

Job Report

U. R. Childress
Marine Biologist

Project No. MF-R-6 Date August 2, 1965
Project Name: Analysis of Populations of Sports and Commercial Fin-Fish and of Factors Which Affect These Populations in the Coastal Bays of Texas.
Period Covered: January 1, 1964 - December 31, 1964 Job No. 5

Population Studies of the Sports and Commercial Fin-Fish of the San Antonio Bay System

Abstract: In 1964 the catch of juvenile game fish remained small, though greater than that of 1963.

Adult game fish samples indicated that an average population of 0.75 pounds per acre of trout, Cynoscion nebulosus, 0.36 pounds per acre of redfish, Sciaenops ocellata, and 0.39 pounds per acre of drum, Pogonias cromis, existed in the area in 1964.

Flounder, Paralichthys lethostigma, were caught in insignificant numbers.

A total of 341 fish was tagged and 24 tags were returned.

Commercial production of trout, redfish, drum, and flounder was 397,867 pounds.

Objectives: To determine population fluctuations of the food and game fish of the San Antonio Bay System.

Procedures: Collections were taken with trammel net, 60-foot seine, and 6-foot bar-seine. These collections were taken at established stations in diverse areas of this bay system in order to sample most habitat types.

Two collections were taken each month with trammel nets when weather permitted. This net was 2400 feet long with 3-inch inner mesh and 12-inch outer mesh. The net was struck, and the fish were driven into it. All game fish collected were measured, weighed, and counted.

Six collections were made each month, when possible, with a 60-foot seine which was 6 feet deep. The mesh measured three-fourth of an inch stretched. The seine was pulled, and the area sampled was calculated. All juvenile game fish collected were measured and counted.

Six collections were made each month with a 6-foot bar-seine of 1/2-inch stretched mesh. The bar-seine was pulled and the area sampled was calculated. All juvenile game fish collected were measured and counted.

Findings and

Discussion:

Juvenile Game Fish

All juvenile game fish samples accounted for 88 specimens. There were 15 speckled trout, Cynoscion nebulosus, 3 redfish, Sciaenops ocellata, 12 drum, Pogonias cromis, and 58 flounder, Paralichthys lethostigma. This is compared to the 22 juvenile game fish caught in 1963, which was composed of 14 speckled trout, 4 redfish, 2 drum and 2 flounder.

Of the 174 samples taken, only 24 yielded juvenile game fish (Table 1). The most productive sample taken was in Saluria Bayou, in July, when 31.25 speckled trout per acre were taken. Another productive sample was taken at Dagger Point when 22.85 drum per acre were taken.

Adult Game Fish

Speckled trout were taken in samples at all stations (Table 2). They were most abundant at Steamboat Pass where the catch for the year averaged 1.44 pounds per acre. Months of peak abundance were March, with 3.3 pounds per acre, and November, with 7.2 pounds per acre.

Redfish were taken in samples at all stations (Table 2). They were most abundant at Turnstake Lagoon where the catch for the year averaged 1.02 pounds per acre. Months of peak abundance were May, with 0.66 pounds per acre, and September, with 2.28 pounds per acre.

Black Drum were taken in samples at all stations (Table 2). They were most abundant at Turnstake Lagoon where the average catch for the year was 0.72 pounds per acre. Months of peak abundance were July and November.

Flounder were rarely caught and never in sufficient numbers to calculate the population in pounds per acre.

Fish Tagging Results

Adult game fish caught in sampling were tagged and released. In addition, random gill net catches were made for tagging fish. A total of 341 game fish was tagged and released (Table 3). There were 142 drum, 120 speckled trout, 72 redfish, and 7 flounder tagged. The per cent of fish tag returns was much higher than in previous years. This is especially true since these are not accumulated returns.

Fish were first tagged in this bay system in October 1959 (Table 5). Tags were placed on 72 fish in 1959. Of these, only 1 tag was returned (1.4 per cent of those released). In 1960 140 fish were tagged, but none were returned.

Starting in 1961 the fish tagging job produced substantial returns. A total of 626 fish was tagged that year, and 11 tags (1.75 per cent) were returned. These tag returns should be complete.

