

Job Report

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Project Name: Studies of the Blue Crab Populations of the Texas Coast
Period Covered: January 1, 1962 to December 31, 1962 Job No. 9

Population Studies of the Blue Crabs of Gulf Area 20

Abstract: For the year, 914 specimens were taken including 155 blue crabs, 630 Gulf blue crabs and 129 associated crabs.

The blue crab was not abundant in the Gulf samples and, when found, was in shallow water. It had spawning peaks in March and August.

The Gulf blue crab was more numerous and it was found in deeper water.

Associated crabs in the area were not abundant. Of these crabs, Portunus gibbesii and Pagurus floridanus were the most numerous.

Objectives: To study the blue crab and related Gulf blue crab populations of Gulf Area 20 and determine the seasonal abundance and movements as related to environmental conditions. To record other Anomuran and Brachyuran crustacea present in the area.

Procedure: In conjunction with shrimp and fish research, regular stations were set up for weekly samples in the inshore Gulf off Port Aransas, Texas, in depths of 2 to 15 fathoms.

Daytime sampling was accomplished from the 38-foot Commission shrimp boat GOBY using a 42-foot flat otter trawl of 2-inch stretch mesh opened by 6-foot doors. Trawl duration was set at thirty minutes. Hydrographic data was taken at time of sampling. Length-frequency sheets were completed for blue crabs and Gulf blue crabs. Information sheets were used for other organisms.

Findings and

Discussion:

Crab Study: Commercial Species

Blue crab, Callinectes sapidus Rathbun: Total for period:
155 crabs 23 males 15 per cent
 132 females 85 per cent

Blue crabs were not abundant in the Gulf samples as compared with the catch of other organisms, both vertebrate and invertebrate. The greatest number of crabs per effort occurred in March when there were over 10 taken per trawl.

Being primarily a bay species most blue crabs were taken in the Gulf in relatively shallow water, although a few were taken in 12 and 14 fathoms.

There were two distinct peaks of spawning during the year in March and August. These data agree in essence with a report by F. M. Daugherty, Jr. (1952) in which he states that during the years when a freeze occurs and the

waters remain cold for a long period of time, the spawning of blue crabs extends from April to September. It is possible that during a warm year, spawning would occur all year.

In an attempt to show any seasonal abundance distinction between the sexes, Figure 1 was composed. This figure illustrates the male crabs by size as a per cent of all crabs taken. Thus, the monthly percentage of each sex according to size can be determined. Only four months are represented: March, June, July and August. These were the only periods for which the data were adequate to graph. In the graphs, the March catch represents 64 specimens, the June catch represents 27 specimens, the July catch represents 32 specimens and the August catch represents 29 specimens. June was the only month when a large percentage of males was present in the area.

Crab Study: Non-Commercial Species

Gulf blue crab, Callinectes danae Smith: Total for period:
630 crabs 385 males 60 per cent
 257 females 40 per cent

The Gulf blue crab, Callinectes danae, was far more abundant than the blue crab, Callinectes sapidus. While found in water as shallow as two fathoms, Callinectes danae was in greatest abundance in the 12 to 14 fathom zone. This crab reached its greatest abundance in August, as noted in Figure 2, which gives the average number of Callinectes danae taken per trawl during the months between March and August.

Figure 3 shows the monthly percentage of each size of the males compared to the whole catch. Only June, when 89 crabs were taken; July, when 170 crabs were taken; and August, when 358 crabs were taken, are shown. Information on the sex differentiation for June was not recorded.

Although a few Gulf blue crabs with eggs were taken during the year, there were not enough to be able to establish any definite spawning period. The ones taken, however, were in deep water, which agrees with findings by Daugherty (1952).

Daugherty found that most spawning took place in October, November and December. He also stated that his findings indicated that most of the spawning and hatching occurred in the deeper off-shore waters. Only more extensive deep-water sampling will be able to verify this.

Purple clawed crab, Portunus gibbesii Stimpson: Total for period:
64 crabs
Size range: 20-60 mm.
Depth taken: 8 fathoms

This crab was most abundant in April in 8 and 12 fathoms. During this time, the size mode was 20-30 millimeters and all specimens were ripe.

White hermit crab, Pagurus floridanus Benedict: Total for period:
30 crabs

This species was taken at all depths out to 10 fathoms. Though never in great abundance, it was generally found throughout the year.

