

Job Report

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Biologist III

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Project Name: Studies of the Blue Crab Populations of the Texas Coast

Period Covered: January 1, 1964 to December 31, 1964

Job No.: 4

Population Studies of the Blue Crabs of the
San Antonio-Espiritu Santo Bay System

Abstract: Waves of juvenile blue crabs, Callinectes sapidus were detected in March and August while the availability of crabs at sampling stations was largest in March and December.

Three blue crabs were found infected with the parasite, Loxothylacus texanus.

Objectives: To study the blue crab population of the San Antonio-Espiritu Santo Bay system, and to determine the seasonal abundance and movements of the crabs as related to environmental conditions.

Procedures: Blue crabs were sampled at six stations, twice each month, when possible, with a 10-foot shrimp trawl of 1 1/4 inch stretch mesh and a 1/2 inch stretch mesh liner. A 20-foot shrimp trawl of 1 1/2 inch stretch mesh was used once a month in areas where the commercial shrimp fleet worked. Once a month 4 stations were sampled with a 1200-foot trammel net of 3 inch stretch mesh in conjunction with fish sampling. Six stations were sampled monthly with a 60-foot seine of 3/4 inch stretch mesh and a 6-foot bar seine of 1/2 inch stretch mesh in conjunction with fish sampling. Hydrographic and climatological data were taken during each collection. All crabs were measured in carapace width (mm), and sexed.

Salinities at primary bay stations averaged about 29 ppt, with a range from 18 to 38 ppt. Water temperatures ranged from 10° C. in winter to 30°C. in summer. Trawl stations were in 6 feet of water or less, and trammel net stations were in shallow water reef or shore areas (about 3 feet deep). All the stations were located in, or between, large primary bays (Figure 1).

Secondary bay stations located near the Guadalupe River had mud bottoms, low salinities, and were void of vegetation (Figure 1). Stations located at Turnstake Island, Dagger Point, and Panther Point were all in shallow water, had hard sand bottoms, heavy vegetation, and high salinities (20 to 38 ppt).

Tertiary bay stations were selected more for their environmental characteristics than their location. The station in Guadalupe Bay receives a good influx of fresh water periodically and salinities range from 0 to 20 ppt. The bottom is a highly organic mud. This station was an important crab and shrimp nursery during this study.

Big bayou and Saluria Bayou stations were adjacent to passed to the Gulf of Mexico. These were densely vegetated areas having 1 to 2 feet of water. Juvenile fish and crabs moving through these areas usually seek shelter among the vegetation.

Salinities range from 20 to 35 ppt at these stations.

The station at Panther Point Lake is 1 to 3 feet deep, and has a sandy mud bottom that is heavily vegetated. Salinities range from 25 to 40 ppt.

Seasonal Occurrence: Waves of small blue crabs were detected in March and August (Table 1 & Figure 4), but recruitment of small blue crabs to the population occurred throughout the year (Figures 2, 3, 4), thus indicating a long spawning season.

Large catches of blue crabs were made at primary bay stations in March, May, June, and December while secondary stations were more productive in May and December (Table 1).

A large concentration of sponge crabs was detected near Horseshore Reef in March and one sample contained 32 egg bearers.

Fifty-seven per cent of the 841 blue crabs collected were male crabs. Female crabs were most available in early spring and during late fall.

Parasites: Visual observations were made on all crabs caught in samples for the presence of the parasite Loxothylacus texanus. This parasite was found in only three crabs. All three of these crabs were found in San Antonio Bay in November.

Commercial Landings: Commercial production data indicated that approximately 495,000 pounds (live weight) of blue crabs were caught in the San Antonio Bay system during 1964. This is about 500,000 pounds less than the reported landings in 1963.

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Table 1: Total numbers caught, sex, and average number per sample grouped by station type.