In 1962, 384 fish were tagged, and 51 returned (13.28 per cent). In 1963, 646 fish were tagged, and 65 were returned (10.1 per cent). The 1964 total was 347 fish tagged, and 24 tags were returned to date (6.9 per cent).

Tag return data back to, and including 1962, is not complete.

The greatest period of freedom of any fish returned was 2 years, 1 month, and 21 days. This tag was placed on a drum on September 5, 1962 and returned on October 23, 1964. The fish was released in Hynes Bay, and returned from Grassy Point, at the entrance to Hynes Bay; a distance of one-half mile from point of release.

The greatest known distance traveled before recapture was accomplished by two redfish. One weighing three-fourths pound was tagged at Seadrift on December 12, 1963 and caught March 5, 1964 at Aransas Pass. The other redfish weighed four and one-half pounds when tagged at Turnstake Island on September 22, 1964. This fish was caught nine miles up the Tres Palacios River on November 27, 1964 and weighed 5 pounds 12 ounces.

Sports catch of speckled trout appears to have increased slightly since 1963, with all other species remaining about the same. Trout abundance has steadily increased since the killing freeze of January 1962.

Commercial Production

Commercial production of fish as used in this report includes fish caught in Espiritu Santo Bay, a portion of Mesquite Bay (in Calhoun County), and San Antonio Bay.

In 1962, 171,400 pounds of fish were caught; in 1963, 246,100 pounds and in 1964, 397,867 pounds. The breakdown of catch by species shows that 127,898 pounds of trout, 57,013 pounds of redfish, 148,166 pounds of drum and 64,790 pounds of flounder were caught in 1964.

Prepared by: U. R. Childress
Marine Biologist

Joe P. Breuer
Project Leader

J. R. Stevens
Supervisor

Approved by:


Coordinator

Table 1
Juvenile Food and Game Fish Numbers Per Acre

Location	Species	April	May	June	July	Aug.	Sep.	Oct.	Nov.
Swan Cove	Trout								
	Redfish	3.03							
	Drum					4.34			
	Flounder								
Big Bayou	Trout						18.2		14.3
	Redfish	3.03							
	Drum								
	Flounder	6.1				2.9			
Saluria Bayou	Trout				31.25				
	Redfish								
	Drum								
	Flounder	28.1	9.5		93.3				
Grass Island	Trout				6.66		4.34	6.7	
	Redfish								
	Drum							3.3	
	Flounder	8.1	71.4		53.3			3.3	
Panther Point	Trout								
	Redfish			2.56					
	Drum								
	Flounder		5.9						
Dagger Point	Trout						4.54		
	Redfish								
	Drum			22.85	4.87				
	Flounder								

60-Foot Seine and 6-Foot Bar-Seine Samples.

Table 2
Adult Game Fish Samples Taken With Trammel Nets
Shown in Pounds Per Acre

Date	Turn Stake Lagoon			Steamboat Pass			Panther Lake			Dagger Point		
	Trout	Redfish	Drum	Trout	Redfish	Drum	Trout	Redfish	Drum	Trout	Redfish	Drum
January 1964	0	0	0	0.036	0	0.36						
February										0.5	0	0.1
March	2.4	0.5	1.8	0.9	0.04	0.13						
April							0.67	0.28	0.099	0.06	0	0.11
May	0	1.77	0	0.03	0	0						
June							0.28	0.06	0.04			
July	0.34	0.05	2.3	0.28	0.57	0						
August							0.48	0	0.06	0.11	0	0.1
September	0	3.8	0	0.96	0.05	0						
October							1.01	0	0	0.72	0.35	0.3
November	0.78	0	0.21	6.42	0.77	3.43						
December												
Average	.62	1.02	.72	1.44	.23	.65	.61	.08	.05	.35	.09	.15

Table 3
Fish Tagged, by Species and by Month

Month	Speckled Trout	Redfish	Drum	Flounder	Total
January 1964	14	21	16	5	56
February	12	9	4	0	25
March	24	3	15	0	42
April	11	3	4	0	18
May	1	2	0	0	3
June	3	1	1	0	5
July	6	5	3	1	15
August	0	0	0	0	0
September	6	15	0	0	21
October	9	6	1	0	16
November	34	6	27	0	67
December	0	1	71	1	73
TOTAL	120	72	142	7	341

