

Job Report

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Project Name: Fisheries Investigations in the Aransas-Copano Bay System

Period Covered: January 1, 1960 to December 31, 1960 Job No. A-2

A Survey and Inventory of the Vertebrate Species Present In Mesquite Bay and Cedar Bayou

Abstract: The major differences between vertebrate populations in Mesquite Bay before it was opened and after this occurred is the increased abundance of high salinity forms near the bay mouth. Such as Elops saurus, Oligoplites saurus, Vomer setipinnis, Selene vomer, and Hemicaranx amblyrhynchus, not previously found, were quite common during this period of study.

Objectives: The object of this survey was to gather information which can be used to compare with previous work conducted when Cedar Bayou was closed, and thus to determine if there have been any changes in the types of vertebrates present or their relative abundance since the reopening of the Bayou.

Procedure: Vertebrates in Mesquite Bay and Cedar Bayou were sampled in various ways. Most sampling was done with a 10-foot otter trawl with 1 3/4-inch stretch mesh. This trawl was pulled behind an inboard boat at 1100 rpm in five-minute drags. Trawling was done at four stations, three in Mesquite Bay and one in Cedar Bayou (Figure 1). Each station was visited twice a month, conditions permitting. Gill nets were used once during the survey. The mesh was 3 3/4-inch stretch. Seines were used occasionally at the mouth of Cedar Bayou during this survey with some success. The two used were 10 and 90 feet long, both 4 feet deep with 1/4-inch mesh. Hook and line were used occasionally during the study. Salinity was determined by titration using the Mohr method. Temperature was read in degrees Centigrade.

Specimens collected were usually identified in the field. All specimens were measured for standard length in millimeters.

Findings: Essentially the same fish were taken or observed during both studies with a few exceptions. The species taken during both studies are listed below, grouped according to families with comment or discussion on most species. Following the letter "H" are Hoese's (1957-58) figures and "S" indicates results of this study.

Carcharhinidae

Carcharhinus limbatus (Muller and Henle) Black Tip Shark

	<u>Total No.</u>	<u>Size Range</u>	<u>Salinity Range</u>	<u>Temperature Range</u>
H.	0	0	0	0
S.	1	870	31.7	30.4

One black tip shark was taken during this survey. It was taken in Cedar Bayou near Station 12 with a gill net.

Carcharhinus leucas (Muller and Henle) Cub Shark

	<u>Total No.</u>	<u>Size Range</u>	<u>Salinity Range</u>	<u>Temperature Range</u>
H.	4	783-845	7.5 - 17.6	-
S.	0	0	0	0