	PRIMARY BAY STATIONS				SECONDARY BAY STATIONS				TERTIARY BAY STATIONS			
	Total Caught	Male	Female	Aver. Per Sample	Total Caught	Male	Female	Aver. Per Sample	Total Caught	Male	Female	Aver. Per Sample
1964												
March	70	13	*53	17.5	10	7	3	3.3	80	56	24	11.4
April	18	14	4	3.0	18	9	9	2.25	36	25	11	5.1
May	97	37	60	10.8	41	29	12	3.4	23	15	8	2.6
June	92	41	51	13.1	10	5	5	1.0	3	2	1	1.5
July	29	16	13	3.6	36	32	4	3.0	16	13	3	2.0
Aug.	16	7	9	2.0	16	10	6	1.8	40	34	6	4.0
Sept.	35	18	17	3.9	14	6	8	1.6	14	9	5	2.3
Oct.	11	7	4	2.2	15	11	4	2.1	5	2	3	1.3
Nov.	24	13	11	2.7	3	2	1	0.6	13	7	6	2.6
Dec.	32	26	6	10.7	18	13		9.0	6	3	3	6.0
Total	424	192	232		181	124	57		236	166	70	

* - 34 sponge crabs

Total Males - 482 - 57.3%
 Total Females - 359 - 42.7%
 Total Crabs - 841

Figure 1: Sample Station Locations

Sampling Stations

Primary Bays

- P1 Turtle Reef Area
- P2 ICW Mk. 13
- P3 ICW Mk. 31
- P4 Steamboat Pass
- P5 Horseshoe Reef

Secondary Bays

- S1 Hynes Bay
- S2 Swan Cove
- S3 Dagger Point
- S4 Panther Point
- S5 Turnstake Island

