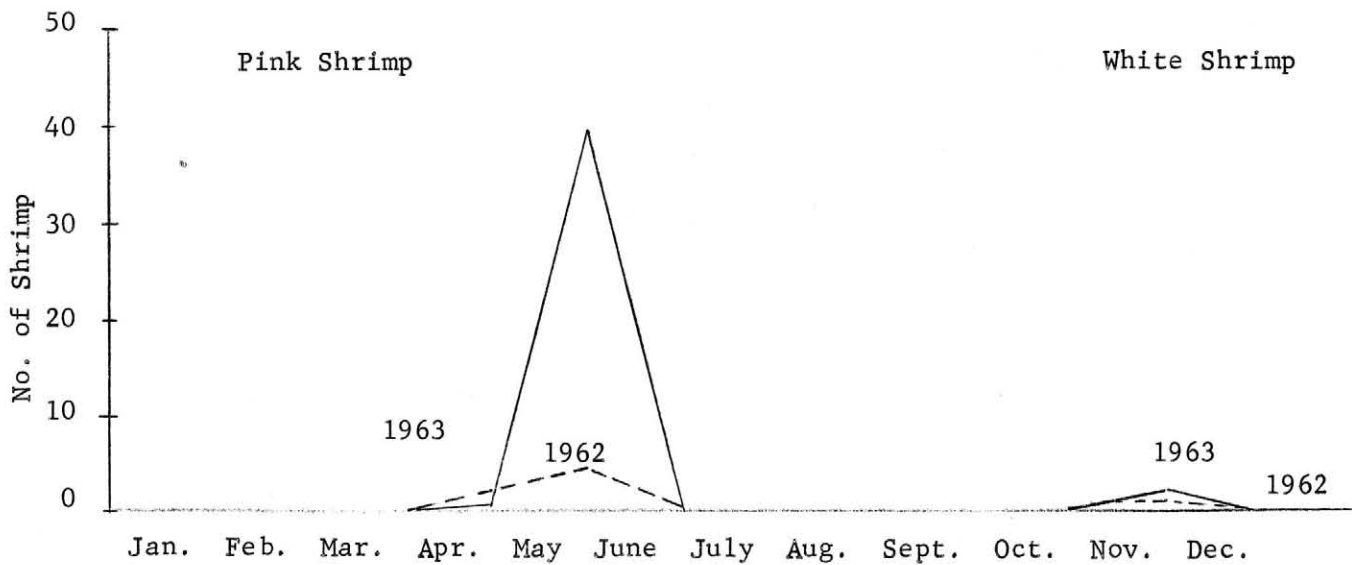
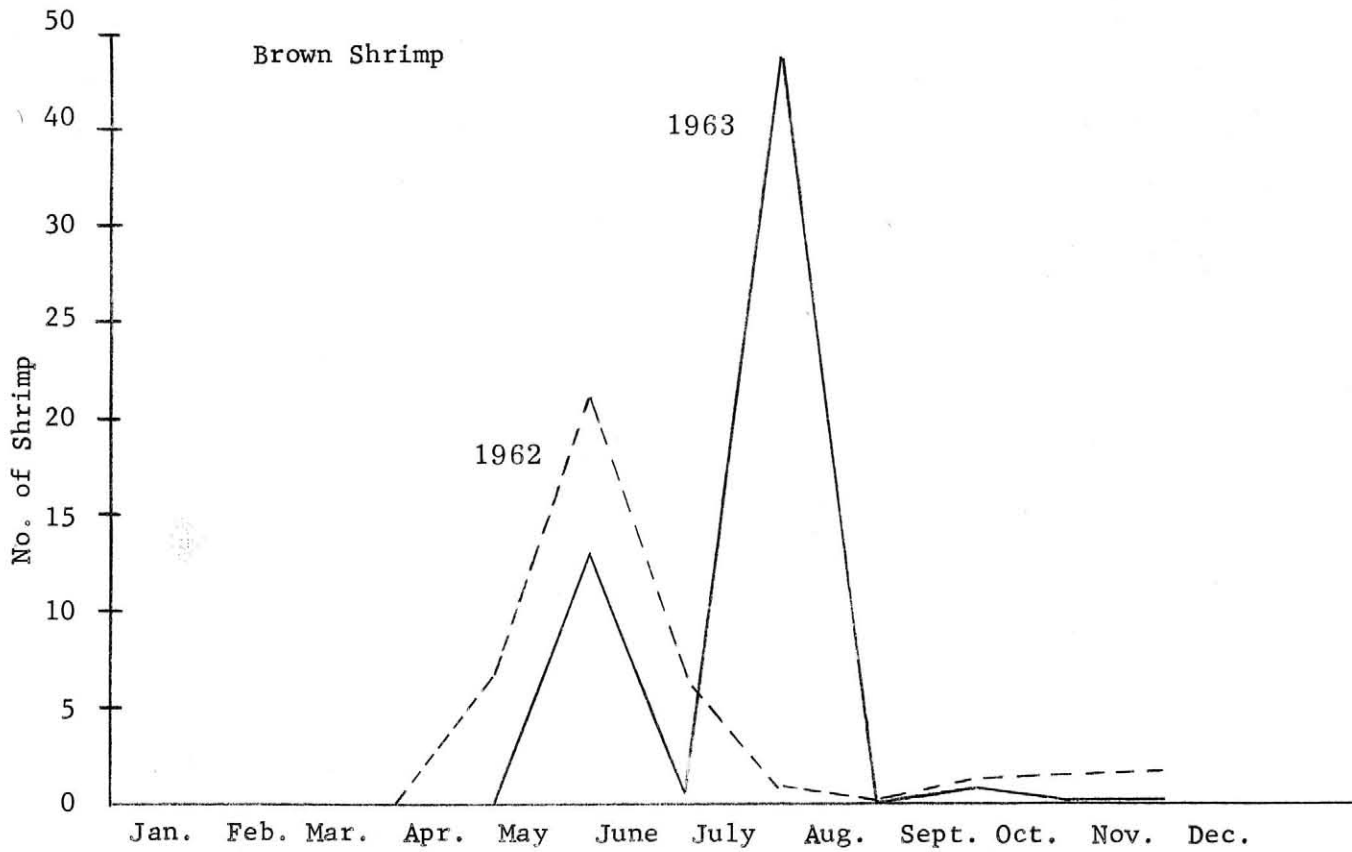


Figure 2: Shrimp Stations in the Upper Laguna Madre