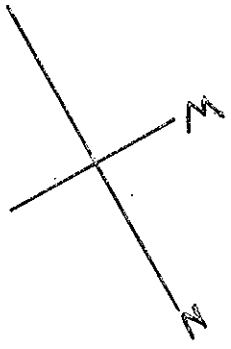


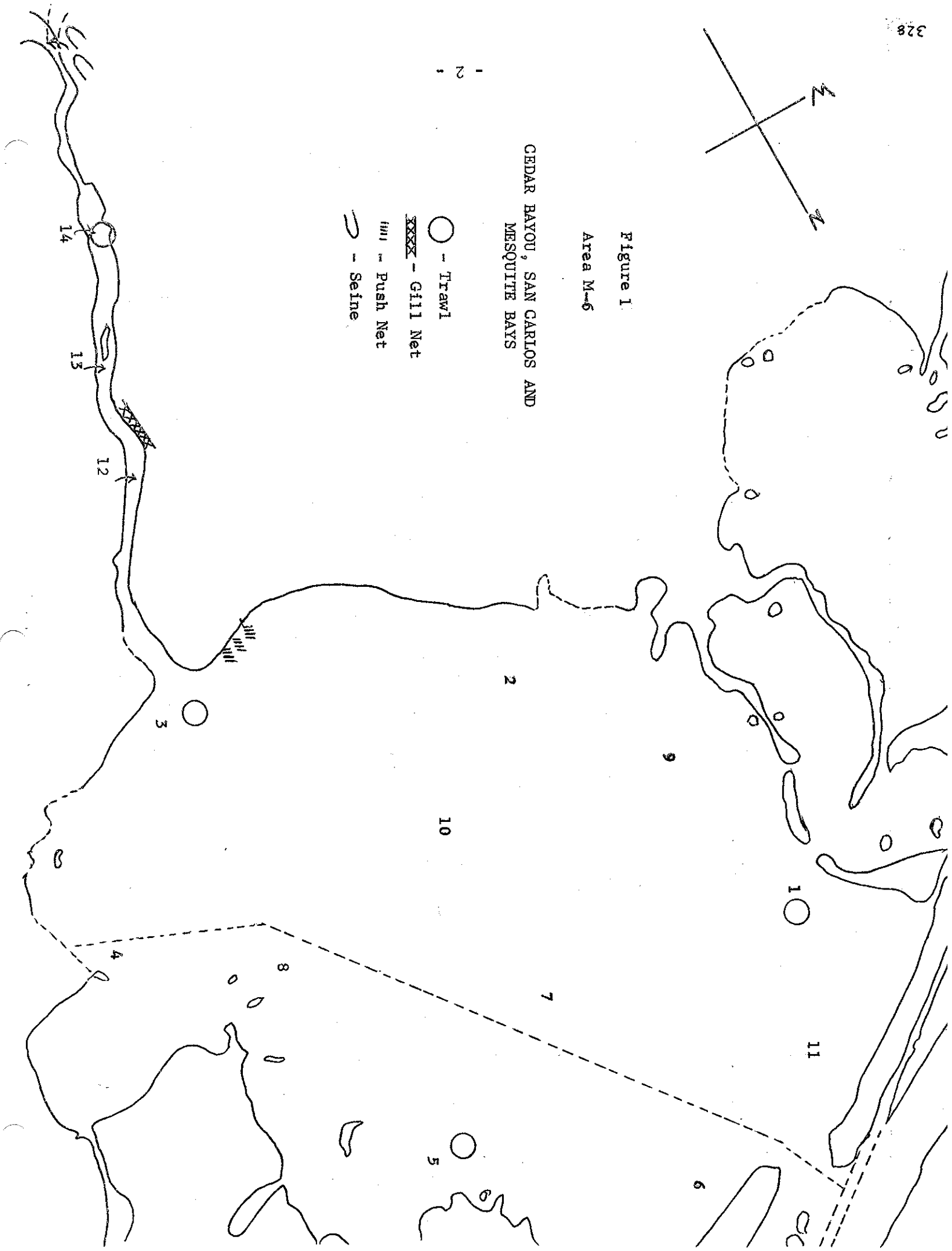
Figure 1

Area M-6

CEDAR BAYOU, SAN CARLOS AND
MESQUITE BAYS

- - Trawl
- XXXX - Gill Net
- |||| - Push Net
- ∩ - Seine

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Dasyatidae

Dasyatis sabina (LeSeuer) Stingaree

	<u>Total No.</u>	<u>Size Range</u>	<u>Salinity Range</u>	<u>Temperature Range</u>
H.	29	-	2.6 - 45.3	15.8 - 31.6
S.	14	245-730	6.0 -36.7	17.9 - 30.4

Rhinopteridae

Rhinopterus bonasus (Mitchell) Cownose Ray

One cownose ray was taken by a commercial fisherman on a trot line near Station 1. He reports seeing many more. Hoese did not report this species.

Lepisosteidae

Lepisosteus spatula (Lecepede) Gar

Hoese reported one specimen caught in his nets. One was observed dead in Cedar Bayou in 1960.

Elopidae

Elops saurus (Linnaeus) Tenpounder

	<u>Total No.</u>	<u>Size Range</u>	<u>Salinity Range</u>	<u>Temperature Range</u>
H.	7	177-367	-	-
S.	3	340-397	32.8	29.9

The tenpounder was observed dead in Cedar Bayou in June and July. In June the three mentioned above were caught on rod and reel at Station 14.

Megalopidae

Megalops atlanticus (Valenciennes) Tarpon

The tarpon was not caught during either survey, but one was observed near Station 1 in July.

Clupeidae

Harengula pensacolatae (Goode and Bean) Pilchard

Reported by Hoese only.

Brevoortia patronus (Goode) Gulf Menhaden

	<u>Total No.</u>	<u>Size Range</u>	<u>Salinity Range</u>	<u>Temperature Range</u>
H.	30	127-197	7.6	30.0
S.	56	20-150	35.0	29.6

The gulf menhaden were never abundant in the bay or bayou during either study. The few caught were with a seine at Station 14 in August 1960.

Clupeidae (Cont'd)

<u>Brevortia gunteri</u> (Hildebrand) Bay Menhaden			
Total No.	Size Range	Salinity Range	Temperature Range
H. 1	154	7.6	30.0
S. 14	65-132	1.9 - 31.3	19.4 - 29.9

The bay menhaden seemed to be most abundant in the bay in October and November, especially in periods of low salinity.

<u>Dorosoma petenense</u> (Günther) Threadfin Shad			
Total No.	Size Range	Salinity Range	Temperature Range
H. 10	80-167	7.6 - 16.8	8.8 - 30.0
S. 2	96	1.9 - 20.2	17.3 - 19.6

The threadfin shad was only taken twice at Station 3, in November and April, 1960.

<u>Dorosoma cepedianum</u> (Lesueur) Gizzard Shad			
Total No.	Size Range	Salinity Range	Temperature Range
H. 7	172-213	7.6	30.0
S. 0	0	0	0

Engraulidae

<u>Anchoa hepsetus</u> (Linnaeus) Anchovy			
Total No.	Size Range	Salinity Range	Temperature Range
H. Rare	-	-	-
S. 27	30-35	31.5	30.4

The striped anchovies listed above were taken in a series of seine samples in the Gulf mouth of Cedar Bayou on August 18th. These were the only specimens taken.

<u>Anchoa mitchelli</u> (Balenciennes) Bay Anchovy										
Total No.		Size Range		Salinity Range		Temperature Range				
H.	1500	-	-	50	-	-	-	-	-	-
S.	615	20-75	1.2 - 36.9	10.8 - 31.7						
Feb		Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov
H.	-	-	-	-	-	-	-	-	-	-
S.	24	91	70	79	30	104	50	44	14	109
Total catch by months										

The bay anchovy was one of the most abundant fish throughout the year. The numbers presented above are but a small fraction of the actual numbers present. Because of the small size of this fish and the large size of the trawl mesh, hundreds escaped before the trawl could be pulled in.

