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Headboat and Charterboat Finfish Catch Statistics for the Bays and Gulf Waters of Texas, September 1978-August 1979

by Lawrence W. McEachron

Management Data Series Number 10
1980

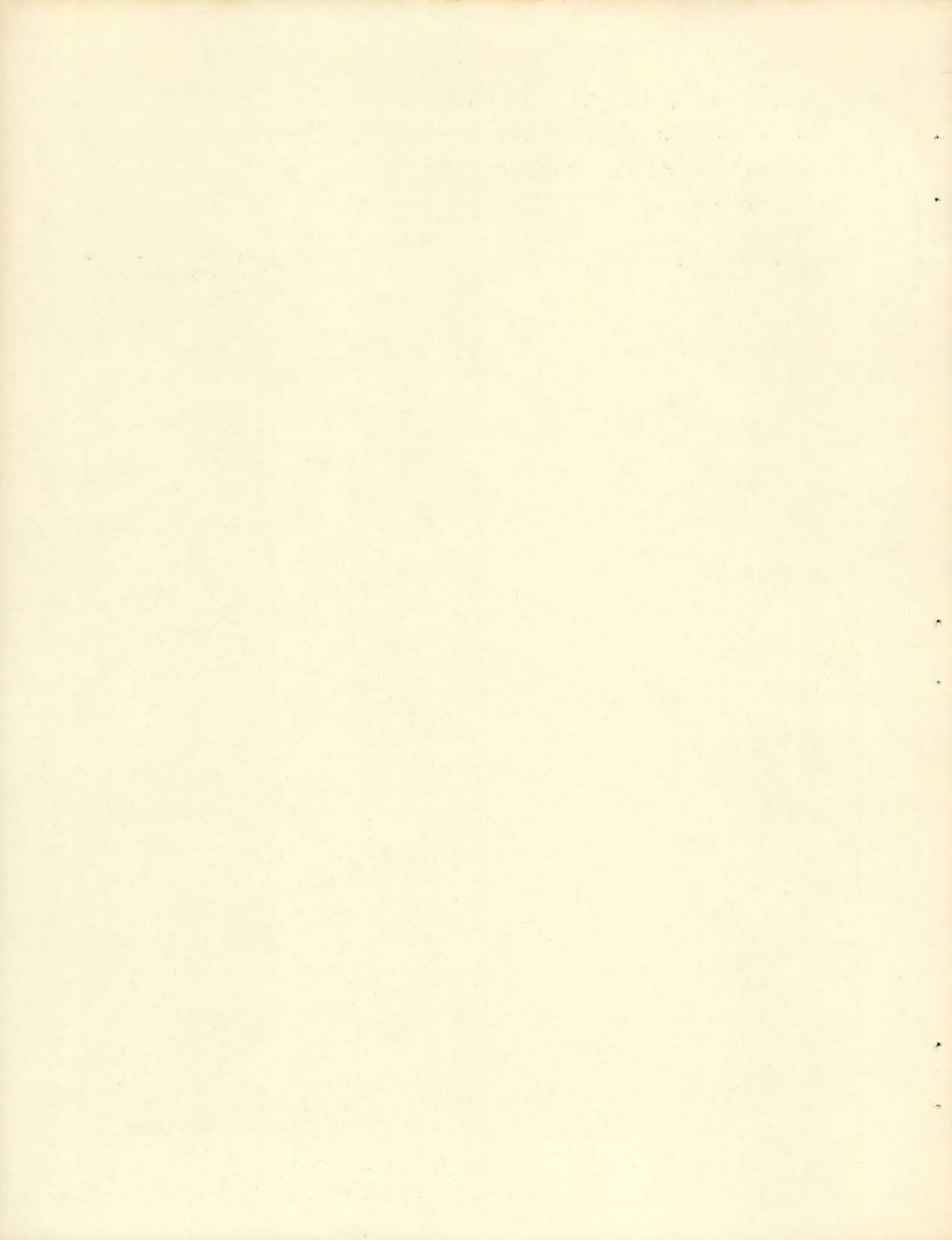
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HEADBOAT AND CHARTERBOAT FINFISH CATCH STATISTICS
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SEPTEMBER 1978-AUGUST 1979