Speckled crab, Arenaeus cribarius Lamarck: Total for period:
14 crabs
Size range: 30-100 mm.
Depth taken: 2-14 fathoms

Most abundant in 14 fathoms in October. This crab was generally abundant between March and October.

Lady crab, Ovalipes ocellatus Herbst: Total for period:

11 crabs

Size range: 30-60 mm.

Depth taken: 6 fathoms

This crab was taken only during February.

Spider crab, Libinia emarginata Leach: Total for period:

5 crabs

The spider was taken only during February, March and April in 6 to 8 fathoms.

Shameface crab, Calappa sulcata Rathbun: Total for period:

5 crabs

Most of these crabs were small and taken in 6-15 fathoms. Two large ones were taken in September.

Summary: The blue crab was not greatly abundant in the Gulf and it was restricted to the shallower waters.

The crab had two spawning peaks: March and August. Information on the copulation was unavailable, however, it was noted that June was the only month when males made up a large percentage of the population.

The Gulf blue crab, though far more abundant, was found in deeper water, thus limiting efforts to gain information on its life history and specifically its spawning.

The associated crabs in the area were not numerous and were found in almost all depths worked. Although not a great deal was learned about these crabs, the data does show that the purple clawed crab spawns in April in 8 to 12 fathoms.

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Bibliography:

Churchill, E. P. Jr. 1919. Life History of the Blue Crab. Bull. Bur. Fish, 36, 1917-1918

Daugherty, F. M. Jr. 1952. The Blue Crab Investigation. Reprint from The Texas Journal of Science, March 30, 1952.

----- 1952. Notes on Callinectes danae Smith in Aransas Bay, Texas and Adjacent Waters. Reprint from The Texas Journal of Science; 4(2).

Miner, Roy Waldo 1950. Field Book of Seashore Life. G. P. Putnam's Sons,
New York.

Pounds, Sandra Gail 1961. The Crabs of Texas. Bull. 43, Publ. Texas Game
and Fish Commission. Oct., 1961.

Figure 1
Length-frequencies of Male *C. sapidus* as a Per Cent of Total Monthly Catch

