

Job Report

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Biologist

Project No: MC-R-1 Date: August 5, 1963

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

Period Covered: September 1, 1961 through December 31, 1962 Job No: 4

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

Abstract: Blue crab sample catches ranged in abundance from 14.2 per sample in September 1961 to 1.4 per sample in December 1962.

Comparison of male and female catches indicate that female crabs were slightly more abundant throughout the study period.

Shrimp trawls produced the most consistent catches of all the types of sampling gear used.

Samplings indicate central San Antonio Bay has the most consistent population of any area sampled in San Antonio and Espiritu Santo Bays.

Blue Crab modes are fairly close in size from station to station most months of the study.

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

Procedures: Blue crab populations were sampled at six stations twice monthly when possible with a 10 foot shrimp trawl (1 1/4 inch mesh and a 1/2 inch mesh liner) in conjunction with the shrimp sampling. A 20 foot shrimp trawl (1 1/2 inch mesh) was used once a month in the areas the commercial shrimp fleet work. Once a month four stations were sampled with a 1,200 foot trammel net (3 inch mesh) in conjunction with fish sampling. Hydrographic and climatological data was recorded before each collection. Station locations were determined by the fish and shrimp jobs. All crabs were measured by carapace width, sexed, and a "catch per unit effort" record maintained. The area biologist here evaluated the crab data collected in the Espiritu Santo-San Antonio Bay System for the study period report. A duplicate copy of the monthly station sheets and length frequency sheets was sent to the Crab Project Leader for evaluation and incorporation in a yearly coast-wide report.

Findings: Blue crabs sampled in the San Antonio-Espiritu Santo Bay area ranged in abundance from 14.2 crabs per sample in September 1961 sample abundance dropped to 4.0 per sample in October 1961 (after Hurricane Carla), then a period of gradual increase through February 1962 to about 5.0 per sample. Again in March 1962 abundance dropped to 4.0 per sample. In April and August 1962 there were two abundance peaks of 8.1 per sample with a low of 3.6 per sample in July 1962. After August 1962 sample catches gradually decreased through December 1962 and the end of the study period. Sample catches at the end of the study period were 1.4 per sample taken. See Figure 1.

Comparison of male and female catches shown in Figure 1 indicates that female crabs were slightly more abundant most of the study period.

As is indicated in Figure 2, "Comparison of Sample Catches by Gear" the shrimp trawls produced more consistent catches of crabs than did trammel or gill nets. The only exception is the period July through October 1962 when net sample catches increased while trawl catches decreased.

See Figure 3 for location of sampling stations in the Espiritu Santo-San Antonio Bay System.

Table 1 is a chart showing a comparison of catches at the various sampling stations and by different types of sampling gear. Ten foot trawl station No. 5 and 20 foot trawl Area No. 1 are in the same general location, that is, in central San Antonio Bay, and are the most consistent crab producing stations in this area. This could possibly be attributed to their locations. In this general area the river flow from the less saline upper portion of San Antonio Bay mixes with the higher salinities found in that part of the bay nearer to the Gulf passes. Salinities in this area average about 21 ppt. most of the time. See Project No. MF-R-4, Job No. 17 for hydrographic data concerning the Espiritu Santo-San Antonio Bay System.

As shown in Table 1 net sampling station No. 4 produced the most numbers of crabs in samples taken, but was inconsistent in that crabs were caught only 6 months out of the 16 month study period.

Figure 4 (pages 1 thru 3) shows individual station samples. Size range and mode are present when enough crabs were caught to indicate each. Station samples are inconsistent in catch from month to month. However, most of the time the samples indicate a similar size mode for the different stations within this area. Some months two modes are indicated when one group of large and another group of small crabs are present at the same time. Figure 3 shows the locations of sampling stations.