Synodontidae

<u>Synodus foetens</u> (Linnaeus) Atlantic Lizard Fish										
<u>Total No.</u>			<u>Size Range</u>			<u>Salinity Range</u>			<u>Temperature Range</u>	
H.	9	85-258	14.3 - 44.0	1.9 - 31.9	11.3 - 24.0					
S.	16	114-250			14.6 - 30.0					
Total catch by months										
H.	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov
S.	-	-	-	-	-	-	-	-	-	-
	4	0	0	0	0	1	1	5	4	1

The lizard fish was most abundant in winter but was found in waters up to 30.0 degrees centigrade. The young started to appear in January and February indicating a late fall or winter spawn.

Ariidae

Bagre marina (Mitchell) Gafftop Catfish

		<u>Total No.</u>		<u>Size Range</u>			<u>Salinity Range</u>			<u>Temperature Range</u>	
H.		230		65-216			9.0 - 50.			-	
S.		157		85-285			2.8 - 33.9			19.8 - 30.7	
		<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>July</u>	<u>Aug</u>	<u>Sept</u>	<u>Oct</u>	<u>Nov</u>
Total Catch by months	H.	0	0	0	1	0	38	81	25	6	0
	S.	0	0	0	0	1	6	55	72	10	1

The gafftop spawns and carries its young in April, May and June. Many adult gafftop were taken in Aransas Bay at that time but none in Mesquite Bay. Shortly after June young appeared in increasing numbers, leaving the bay by November when only one was taken. Essentially the same sequence of events concerning this fish was observed during both studies.

Galeichthys felis (Linnaeus) Hardhead or Sea Catfish

<u>(Continued) Harvest of Sea Catfish</u>											
		<u>Total No.</u>		<u>Size Range</u>			<u>Salinity Range</u>			<u>Temperature Range</u>	
H.		295		-			-			-	
S.		556		60-240			1.2 - 31.7			14.8 - 30.3	
		<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>July</u>	<u>Aug</u>	<u>Sept</u>	<u>Oct</u>	<u>Nov</u>
Total Catch by	H.	3	8	54	71	47	5	34	36	44	1
months	S.	33	18	18	18	30	24	9	87	156	163

The catfish was present in Mesquite Bay all year long during both studies. The largest numbers recorded in 1960 came in September, October and November which differs slightly from Hoese's results. He caught more in April, May, and June. He did have an increase in number in the fall however.

Ophichthyidae

Ophichthus gomesii (Castelnau)

Only reported during Hoese's survey.

Myridae

Myrophis punctatus (Lutken) Worm Eel

Only one of this family was taken during this study; it was 234 millimeters long. The salinity was 23.8 ppt and temperature was 29.5 degrees centigrade. It was not reported in the previous survey.

Belonidae

Strongylura marina (Walbaum) Atlantic Needlefish

		<u>Total No.</u>	<u>Size Range</u>	<u>Salinity Range</u>	<u>Temperature Range</u>
H.		4	17-267	17.2	30.0
S.		3	235-277	36.7	30.5

The needlefish was not commonly taken during either study, but it was observed in the bay and bayou during the summer months. The three specimens recorded were collected by rod and reel near Station 3 in August.

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Cypripodon variegatus (Lacepede) Broad Killifish
This species was common during both studies and is believed abundant at all times of the year.

Fundulus grandis (Baird and Girard) Gulf Killifish
Reported as uncommon during both studies.

Fundulus similis (Baird and Girard) Longnose Killifish
The longnose killifish is reported as common by both writers.

Fundulus pulvereus (Bevermann) Bayou Killifish
Not taken during this study.

Lucania parva (Baird and Girard) Rainwater Fish
The rainwater fish was reported in some abundance by Hoese, but only two were taken in 1960.

Adinia xenica (Jordan and Gilbert) Diamond Killifish
The diamond killifish was reported by Hoese, but was not taken during this survey.

Cypripodontidae

Syngnathus mackayii (Swain and Meek) Pipefish
This pipefish was not reported during the previous study, only one specimen, 134 millimeters long, was captured in 1960. Salinity was 20.7 ppt and temperature was 17.3 degrees centigrade.

These pipefish were found during colder weather when the temperatures ranged from 10.9 to 19.4°C. and the salinity from 6.9 to 22.2 ppt.

Total catch by		Months									
H.	S.	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov
					Not Given						
		3	6	3	0	0	0	0	0	0	6

Syngnathus scovelli (Everman and Kendall) Pipefish
Hoese reported this species as the most abundant pipefish. This was found to be true especially in areas of vegetation. The following table shows the relative abundance.

Syngnathus louisianae (Günther) Pipefish
Only one of these fish was collected by Hoese and none were taken in this study.

Syngnathidae

The southern hake is commonly found in the bays in the winter.