Table 4
Tags Returned, San Antonio Bay - 1964

Tag No.	Species	Tagging Data			Return Data			
		Fork Length	Weight	Location	Date	Date Returned	Location & Sports or Comm.	Length
39531	Drum	180 mm.	1/2 lb.	Seadrift	1/ 8/63	1/ 4/64	Green Lake-Sport	--
39548	Drum	190 mm.	1/2 lb.	Seadrift	1/ 8/63	2/14/64	Hynes Bay-Comm.	--
39532	Drum	200 mm.	1/2 lb.	Seadrift	1/ 8/63	2/23/64	Hynes Bay-Comm.	--
39547	Drum	175 mm.	1/4 lb.	Seadrift	1/ 8/63	2/17/64	Hynes Bay-Comm.	309 mm.
39528	Drum	185 mm.	1/2 lb.	Seadrift	1/ 8/63	2/17/64	Hynes Bay-Comm.	285 mm.
34110	Drum	200 mm.	3/4 lb.	Seadrift	1/21/63	10/ 4/64	Swan Point-Sport	--
34117	Drum	160 mm.	1/4 lb.	Seadrift	1/22/63	1/27/64	Hynes Bay - Comm.	200 mm.
34218	Drum	210 mm.	1/2 lb.	Steamboat Pass	3/12/63	2/10/64	Hynes Bay - Comm.	3/4 lb.
34242	Drum	180 mm.	1/4 lb.	Panther Point	6/13/63	1/27/64	Hynes Bay-Comm.	3/4 lb.
34420	Drum	185 mm.	1/2 lb.	Victoria Brg. Canal	7/26/63	12/13/64	Bloomington-Sport	200 mm.
34410	Drum	165 mm.	1/4 lb.	Victoria Brg. Canal	7/26/63	11/25/64	Victoria Canal-Sport	--
34275	Drum	197 mm.	1/4 lb.	Panther Point	7/30/63	6/24/64	Arans. Bay-Spauld.-Cm.	2 lb.
34428	Drum	190 mm.	1/3 lb.	South Pass	8/13/63	4/29/64	Long Lake-Comm.	--
34432	Drum	210 mm.	3/4 lb.	South Pass	8/13/63	2/14/64	South Pass-Comm.	215 mm.
34427	Drum	200 mm.	3/4 lb.	South Pass	8/13/63	1/29/64	Hynes Bay-Comm.	270 mm.
34437	Drum	230 mm.	3/4 lb.	Turnstake Island	11/19/63	11/17/64	Long Mott-Sport	--
34435	Drum	215 mm.	1/2 lb.	Turnstake Island	11/19/63	2/17/64	Hynes Bay-Comm.	270 mm.
34462	Drum	240 mm.	1 lb.	Turnstake Island	11/19/63	12/16/64	Hynes Bay-Comm.	--
34469	Drum	230 mm.	3/4 lb.	Turnstake Island	11/19/63	1/31/64	Hynes Bay-Comm.	--
34467	Drum	250 mm.	1 1/4 lb.	Turnstake Island	11/19/63	2/13/64	Hynes Bay-Biologist	Same
34467	Drum	250 mm.	1 1/4 lb.	Hynes Bay	2/13/64	7/ 1/64	Steamboat Pass-Sport	--
34453	Drum	220 mm.	3/4 lb.	Turnstake Island	11/19/63	2/17/64	Hynes Bay-Comm.	279 mm.
34476	Drum	240 mm.	3/4 lb.	Turnstake Island	11/19/63	11/29/64	Victoria Canal-Sport	--
34322	Drum	260 mm.	1/2 lb.	Turnstake Island	11/19/63	2/20/64	Hynes Bay-Comm.	--
34330	Redfish	296 mm.	0.7 lb.	Turnstake Island	11/19/63	12/17/64	Guadalupe Bay-Comm.	640 mm.
B-1162	Redfish	398 mm.	1 1/2 lb.	Turnstake Island	11/19/63	3/31/64	Turnstake Island-Comm.	410 mm.
34317	Drum	285 mm.	0.7 lb.	Turnstake Island	11/19/63	5/ 9/64	Weider Flat-Comm.	--
34318	Drum	226 mm.	0.3 lb.	Turnstake Island	11/19/63	11/13/64	Seadrift-Sport	305 mm.
34494	Drum	235 mm.	1/2 lb.	Turnstake Island	11/19/63	2/11/64	Hynes Bay-Comm.	Same
34500	Drum	260 mm.	1/2 lb.	Turnstake Island	11/19/63	2/17/64	Hynes Bay-Comm.	260 mm.