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Table 1

Comparison of Sample Catch by Gear and Station

	Foot Trawl Samples						20 ft. Trawl			Net Samples			
	1	2	3	4	5	6	1	2	1	2	3	4	
Sept. 1961							20				18	22	7
Oct.	2	2			6	6							
Dec.	4	6	9	15	10	13	3				2		
Jan. 1962	3	9	6	4	8	12	2	2					
Feb.	5	8	13	4	9	17	31	6					
Mar.	16	15	5	1	2	1							
Apr.	12	7	6		42	24	13	3	15				
May	1	3		18	6	13		3				10	16
June	1	2		1		1	17	41	16	10	11		
July			1		7	1	10	3	9	3	24	5	
Aug.	2	1			3				9	4	26	57	
Sept.							6		4	16	5	24	
Oct.		1		1	5	2		2	5	4	2	8	
Nov.					2	2	1	15		1			
Dec.	3	2		1		7	4		1				
Total	49	56	40	45	100	99	107	75	59	58	100	117	

Figure 1

Average Number of Crabs per Sample and Comparison of Male and Females Present in Population Samples.

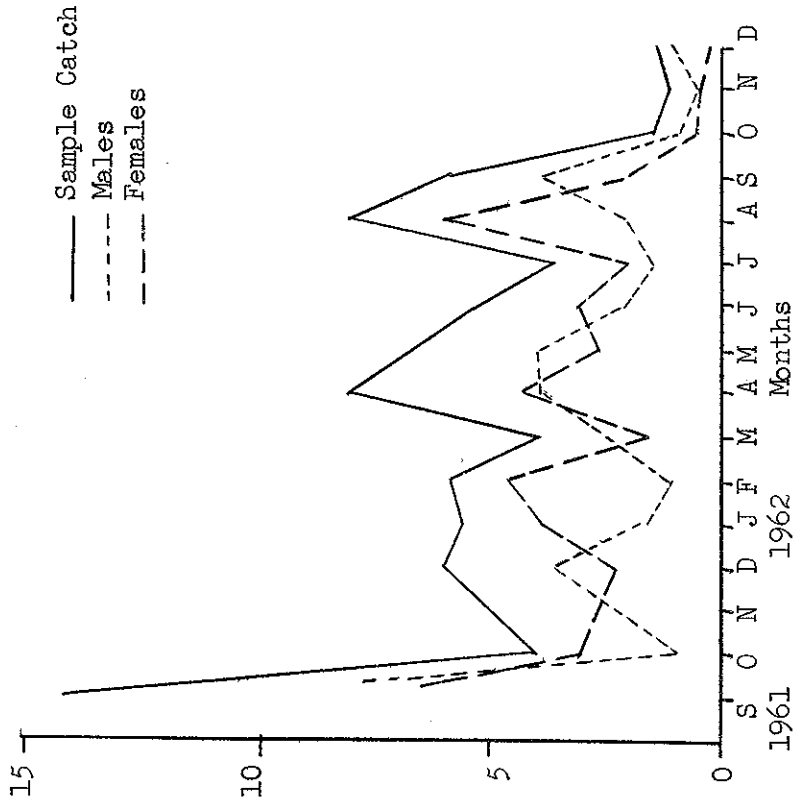
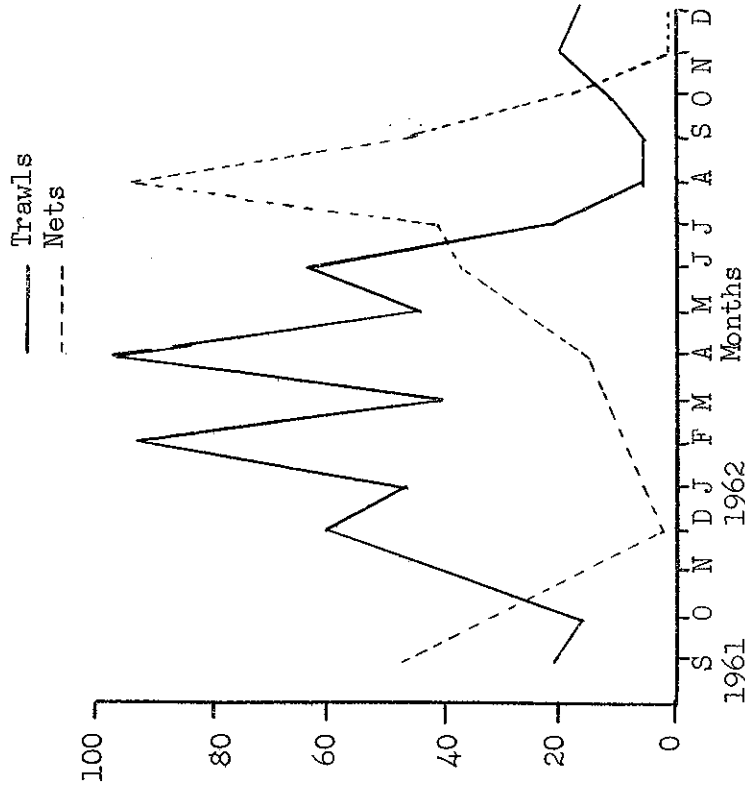