Total No.	Size Range	Salinity Range	Temperature Range	S.
9	80-195	3.0 - 12.3	10.7 - 25.4	
8	49-126	17.7 - 22.1	11.5 - 15.1	

Urophycis floridanus (Bean and Dressel) Southern Hake

Gadidae

Hemirhamphus unifasciatus (Ranzani) Halfbeak
Although this species was not captured, it was observed in the bay during the summer months.

Hemirhamphidae

Mugilidae

Mugil cephalus (Linnaeus) Striped Mullet

The striped mullet was a common inhabitant of the bay and bayou during both studies.

Aterinidae

Menidia beryllina (Cope) Atlantic Silversides

The silversides was noted as abundant during both studies.

Mebras martinica (Valenciennes) Rough Silversides

This fish, although seined in some numbers in August 1960, at Station 14, was not common during either survey.

Polynemidae

Polydactylus octonemus (Girard) Eightfingered Threadfin

	<u>Total No.</u>	<u>Size Range</u>		<u>Salinity Range</u>		<u>Temperature Range</u>					
H.	26	64-109		4.5 - 7.0		25.0 - 26.6					
S.	263	50-150		1.9 - 36.0		18.2 - 30.7					
		<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sept</u>	<u>Oct</u>	<u>Nov</u>
Total Catch by	H.	Not Recorded									
Months	S.	0	0	0	38	86	43	56	33	5	2

The first threadfin taken during Hoese's study was in April, 1958, and he only collected 26. In 1960 it suddenly became abundant in May. Many came in through Cedar Bayou at that time and remained through the summer. They were taken at all stations, disappearing by the end of November.

Carangidae

Trachinotus carolinus (Linnaeus) Pompano

The pompano was not reported in the previous survey. In August 1960, 22 specimens from 30 to 40 mm were caught at Station 14. Salinity was 31.5 ppt with temperature of 30.4°C.

The pompano was not common and was never taken at any other stations during this survey.

Caranx hippos (Linnaeus) Common Jack

	<u>Total No.</u>	<u>Size Range</u>	<u>Salinity Range</u>	<u>Temperature Range</u>
H.	1	60	20.8	29.0
S.	14	30-97	31.1 - 33.4	30.4 - 30.6

The jackfish which Hoese reported was taken at Station 14 in July. This writer took one in July and thirteen in August at the same station. The species was not common at any other time of the year.

Chloroscomberus chrysurus (Linnaeus) Bumper

	<u>Total No.</u>	<u>Size Range</u>	<u>Salinity Range</u>	<u>Temperature Range</u>
H.	44	35-48	20.0 - 20.5	14.7 - 30.0
S.	5	89-113	25.1 - 32.9	27.7 - 31.8

The bumper reported by Hoese appeared in his catches in July and November at Stations 13 and 14; they were found in May, June and July 1960 at Stations 3 and 14. This fish is quite common in the gulf off Port Aransas in the spring and ventures into the bays at times.

Orthopristis chrysopterus (Linnaeus) Pigfish		Total No.		Size Range		Salinity Range		Temperature Range	
H.	113	45-138	3.0 - 44.5	-					
S.	26	65-140	2.8 - 36.3	19.6 - 30.7					
Total Catch by		Total Catch by		Total Catch by		Total Catch by		Total Catch by	
H.	0	0	0	0	0	0	0	0	0
S.	0	0	0	0	0	0	0	0	0
Months		Months		Months		Months		Months	

Euchinostoma gula (Cuvier) Mojarrá
Euchinostoma argenteus (Baird and Girard) Mojarrá

Both species were recorded by Hoese but those captured in 1960 could only be identified to genus.

Labotes surinamensis (Bloch) Tripiletail
The tripiletail was not captured during either survey but one was observed in Cedar Bayou in July 1960. It was lying under a floating board on an incoming tide. The salinity was 32.9 ppt and the temperature 29.50C.

Lutjanus synagris (Linnaeus) Lane Snapper
One was recorded by Hoose.

Hemicarax amblyrhynchus (Cuvier) Blunt-Nosed Jack
This fish, not reported by Hoese, was found in May and June 1960 in association with the jellyfish, Stomolophus meleagris Agassiz. It was taken in a salinity of 18.4 to 36.0 ppt with a temperature range of 26.2 to 30.7°C.

Selene vomer (Linnaeus) Lookdown
Another organism Hoese failed to find was the lookdown. In August 1960, one specimen, 12 mm long, was taken at Station 3. The salinity was 31.9 ppt; temperature 30.5°C.

Vomer setipinnis (Mitchell) Moonfish
One specimen was collected at Station 3 in July. It was 137 mm long and was found in a salinity of 35.6 ppt and a temperature of 31.7°C. Hoese did not report this species.

Oligoplites saurus (Bloch and Schneider) Leatherjacket
The leatherjacket was recorded once during Hoese's study. In 1960, six specimens were found in a salinity of 31.5 ppt and a temperature of 30.4°C.

Carangidae (Cont'd)

survey. The largest numbers were present in August, whereas Hoese found them more abundant in October.