Table 4 (Continued)

Tag No.	Species	Fork		Tagging Data		Return Data		
		Length	Weight	Location	Date	Date Returned	Location & Sports or Comm.	Length
34369	Drum	395 mm.	2 lb.	Turnstake Island	11/19/63	3/29/64	Pringle Lake-Comm.	415 mm.
34372	Drum	265 mm.	1/2 lb.	Turnstake Island	11/19/63	5/ 9/64	Welder Flat-Comm.	290 mm.
34352	Redfish	305 mm.	3/4 lb.	Turnstake Island	11/19/63	1/31/64	Seadrift-Biologist	Same
34379	Redfish	310 mm.	3/4 lb.	Turnstake Island	11/19/63	4/ 5/64	Bloomington-Sport	315 mm.
34188	Drum	365 mm.	1 1/2 lb.	Seadrift	12/11/63	10/13/64	Grassy Peninsula-Sport	380 mm.
34163	Redfish	280 mm.	3/4 lb.	Seadrift	12/12/63	3/ 5/64	Aransas Pass-Sport	1 lb.
34152	Redfish	280 mm.	1 lb.	Seadrift	12/16/63	9/28/64	Long Mott-Sport	4 lb.
34159	Redfish	280 mm.	1 lb.	Seadrift	12/16/63	2/10/64	Hynes Bay-Comm.	1 lb.
34168	Redfish	370 mm.	2 3/4 lb.	Seadrift	12/17/63	5/ 9/64	Welder Flat-Comm.	3 lb.
61013	Redfish	270 mm.	3/4 lb.	Seadrift	12/17/63	11/11/64	Port O'Connor-Sport	565 mm.
34380	Drum	250 mm.	3/4 lb.	Seadrift	12/19/63	1/31/64	Hynes Bay-Comm.	255 mm.
34298	Redfish	340 mm.	1 1/4 lb.	Seadrift	12/19/63	1/22/64	Hynes Bay-Comm.	340 mm.
34295	Redfish	285 mm.	1 lb.	Seadrift	12/19/63	1/21/64	Hynes Bay-Comm.	285 mm.
34297	Drum	216 mm.	1/2 lb.	Seadrift	12/19/63	1/22/64	Bloomington-Sport	1 lb.
34292	Redfish	275 mm.	3/4 lb.	Seadrift	12/20/63	12/ 9/64	Wilkerson Bend-Comm.	13 in.
61016	Drum	210 mm.	1/4 lb.	Seadrift	12/28/63	12/ 2/64	Austwell-Sport	Same
61033	Drum	250 mm.	3/4 lb.	Seadrift	12/30/63	2/17/64	Seadrift-Comm.	Same
C-4146	Trout	330 mm.	3/4 lb.	Seadrift	12/31/63	4/28/64	Port O'Connor-Sport	1 lb. 4oz.
61007	Redfish	285 mm.	1 lb.	Seadrift	12/31/63	3/31/64	Turnstake Island-Comm.	1 lb.
61041	Redfish	245 mm.	1/2 lb.	Seadrift	12/31/63	11/18/64	Turnstake Island-Sport	3 1/2 lb.
61064	Drum	255 mm.	3/4 lb.	Seadrift	1/ 6/64	1/29/64	Hynes Bay-Comm.	0.8 lb.
61088	Redfish	260 mm.	3/4 lb.	Seadrift	1/10/64	6/26/64	Seadrift-Sport	2 lb.
C-4011	Trout	340 mm.	1 lb.	Hynes Bay	2/28/64	4/15/64	Shellridge-Comm.	14 in.
C-4026	Trout	335 mm.	3/4 lb.	Hynes Bay	2/28/64	3/15/64	Live Oak Pt.-Comm.	--
C-4048	Trout	425 mm.	1.4 lb.	Turnstake Island	3/21/64	5/ 6/64	Turnstake Island-Comm.	1 1/2 lb.
C-4058	Trout	395 mm.	1.5 lb.	Turnstake Island	3/21/64	4/24/64	Turnstake Island-Comm.	1 1/2 lb.
C-4052	Drum	305 mm.	1.5 lb.	Turnstake Island	3/21/64	5/ 2/64	Turnstake Island-Comm.	1 1/2 lb.
C-4079	Drum	310 mm.	1.3 lb.	Turnstake Island	3/21/64	4/28/64	Turnstake Island-Comm.	--
C-4083	Drum	295 mm.	1.0 lb.	Turnstake Island	3/21/64	4/26/64	Turnstake Island-Comm.	--
C-4210	Redfish	370 mm.	1.25 lb.	Panther Pt.	4/29/64	6/21/64	Panther Pt.-Comm.	Same --
C-4214	Drum	322 mm.	1 lb.	Panther Pt.	4/29/64	6/ 3/64	Shellridge-Comm.	Same --
C-4280	Redfish	400 mm.	1 3/4 lb.	Turnstake Island	5/19/64	10/17/64	Turnstake Island-Sport	1.1 lb.
C-4281	Redfish	445 mm.	2 1/2 lb.	Turnstake Island	5/19/64	7/21/64	Turnstake Island-Sport	3 lb.