Figure 2

Comparison of Sample Catches by Gear



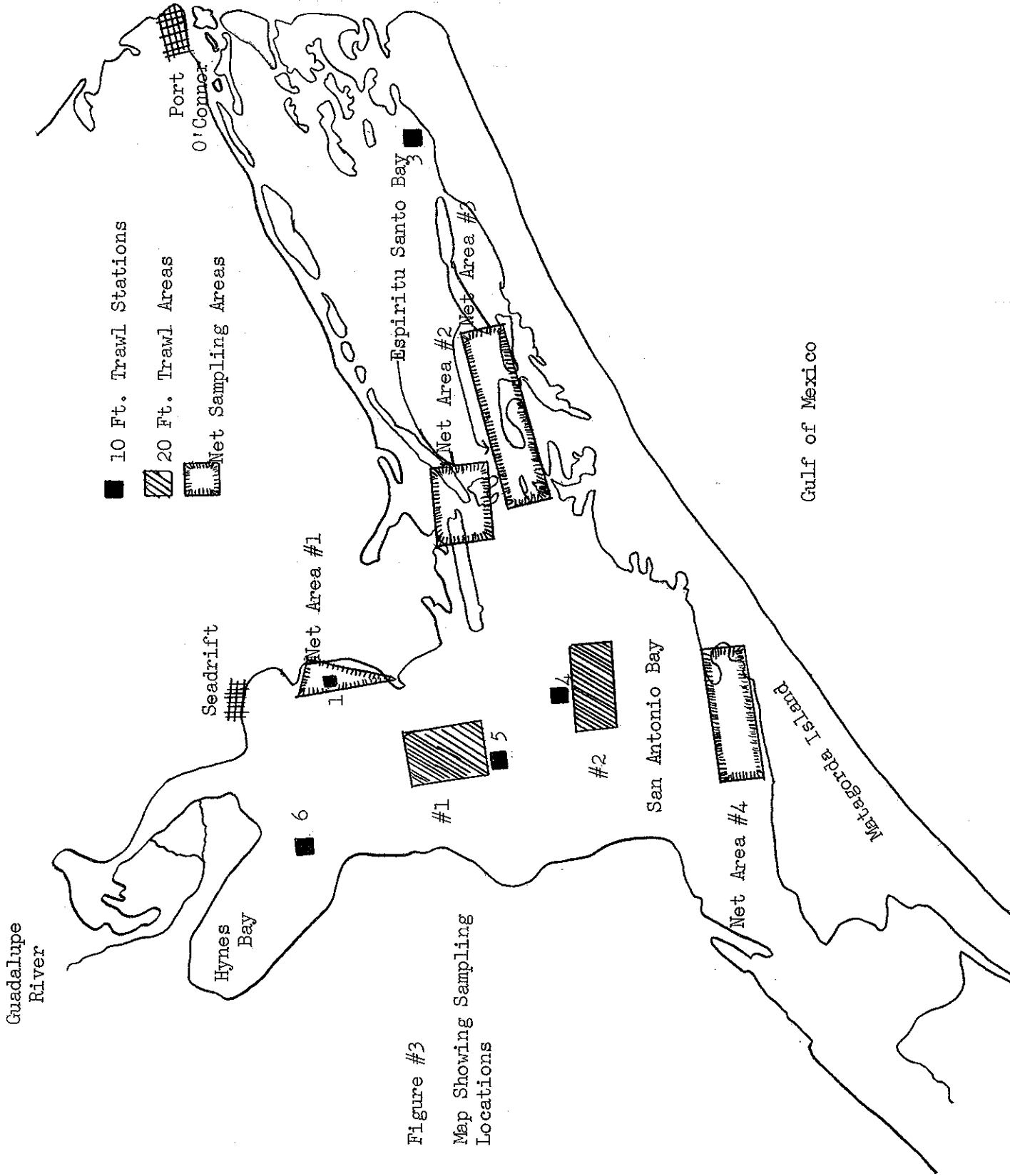
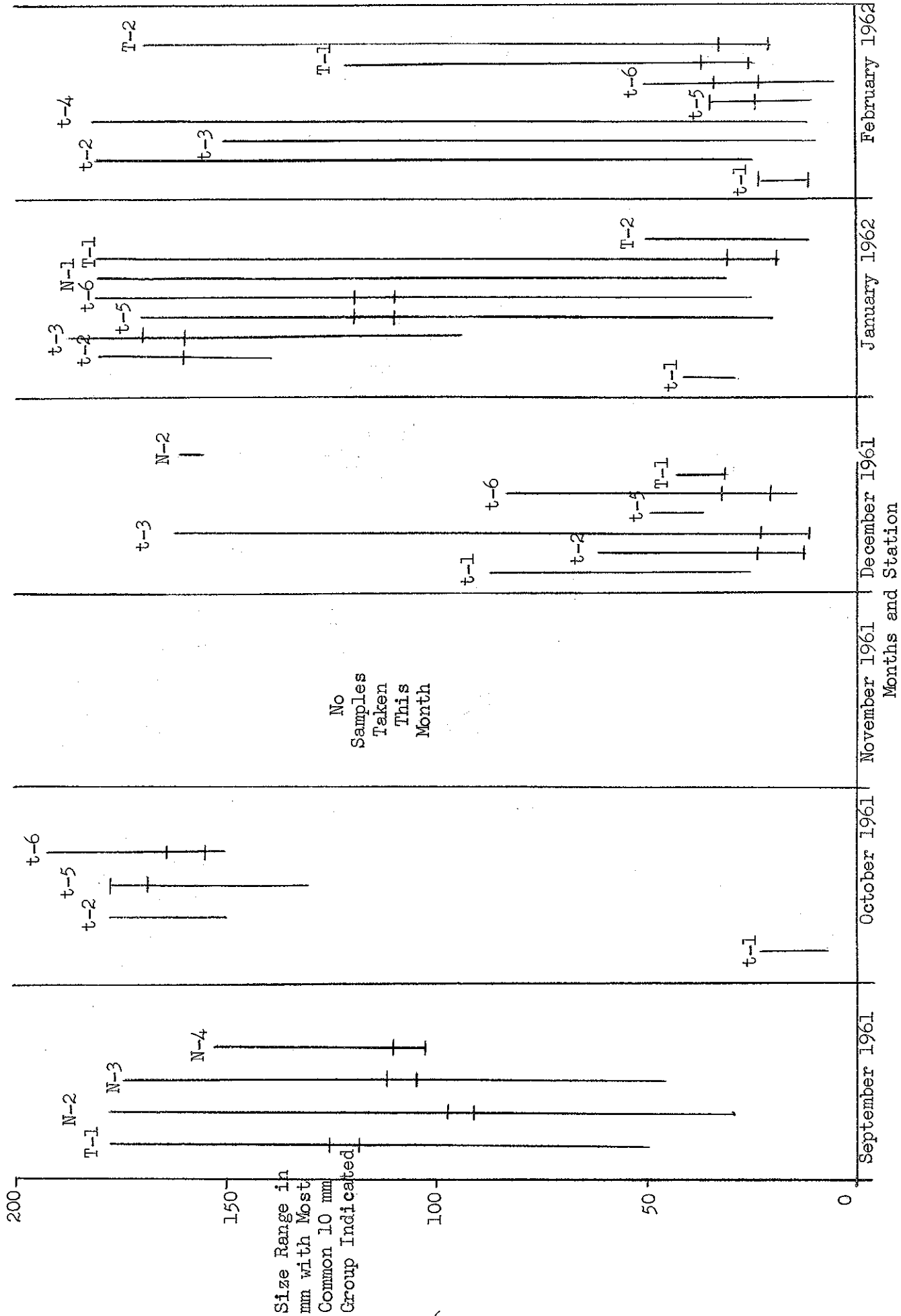