Sciaenidae

Bairdiella chrysura (Lacepede) Silver Perch or Yellowtail

	<u>Total No.</u>	<u>Size Range</u>		<u>Salinity Range</u>		<u>Temperature Range</u>					
H.	59	33-105		3.0 - 45.3		8.2 - 31.6					
S.	191	30-170		1.2 - 36.7		11.2 - 31.2					
		<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sept</u>	<u>Oct</u>	<u>Nov</u>
Total Catch by	H.	Not Given									
Months	S.	6	5	7	0	56	39	7	6	3	62

The yellowtail in this study was most abundant in November; possibly indicating a movement to the Gulf for spawning. The dominant size fish at that time was 100 to 150 millimeters. Hoese recorded his greatest abundance in June when the young were coming into the bays.

Stellifer lanceolatus (Holbrook) Star Drum

	<u>Total No.</u>	<u>Size Range</u>	<u>Salinity Range</u>	<u>Temperature Range</u>
H.	18	30-92	3.6 - 36.8	15.6 - 31.6
S.	1	80	2.8	19.6

Only one star drum was taken during this study as compared to the eighteen taken during the previous survey. All of the specimens were from Cedar Bayou.

Sciaenops ocellatus (Linnaeus) Redfish

	<u>Total No.</u>	<u>Size Range</u>	<u>Salinity Range</u>	<u>Temperature Range</u>
H.	7	55-70	-	-
S.	10	45-300	20.2 - 24.2	14.3 - 26.6

The redfish captured were too few to determine any changes which might have taken place. Six young redfish were taken near Station 3 in March. They were 46 to 73 millimeters long.

