

Job Report

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Project Name: Studies of Blue Crab Populations of the Texas Coast
Period Covered: September 1, 1961 to December 31, 1962 Job No. 7

Blue Crab Investigations in the Upper Laguna Madre

Abstract: Blue crabs were caught in conjunction with various fish sampling methods. They were sorted according to sex and measured to determine the annual variation in size and number of the crabs in the upper Laguna Madre. Crabs were rare in the winter months and practically none were caught after July 1962 when salinities passed 46 ppt. March and April were the best months for crabbing. Sponge crabs were common in the area in September 1962 and May 1962, but no evidence was found to indicate they spawned in the lagoon. It is concluded that crab abundance is related directly to salinity and that commercial crabbing would not be profitable in the Laguna Madre during dry years when salinity is highest.

Objectives: To investigate the life history of Callinectes sapidus in the area.

Procedure: Blue crabs, Callinectes sapidus, caught in monthly sampling for fish were sorted according to sex and measured. Size of each crab was determined by measuring the width or distance between the tips of the horns of the carapace. One to four stations were sampled in the upper Laguna Madre each month with 1200 feet of trammel net or drag seine. (See Project No. MF-R-4, Job No. 10). Four to six 15-minute trawls were made each month with a 10-foot trawl lined with a one-half of an inch stretch mesh liner. A station at Pita Island was seined each month with a 60-foot bag seine. This monthly seine drag proved to be the most accurate, non-selective and reliable of the several methods used for crab sampling. No crab pots were used because the short time in which these could be worked did not seem to justify their cost.

Findings and

Discussion: Data collected is presented in Table 1. Relative abundance is best shown by monthly seine station samples taken at Pita Island. This is the only sample method charted because the others varied so much in results. Few crabs were collected in trawls and nets were intentionally worked to avoid crabs as much as possible because of the damage they cause to nets.

Crabs of all sizes were common in the Laguna Madre after Hurricane Carla in September 1961 and remained in the area until October. From November through January 1962, there were practically no crabs available. In February small crabs, probably from the Gulf, began showing up in large numbers. March was the peak month for crabs of all sizes, including egg-bearing

females. By April salinities passed 40 ppt. and the crab population began to decrease with the smaller crabs leaving first. Crabs became scarce when salinities passed 46 ppt. in July 1962. Small crabs were present near the Padre Island Causeway and a few large individual crabs were observed throughout the lagoon all year.

Female crabs bearing eggs were common in September 1961 and March 1962. One sponge crab was found in June 1962. Mating evidently took place in the lagoon since paired crabs were common in the spring and fall, but it is believed spawning occurred after crabs left the area. An emigration of females in October 1961 and April 1962 would explain the decrease in proportion of females to males in those months.

It is concluded that the upper Laguna Madre could not support a crab industry in dry years such as 1962. February through June were the only months of 1962 in which crabs could be caught. The majority of the crabs were under 100 mm. during the first three months of this period and in June their number was greatly reduced by hypersalinity. Further sampling needs to be done to determine if more crabs are available in years of higher rainfall as is indicated by the last four months of 1961.

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Table 1

Crab Data from the Upper Laguna Madre, September 1, 1961, through December 31, 1962

	<u>Sept.</u>	<u>Oct.</u>	<u>Nov.</u>	<u>Dec.</u>	<u>Jan.</u>	<u>Feb.</u>	<u>Mar.</u>	<u>Apr.</u>	<u>May</u>	<u>June</u>	<u>July</u>	<u>Oct-Dec.</u>
				1961	1962							
Total	79	191	35	50	10	49	183	193	85	25	8	
Seine	-	-	0	1	0	70	126	88	13	10	2	
% Female	33	21	23	14	60	47	60	43	42	36	0	
% Sponge	15	2	0	0	0	0	22	0	0	11	-	
Size	40-170	71-197	8-180	18-181	26-162	25-195	25-185	20-170	28-165	15-180	35-190	
Mode	115-125	140-150	-	160-170	-	40-50	50-60	90-100	43.8	-	-	
Sal.	41.6	33.3	32.8	24.9	33.4	36.4	32.0	41.2	43.8	41.2	46.4	
	<u>Aug.</u>	<u>Sept.</u>	<u>Oct.</u>	<u>Nov.</u>	<u>Dec.</u>							
Total	0	0	0	0	0							
Sal.	48.6	50.5	56.3	55.7	48.6							

No Crabs

Total = Total number of crabs caught.
 Seine = Number of crabs caught per drag with a sixty-foot bag seine at Pita Island. Each sample covered 12,000 sq. ft.
 % Females = Number of females divided by the total number of crabs.
 % Sponge = Number of females bearing eggs, or sponge crabs, divided by the total number of females.
 Size = Size, or carapace width, of the smallest and largest crab caught for the month.
 Mode = Size limits which most frequently describe the crabs caught in that month.
 Sal. = Monthly salinity averages in parts per thousand (see Project No. MF-R-4, Job No. 9).