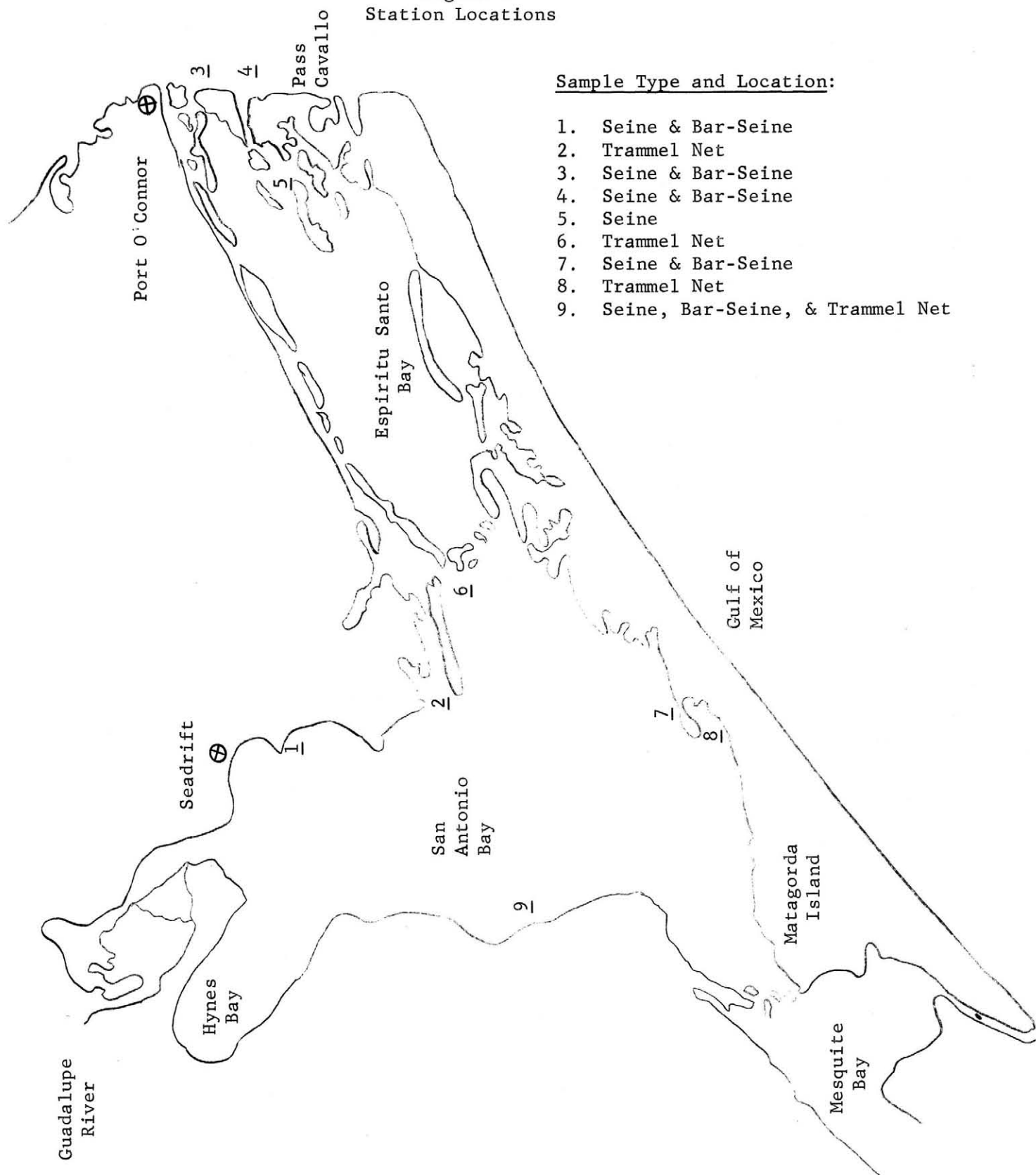
Table 4 (Continued)