Leiostomus xanthurus (Lacepede) Spot

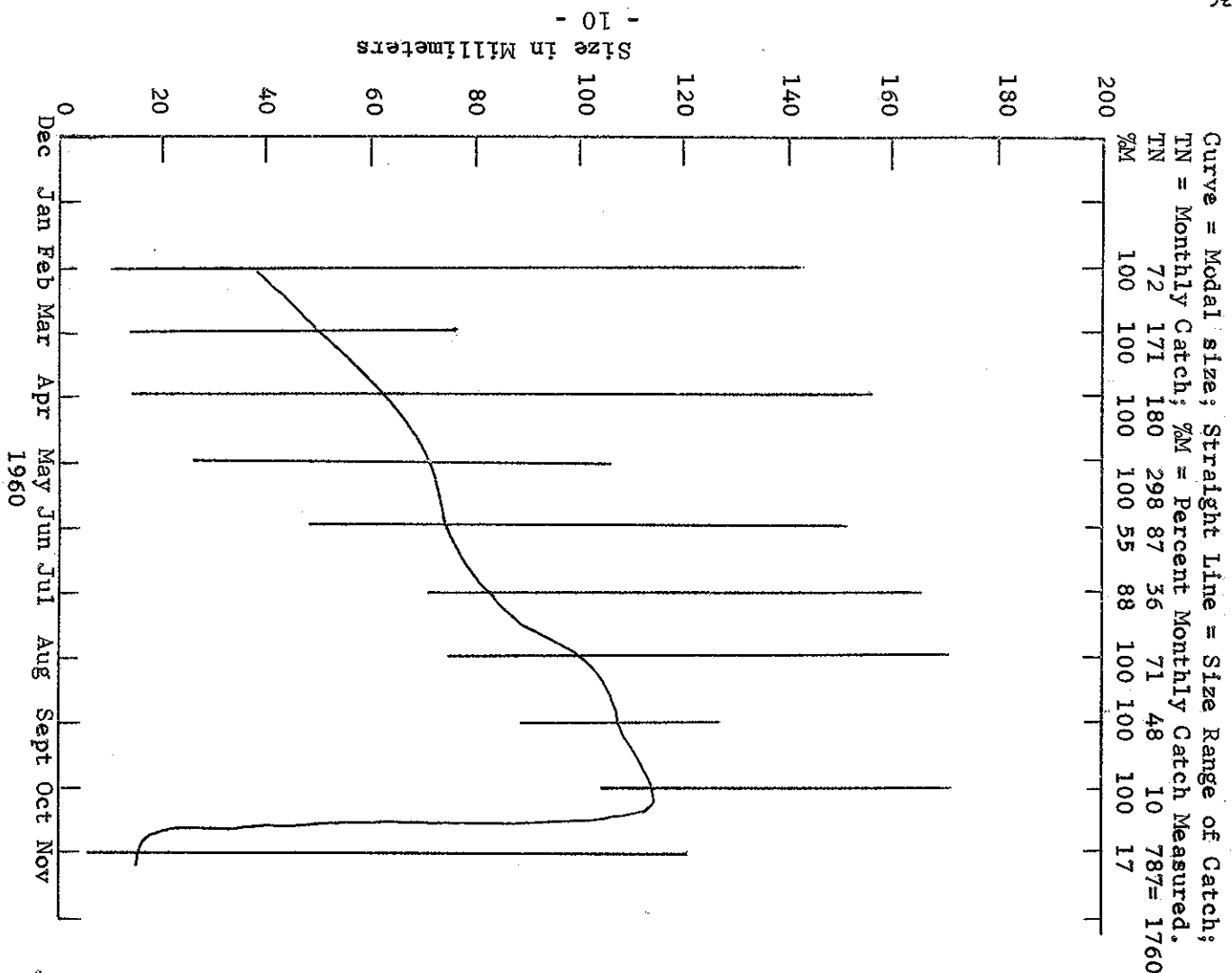
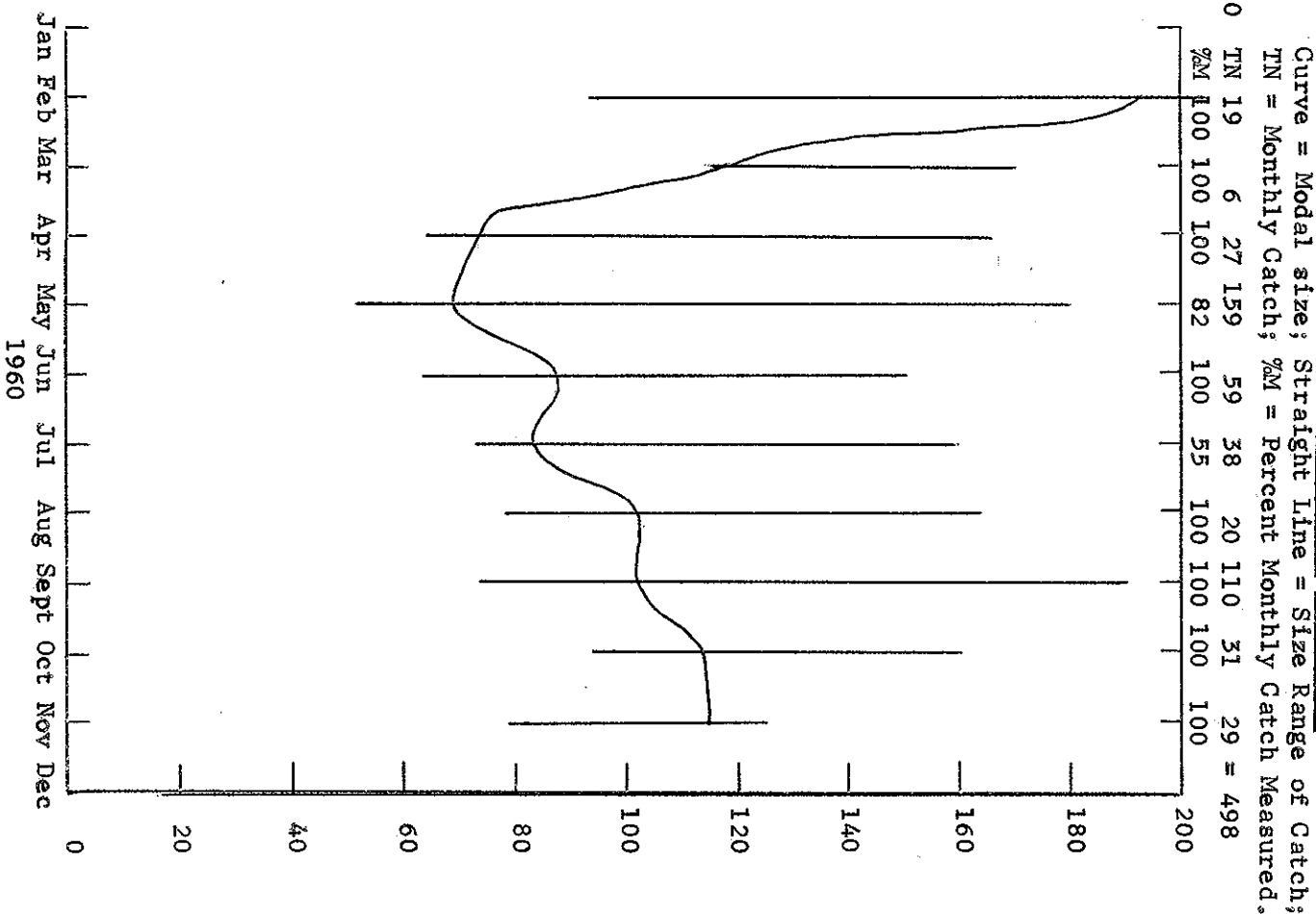
	<u>Total No.</u>	<u>Size Range</u>				<u>Salinity Range</u>			<u>Temperature Range</u>		
H.	1383	-				1.5 - 45.3			10.7 - 31.6		
S.	498	53-206				2.0 - 35.6			11.5 - 31.5		
		<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sept</u>	<u>Oct</u>	<u>Nov</u>
Total Catch by	H.	10	79	373	565	144	104	31	48	23	3
Months	S.	19	6	27	159	59	38	20	110	31	29

While the catch recorded in 1960 was one-third of what was caught by Hoese, the same trend is seen. There was a peak abundance in May, tapering off in the remaining months.

Figure 2 shows the modal size of the monthly catch. The resulting curve fluctuates and this can be attributed to small sample sizes. In February a large size dominates the catch. In March the size drops and in April and May the modal size spot is between 50 and 75 millimeters, displaying a recent recruitment to the population. The modal size gradually increases through the rest of the year.