EXECUTIVE SUMMARY

From September 1978 through August 1979 headboats and charterboats were surveyed in the Galveston-Freeport, Aransas-Corpus Christi and lower Laguna Madre (Port Mansfield and Port Isabel) areas. All surveys were separated as to Gulf of Mexico or bay fishing. Estimates of sizes of fishes captured, method of capture and catch per effort were determined for headboat and charterboat fishermen.

On randomly selected headboat survey days creel personnel were on board the boat during the fishing trip. Charterboats completing fishing trips were intercepted at the docks on randomly selected survey days.

In all three areas 31 headboat and 140 charterboat operators were identified. Of these, 18 headboats and 82 charterboats fished exclusively in the Gulf.

Headboat catches in the Gulf of Mexico were dominated by reef fishes, mainly red snapper; headboat catches in the bay were dominated by sand seatrout. Generally, catches were slightly higher on weekends than on weekdays.

Spotted seatrout constituted the majority of fish landed by charterboat fishermen in the bay; king mackerel, Spanish mackerel and red snapper were the dominant fishes landed by charterboat fishermen in the Gulf of Mexico.

The major portion of the charterboat and headboat activity occurred from late spring through early fall.

HEADBOAT AND CHARTERBOAT FINFISH CATCH STATISTICS
FOR THE BAYS AND GULF WATERS OF TEXAS,
SEPTEMBER 1978-AUGUST 1979

ABSTRACT

From September 1978 through August 1979 headboat and charterboat fishermen were surveyed in the Galveston-Freeport, Aransas-Corpus Christi and lower Laguna Madre areas. During this period 104 headboat and 74 charterboat interviews were conducted. All surveys were separated as to Gulf of Mexico fishing or bay fishing.

Reef fishes, mainly red snapper (Lutjanus campechanus), dominated the Gulf headboat catches; sand seatrout (Cynoscion arenarius) dominated the bay headboat catches. Spotted seatrout (C. nebulosus) constituted almost all of the bay charterboat catches; king mackerel (Scomberomorus cavalla), Spanish mackerel (S. maculatus) and red snapper dominated the Gulf charterboat catches.

The best time to obtain charterboat and headboat surveys was during late spring, summer and early fall because of increased demand by clients during these periods.

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INTRODUCTION

On 13 April 1976 the Fishery Conservation Management Act of 1976 was signed into law giving the Federal Government control over the fish stocks in the Fishery Conservation Zone (FCZ) out to 200 nmi from the U. S. coast. The Gulf of Mexico Fisheries Management Council was established to develop management plans for the various fisheries in the FCZ off the Gulf coast and will utilize data from various state and federal surveys to determine the optimum yield for each fishery.

The Texas Parks and Wildlife Department (TPWD) has obtained trend information on various segments of the coastal bay and inshore Gulf sport fishery. To date wade/bank, bay commercial pier, Gulf commercial pier, jetty private boat, Gulf private boat and bay private boat fishermen have been studied (Heffernan et al. 1976, Breuer et al. 1977, Green et al. 1978, McEachron 1979, McEachron 1980a,b). The headboat and charterboat fisheries are two fisheries for which coastwide catch per effort and species composition data were not available. Therefore, the TPWD initiated a study of the Texas bay and Gulf headboat and charterboat fisheries to determine the species, size and catch per effort of commercially important finfishes caught in Texas waters. Data obtained will be used to assess the impact of the Texas headboat and charterboat industries on the stocks of fishes in Texas bays and in the Gulf of Mexico off Texas.

The headboat and charterboat fisheries in the Gulf coast region are an important economic segment of the overall Gulf fishery which in 1970 generated over \$20 million in fees alone (Bureau of Sport Fisheries and Wildlife 1972). If travel and lodging costs to the fishermen using these headboats and charterboats were available the projected value would be much higher.