□ Total crabs
▨ Male crabs

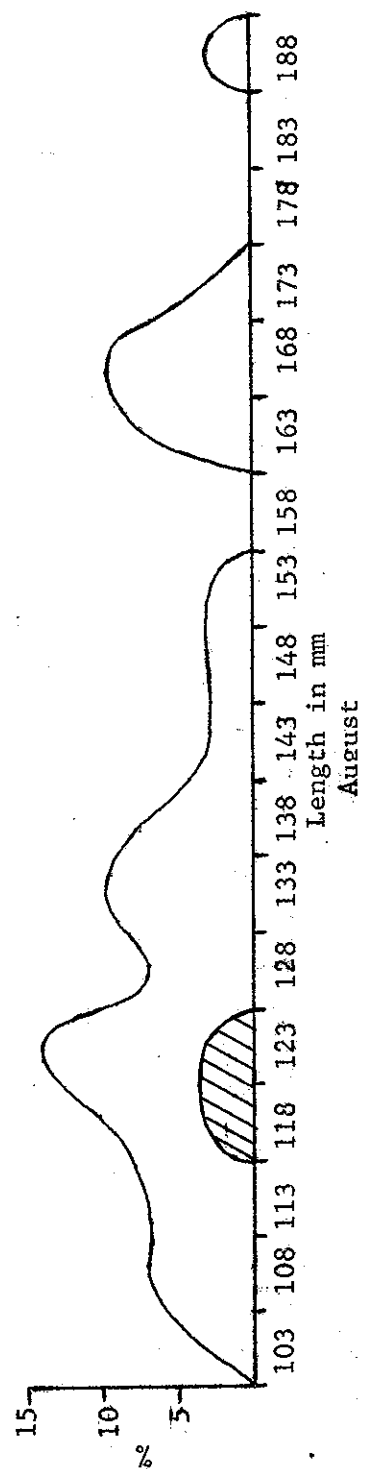
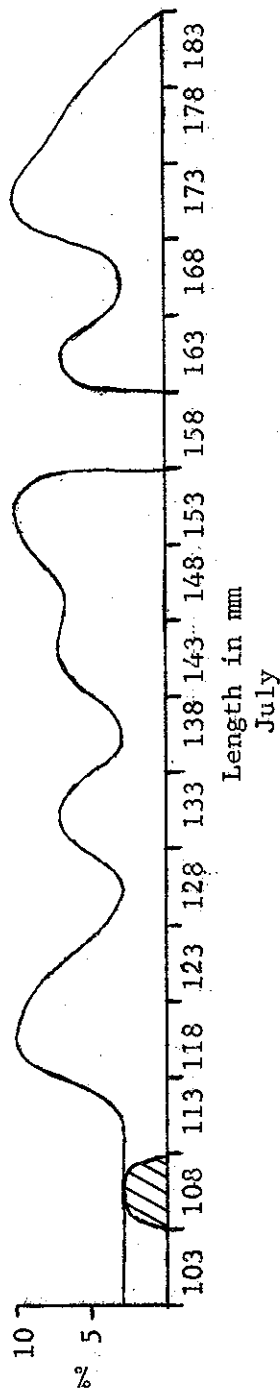
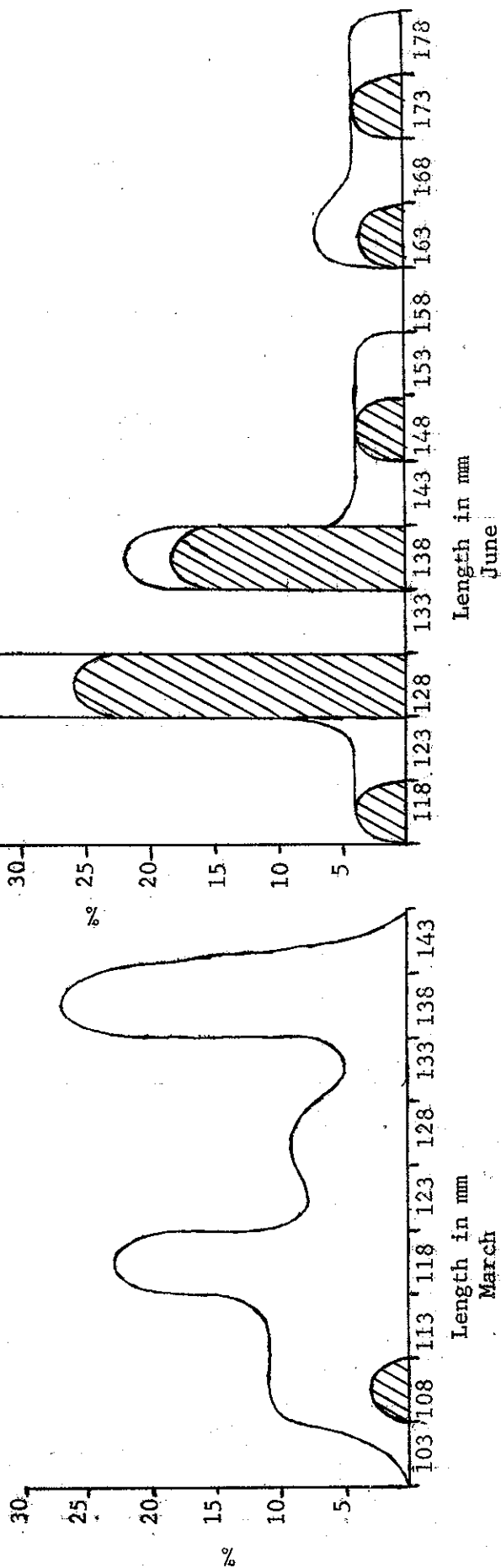


Figure 2
Ave. No. C. danae Per Trawl

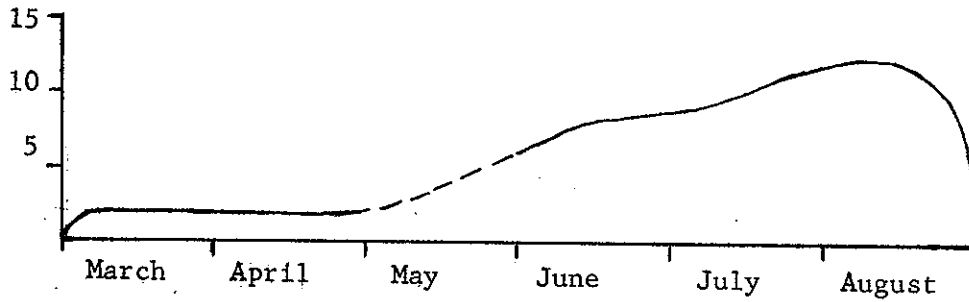


Figure 3
Length-frequencies of Male C. danae as a Per Cent of
Total Monthly Catch