Micropogon undulatus (Linnaeus) Croaker (Figure 3)

	<u>Total No.</u>	<u>Size Range</u>	<u>Salinity Range</u>	<u>Temperature Range</u>
H.	4216	15-114	-	-
S.	1760	5-170	20.0 - 35.6	11.5 - 31.3

Figure 3 - Micropogon undulatusFigure 2 - Leiostomus xanthurus

		Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov
Total Catch by	H.	133	1220	1254	1320	233	51	20	9	2	3
Months	S.	72	171	180	298	87	36	71	48	10	787

The croaker was the most abundant fish in both studies.

The monthly abundance figures agree quite well except that the young of the year in late 1960 appear earlier than they did during the last survey. According to Hoese's figures, the croaker population did not show any substantial increase until February and March.

Menticirrhus americanus (Linnaeus) Whiting

	Total No.	Size Range	Salinity Range	Temperature Range
H.	6	92-137	18.6 - 25.5	17.7 - 31.2
S.	14	45-130	16.6 - 36.3	13.9 - 30.4

Whittings were not abundant during either survey. Eight specimens were seined in the surf at Station 14 in August 1960. Others were taken in October and February.

Pogonias cromis (Linnaeus) Black Drum

No drum were reported by Hoese, and only two specimens were taken in 1960 at Station 3. The salinity was 31.9 ppt and the temperature was 30.3°C.

Cynoscion arenarius (Ginsburg) Sand Trout

	Total No.	Size Range	Salinity Range	Temperature Range
H.	35	43-139	5.3 - 25.5	8.2 - 31.6
S.	18	20-160	1.9 - 35.0	14.3 - 31.5

		Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov
Total Catch by	H.				Not given						
Months	S.	1	0	0	1	3	2	1	1	4	6

Sand trout were not taken in any great numbers during either study and a comparison cannot be made.

Cynoscion nebulosus (Cuvier) Speckled Sea Trout

	Total No.	Size Range	Salinity Range	Temperature Range
H.	55	-	-	-
S.	223	35-365	6.9 - 36.6	19.4- 31.6

		Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov
Total Catch by	H.										
Months	S.	0	0	7	0	3	196	0	911	7	1

Too few fish were taken to allow any comparison between surveys.

Most fish captured during this survey were in Cedar Bayou in July.

Females had well-developed ovaries and males

were running milt. Pull seining near Station 3 in September 1960 captured six trout 35 to 55 millimeters in length, possibly corresponding to what may have been a spawning run in July. Trout were abundant in the bayou from the middle of June to the middle of July, and sports fishermen were able to catch hundreds of fish.

Sparidae

Lagodon rhomboides (Linnaeus) Pinfish

	Total No.	Size Range	Salinity Range	Temperature Range
H.	365	43-106	2.5 - 45.3	-
S.	168	14-175	1.2 - 36.7	15.3 - 31.5

		Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov
Total Catch by	H.	5	43	3	16	51	53	58	67	40	16
Months	S.	6	3	6	12	10	14	56	41	11	8

Gobiidae (Cont'd)

Gobiosoma bosci (Lacepede) Naked Goby

	<u>Total No.</u>	<u>Size Range</u>	<u>Salinity Range</u>	<u>Temperature Range</u>
H.	3	-	-	-
S.	2	-	31.5	30.5

Gobiosoma robustum (Ginsberg) Robust Goby

This goby was not recorded during this study but according to Hoese was quite common.

Triglidae

Prionotus tribulus (Cuvier) Bighead Sea Robin

	<u>Total No.</u>		<u>Size Range</u>			<u>Salinity Range</u>			<u>Temperature Range</u>	
H.	6		33-102			3.4 - 20.4			9.5 - 31.3	
S.	40		25-150			1.9 - 33.4			14.3 - 30.5	
	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sept</u>	<u>Oct</u>	<u>Nov</u>
Total Catch by H.	Not Given									
Months	S. 6	2	3	10	7	0	1	5	2	3

Prionotus scitulus (Jordan and Gilbert) Slender Sea Robin

One specimen was recorded from Station 3; it was 95 millimeters long. Water temperature was 29.0°C. and the salinity 20.8 ppt. This species was not reported by Hoese.

Bothidae

Citharichthys spilopterus (Gunther) Bay Whiff

	<u>Total No.</u>		<u>Size Range</u>		<u>Salinity Range</u>			<u>Temperature Range</u>		
H.	97		30-112		3.0 - 36.8			9.5 - 31.5		
S.	125		21-110		4.9 - 35.0			11.2 - 30.7		
	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sept</u>	<u>Oct</u>	<u>Nov</u>
Total Catch by H.	Not Given									
Months S.	5	3	1	18	13	11	13	15	44	2

The number of fish taken during each survey, the size range, salinity range, and temperature range are quite close and agree very well; however, Hoese captured fewer numbers in possibly more trawls. This may indicate that the species is more abundant.

Etropus crossotus (Jordan and Gilbert) Fringed Flounder

		<u>Total No.</u>	<u>Size Range</u>		<u>Salinity Range</u>				<u>Temperature Range</u>		
H.		52	37-94		2.6 - 30.0				15.5 - 28.4		
S.		107	33-130		1.2 - 35.0				11.2 - 30.8		
		Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov
Total Catch by Months	H.	Not Given									
	S.	8	3	0	6	2	12	0	13	30	35

The fringed flounder was relatively common during this study; in fact, twice as many were taken and in fewer trawls.