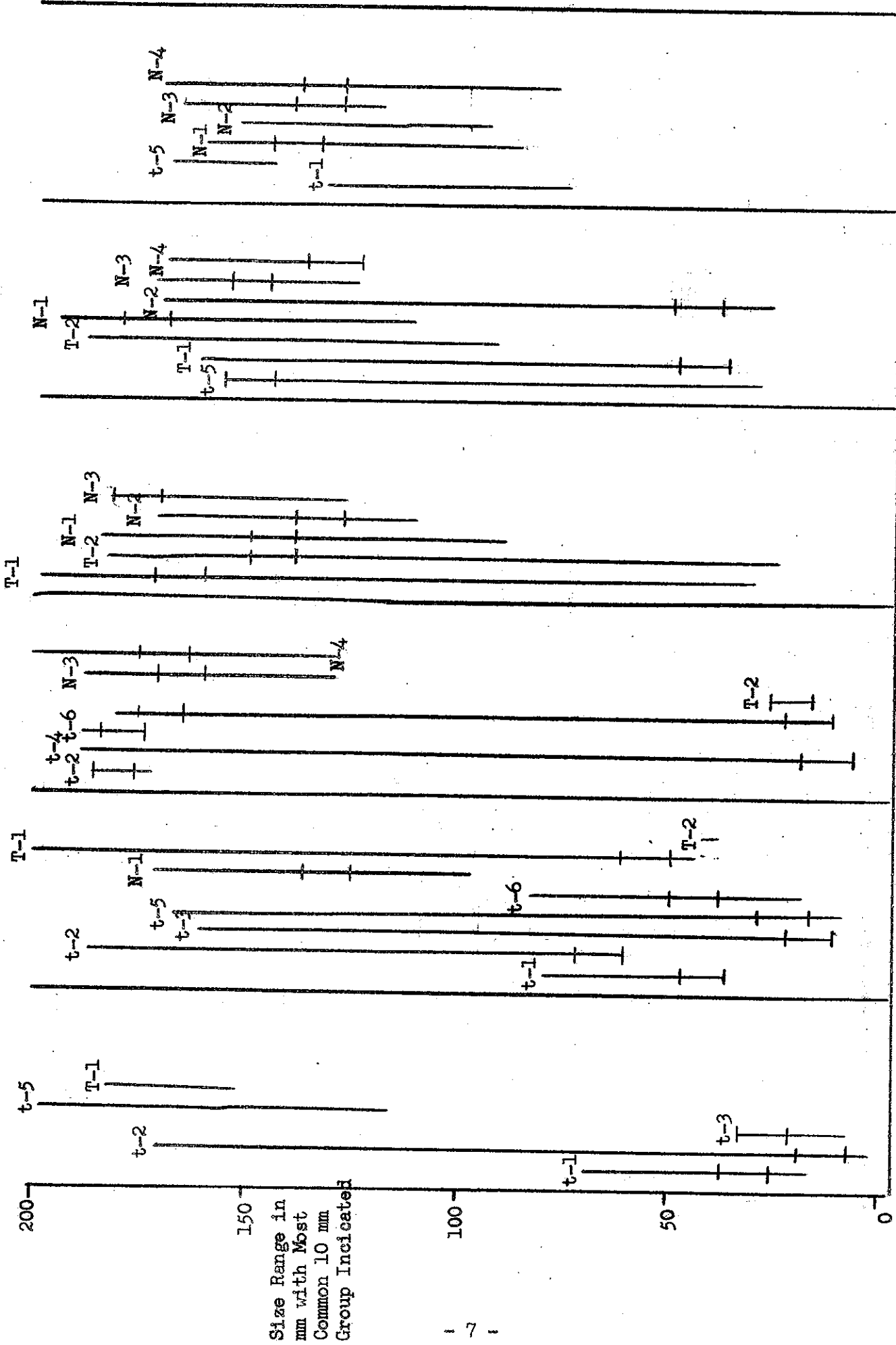