Tertiary Bays

- T1 Guadalupe Bay
- T2 Big Bayou
- T3 Saluria Bayou
- T4 Panther Point Lake

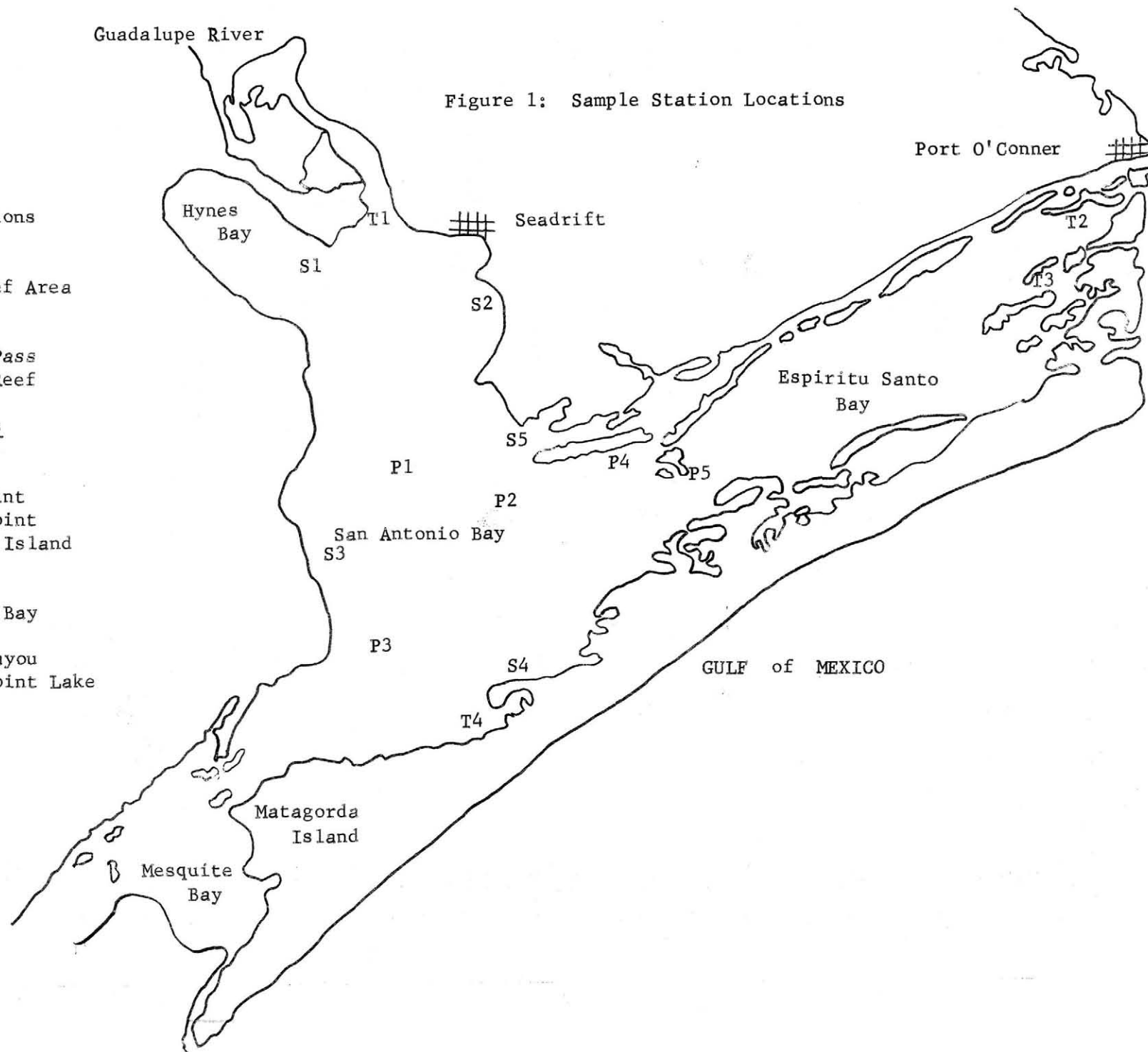


Figure 2:

Blue Crab
Primary Bay Samples
Size Range and Mode

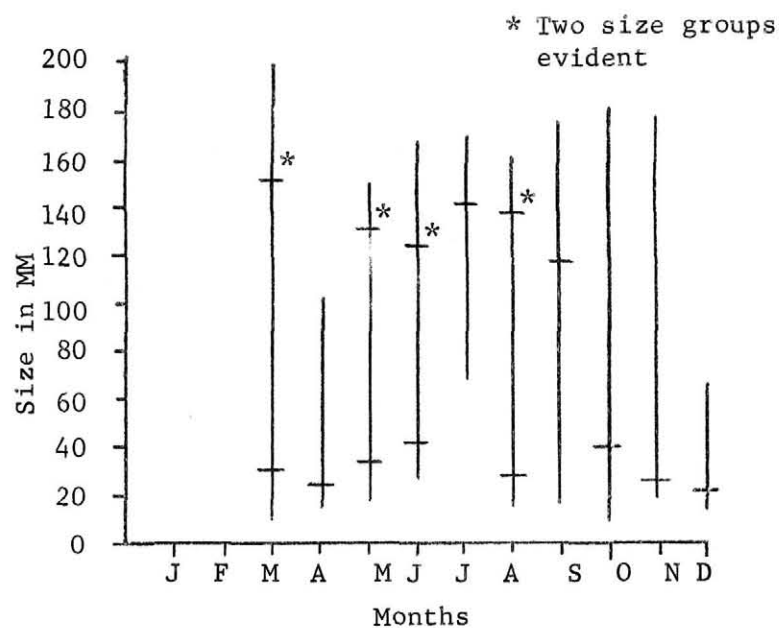


Figure 3:

Blue Crab
Secondary Bay Samples
Size Range and Mode

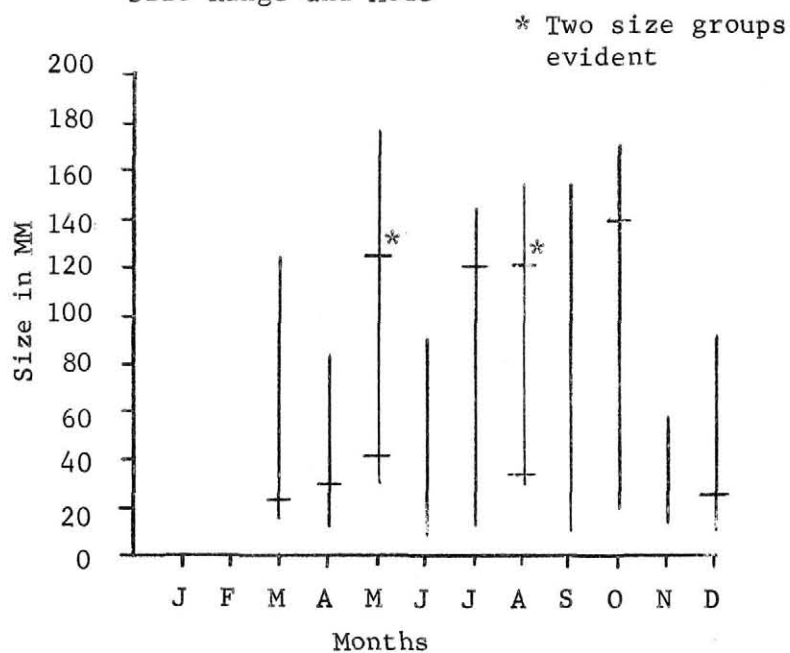


Figure 4:

Blue Crab
Tertiary Bay Samples
Size Range and Mode