Tag No.	Species	Tagging Data				Return Data			
		Fork Length	Weight	Location	Date	Date Returned	Location & Sports or Comm.	Length	Weight
C-4109	Trout	465 mm.	2 lb. 3oz.	Panther Pt.	6/11/64	6/23/64	Panther Pt.-Comm.	--	Same
61111	Redfish	295 mm.	0.7 lb.	Turnstake Island	7/21/64	10/29/64	Guadalupe River-Sport	345 mm.	13 oz.
C-4224	Redfish	565 mm.	4 1/2 lb.	Turnstake Island	9/22/64	11/ 1/64	Seadrift-Comm.	--	3 1/4 lb.
C-4227	Redfish	585 mm.	4 1/2 lb.	Turnstake Island	9/22/64	11/27/64	Tres Palacios R.-Sport	--	5 lb. 12oz.
C-4229	Redfish	565 mm.	5 lb.	Turnstake Island	9/22/64	12/16/64	Turnstake Island-Comm.		6 lb.
C-4239	Drum	400 mm.	4 lb.	Dagger Point	10/26/64	12/ 9/64	Dagger Point-Comm.	16 1/2"	4 lb.
C-4241	Trout	610 mm.	5.1 lb.	Steamboat Pass	11/24/64	12/22/64	Live Oak Point-Comm.	Same	5.1 lb.
C-4247	Drum	345 mm.	1 lb. 5oz.	Seadrift	12/15/64	12/22/64	Hopper's Ldg.-Sport	345 mm.	1.4 lb.
C-4163	Drum	405 mm.	2 lb. 6oz.	Seadrift	12/15/64	12/22/64	Dagger Point-Comm.	--	--
C-4173	Drum	370 mm.	1 lb. 14oz.	Seadrift	12/16/64	1/ 6/65	Ayers Bay-Comm.	--	--
34357	Drum	210 mm.	1/2 lb.	Turnstake Island	11/19/63	12/15/64	Seadrift-Sport	14 in.	1 1/2 lb.
39941	Drum	180 mm.	1/4 lb.	Hynes Bay	9/ 5/62	10/25/64	Grassy Point-Sport	480 mm.	2 3/4 lb.

Table 5
Fish Tagged and Tags Returned by Species

<u>Year</u>	<u>Speckled Trout</u>	<u>Per Cent Returned</u>	<u>Redfish</u>	<u>Per Cent Returned</u>	<u>Drum</u>	<u>Per Cent Returned</u>
1959	60	0.0	8	0.0	4	25.0
1960	98	0.0	16	0.0	26	0.0
1961	593	1.01	25	20.0	8	0.0
1962	41	0.0	196	19.9	147	8.2
1963	44	2.3	134	14.2	468	9.6
1964	<u>120</u>	<u>5.8</u>	<u>72</u>	<u>11.1</u>	<u>149</u>	<u>6.0</u>
TOTAL	956	1.46	451	15.74	802	8.35

Figure 1
Station Locations



Sample Type and Location:

1. Seine & Bar-Seine
2. Trammel Net
3. Seine & Bar-Seine
4. Seine & Bar-Seine
5. Seine
6. Trammel Net
7. Seine & Bar-Seine
8. Trammel Net
9. Seine, Bar-Seine, & Trammel Net