Paralichthys albiguttus (Jordan and Gilbert) Gulf Flounder

This species was reported only by Hoese.

Paralichthys lethostigmus (Jordan and Gilbert) Southern Flounder

	<u>Total No.</u>	<u>Size Range</u>	<u>Salinity Range</u>	<u>Temperature Range</u>
H.	143	37-242	-	-
S.	41	40-425	1.2 - 33.3	15.3 - 30.8

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Chilomycterus schoepfi (Walbaum) Spiny Boxfish
Reported by Hoese only.

Diodontidae

Monacanthus hispidus (Linnaeus) Common File Fish
Reported by Hoese only.

Alutera schoepfi (Walbaum) Orange File Fish
Reported by Hoese only.

Monacanthidae

	H.	S.
<u>Symphurus plagiatus</u> (Linnaeus) Tonguefish	13	20
Total No.	47-147	30-135
Size Range	3.3 - 44.5	1.9 - 26.3
Salinity Range	15.5 - 27.2	19.6 - 28.1
Temperature Range		

Cynoglossidae

Archirus lineatus (Linnaeus) Striped Sole
Hoese reports 15 of these fish, but only one was found after the pass was opened.
Trinectes maculatus (Bloch) Hogchoker
Hoese encountered two during his survey while twenty-seven were taken later. The salinity range was 1.2 to 32.8 ppt and the temperature range was 18.7 to 29.9°C. The overall size range was 45 to 110 millimeters; the greatest numbers taken in November.

Archiridae

Ancylopsetta quadrocclata (Gill) Ocellated Fluke
the flatfish except the southern flounder increased.
The ocellated fluke increased in number in 1960. It seems that all of
Total Catch by H. 5 0 1 8 0 1 1 2 2 1
S. 21 40-165 1.9 - 35.6 29.0 - 30.7 13.7 - 30.7
H. 3 100-127 20.4 - 25.2
S. 21 40-165 1.9 - 35.6 29.0 - 30.7 13.7 - 30.7
H. 3 100-127 20.4 - 25.2
Total No. Size Range Salinity Range Temperature Range
Feb Mar Apr May Jun Jul Aug Sept Oct Nov
Not Given

shows a gulflward movement of these fish through Cedar Bayou.
In August and September of 1960, sport fishermen were catching up to 100 pounds or more in a night of gigging. This agrees with Simmons (1950) where he
were taken at that time also.
and April 1960, indicating recent spawning. Larger flounder, 245 millimeters,
Small flounder, 40 to 50 millimeters in length, were taken in February
the later survey.

The southern flounder, according to Hoese, was absent in January and
February. They were found in some number in February 1960 and throughout
Total Catch by H. 0 25 12 42 8 15 17 6 7 10
S. 10 0 6 1 10 4 1 2 1 6
Months
Feb Mar Apr May Jun Jul Aug Sept Oct Nov

Bothidae (Cont'd)

Tetradontidae

Sphoeroides nephelus (Goode and Bean) Puffer

		<u>Total No.</u>	<u>Size Range</u>		<u>Salinity Range</u>			<u>Temperature Range</u>			
H.		183	42-102		5.5 - 45.3			9.1 - 30.7			
S.		78	25-90		1.9 - 35.0			1.2 - 30.7			
		<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>	<u>Jul</u>	<u>Aug</u>	<u>Sept</u>	<u>Oct</u>	<u>Nov</u>
Total Catch by Months	H.	3	2	0	0	11	5	11	18	129	4
	S.	11	4	3	7	7	4	1	5	20	16

The only major difference between the two studies' results, as far as this fish is concerned, is in actual numbers caught. Hoese took more than twice as many.

Gobiesocidae

Gobiesox strumosus (Cope) Clingfish

		<u>Total No.</u>	<u>Size Range</u>	<u>Salinity Range</u>	<u>Temperature Range</u>
H.		5	Not Taken	2.7 - 12.3	10.0 - 16.6
S.		1	Not Taken	19.0	15.0

Batrachoididae

Opsanus beta (Goode and Bean) Toadfish

		<u>Total No.</u>	<u>Size Range</u>	<u>Salinity Range</u>	<u>Temperature Range</u>
H.		3 to 9	-	3.0 - 37.0	27.2 - 30.4
S.		1	135	31.5	30.4

Porichthys porosissimus (Valenciennes) Midshipman

		<u>Total No.</u>	<u>Size Range</u>	<u>Salinity Range</u>	<u>Temperature Range</u>
H.		4	-	4.4 - 44.5	-
S.		2	6	24.2 - 26.3	25.9 - 28.1

Discussion: In summarizing the year's work with vertebrates, some difference is seen in the inhabitants of Mesquite Bay and Cedar Bayou as compared to the study Hoese conducted.

The appearance of gulf forms in lower Mesquite Bay demonstrates the effect of gulf waters entering through the bayou. Fish like Elops saurus, Oligoplites saurus, Vomer setipinnis, Selene vomer, and Hemicaranx amblyrhynchus were not common when the pass was closed.

Cedar Bayou's opening has allowed more juvenile forms to enter the bays. It is not known how many will survive and grow to harvestable size or if this will produce more harvestable fish in Mesquite Bay.

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