In Texas few studies have been conducted on the charterboat and headboat industries. Ditton et al. (1978a) discussed the characteristics, participation and motivations of Texas charterboat fishermen. He defined and described the sociodemographic characteristics, the backgrounds, the types of charter fishing groups and the reasons why people go charter fishing. Ditton et al. (1978b) described and analyzed the organization, business characteristics and financial information of the charterboat operators. Vetter and Roels (1977) assessed the sport fishery on the "Liberty Ship" reef off Port Aransas, Texas and found that headboats and charterboats did not use these reefs to a large extent during summer. However, the charterboat operators that fish throughout the year indicated they did use the reefs during winter to catch red snapper (Lutjanus campechanus) and grouper (Serranidae). Ditton and Graefe (1978) analyzed recreational fishing on artificial reefs in the Houston-Galveston area and found that of all headboats and charterboats along the Texas coast, 12% of the boats which fished over reefs of some type fished over Liberty Ships. Off Galveston Bay 23% of all trips were made to offshore oil platforms.

Definition of Terms

Charterboat: a boat, operated by a licensed guide and crew, that carries, for a fee, 10 people or less.

Headboat: a boat, operated by a licensed guide and crew, that carries, for a fee, 11 or more people.

Gulf fishing: a boat is fishing in the Gulf of Mexico anytime the boat leaves a pass or jetty area and fishes in the Gulf of Mexico proper.

Bay fishing: a boat is fishing in the bay anytime it fishes in the bay proper or in a pass or jetty area.

No/boat trip: average number of fish landed per boat trip.

No/man-h: average number of fish caught per hour of actual fishing time.

MATERIAL AND METHODS

From September 1978 through August 1979 headboats and charterboats were surveyed in the Galveston-Freeport, the Aransas-Corpus Christi and the lower Laguna Madre (Port Mansfield and Port Isabel) areas (Figure 1). Headboats and charterboats in each area were identified and numbered (Appendices A and B). Lists were updated as boats entered or left the fishery.

The year was divided into four quarters--fall (September-November), winter (December-February), spring (March-May) and summer (June-August). During each quarter interviews were conducted on each of 15 randomly selected weekdays and 7 weekend days in the Galveston-Freeport and in the Aransas-Corpus Christi areas and on each of 13 randomly selected weekdays and 5 weekend days in the lower Laguna Madre area.

On scheduled headboat survey days TPWD interviewers were on board the boat during the fishing trip. Due to the small size of the charterboats it was not possible for the interviewers to accompany fishing parties. Instead, charterboats completing fishing trips were intercepted at the dock. Interviewers recorded trip time, actual fishing time, area fished, number of persons fishing and their residence (state if non-Texas resident; county if Texas resident), gear used and baits used.

All fishes retained by fishermen during a headboat or charterboat trip were identified and counted by species. In addition, up to 100 fish of each species were measured (total length) to the nearest mm.

Catch rates (no/boat trip and no/man-h) were calculated as the number of fishes landed during each season divided by the number of boat trips or the number of man-h of actual fishing time. Mean sizes (mm) were obtained

by adding the lengths for a species during a season and dividing by the number of fish measured during a season. Annual mean sizes are weighted averages based on the number of fish measured during each season.

Both the headboat and charterboat data were separated into bay fishing or Gulf of Mexico fishing dependent upon where the majority of fishing during a trip took place.

RESULTS

In the Galveston-Freeport, Aransas-Corpus Christi and lower Laguna Madre areas 31 headboat and 140 charterboat operators were identified (Appendix B). Of these, 18 headboats and 82 charterboats fished exclusively in the Gulf. The majority of the identified headboats and charterboats were in the Aransas-Corpus Christi area.

From September 1978 through August 1979, 104 headboat and 74 charterboat interviews were conducted by TPWD interviewers in all areas. Of these interviews, 40 were headboat and 34 were charterboat interviews for Gulf of Mexico fishermen. No Gulf headboats or charterboats were sampled off lower Laguna Madre on weekends because of lack of cooperation of boat operators.