Figure #3
Map Showing Sampling Locations



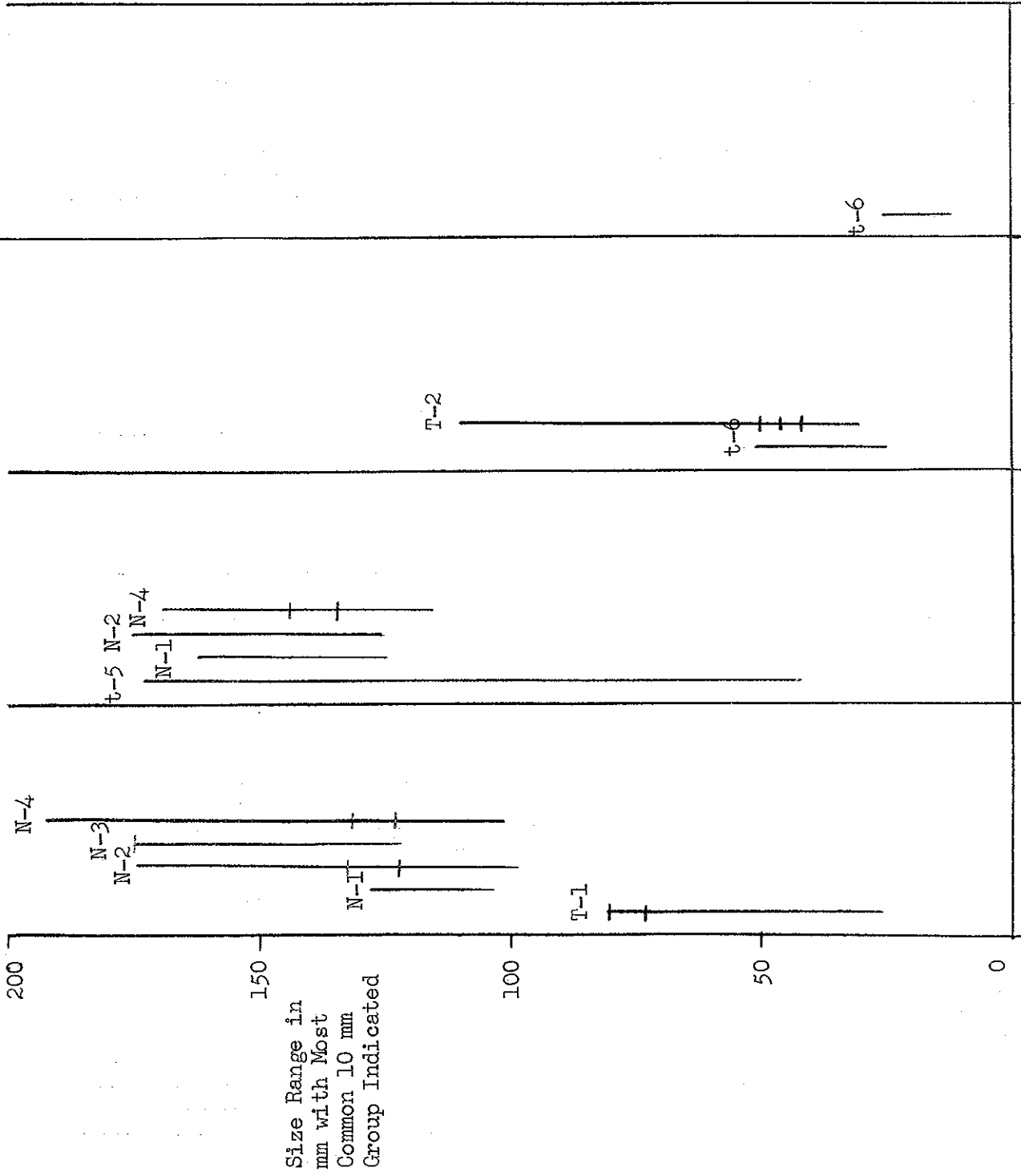
t = 10 Foot Trawl
 T = 20 Foot Trawl
 N = Net (Trammel or Gill)



Months and Stations

Numbers = Station Number (see Figure 3)

t - 10 Foot Trawl
 T - 20 Foot Trawl
 N - Net (Trawl or Gill)



September 1962 October 1962 November 1962 December 1962

Months and Stations

Numbers = Station Number
(see Figure 3)

t - 10 Foot Trawl
T - 20 Foot Trawl
N - Net (Trammel or (11)