Bay Headboat and Charterboat Fisheries

Headboats

Weekday: The annual catch rate (no/boat trip) for all species combined for weekday headboat trips in the Galveston-Freeport area was 105.0 fish/boat trip (Table 1); catch rates in the Aransas-Corpus Christi and lower Laguna Madre areas were 37.0 (Table 2) and 25.9 (Table 3) fish/boat trip, respectively. Highest catch rates were reported during fall in the Galveston-Freeport and lower Laguna Madre areas, and during summer in the Aransas-Corpus Christi area. Sand seatrout (Cynoscion arenarius) dominated the catches in all areas except in the Galveston-Freeport area during summer when over 50% of the catch was Atlantic croaker (Micropogon undulatus).

The annual catch rate (no/man-h) for all species combined was 1.36 fish/man-h in the Galveston-Freeport, 0.90 in the Aransas-Corpus Christi and 0.40 in the lower Laguna Madre areas. Sand seatrout catch rates ranged from 0.31 fish/man-h in the lower Laguna Madre area to 0.99 in the Galveston-Freeport area. Except for Atlantic croaker in the Galveston-Freeport area all other species annual catch rates were \leq 0.09 fish/man-h.

Black drum (Pogonias cromis) and gafftopsail catfish (Bagre marinus) were the largest fishes caught and Atlantic croaker was the smallest fish caught. Mean sizes of all fishes varied between seasons.

Weekend: The annual catch rate (no/boat trip) for weekend headboat fishermen was 149.2 fish/boat trip in the Galveston-Freeport area (Table 4), 55.7 in the Aransas-Corpus Christi area (Table 5) and 15.5 in the lower Laguna Madre area (Table 6). Highest seasonal catch rates of 267.0 and 125.0 fish/boat trip were recorded during fall in the Galveston-Freeport and Aransas-Corpus Christi areas, respectively; seasonal catch rates in lower Laguna Madre varied only from 15.0 to 15.8 fish/boat trip. Sand seatrout constituted over 58% of the annual catch in the lower Laguna Madre and over 83% of the annual catch in both the Galveston-Freeport and Aransas-Corpus Christi areas.

Weekend annual catch rates (no/man-h) were 2.17 in the Galveston-Freeport, 1.32 in the Aransas-Corpus Christi and 0.31 in the lower Laguna Madre areas. Sand seatrout catch rates ranged from 1.14 to 1.80 fish/man-h except in the lower Laguna Madre area where the catch rate was 0.18. Atlantic croaker in the Galveston-Freeport area, spotted seatrout (*Cynoscion nebulosus*) in the Aransas-Corpus Christi area and whiting (*Menticirrhus* sp.) in the lower Laguna Madre area were the only other fishes with catch rates \geq 0.03 fish/man-h.

Black drum was the largest and sand seatrout the smallest of the fishes measured. The mean size of fishes varied between seasons in each bay.

Charterboats

Annual catch rates (no/boat trip) by weekday bay charterboat fishermen ranged from 14.0 fish/boat trip (Table 7) in the Aransas-Corpus Christi area to 18.3 (Table 8) and 18.1 (Table 9) in the Galveston-Freeport and lower Laguna Madre areas, respectively. Weekend annual mean catch rates for all seasons combined were 8.7 fish/man-h in the Galveston-Freeport, 13.3 in the lower Laguna Madre (Table 10) and 41.2 in the Aransas-Corpus Christi areas.

Annual mean catch rates (no/man-h) for weekday fishermen were 0.74, 1.40 and 1.76 fish/man-h in the Aransas-Corpus Christi, Galveston-Freeport and lower Laguna Madre areas, respectively. Weekend annual mean catch rates ranged from 0.60 to 1.25 fish/man-h.

In each area spotted seatrout constituted from 69 to 100% of all the fishes landed by weekend and weekday charterboat fishermen. The annual mean size of spotted seatrout ranged from 263 to 416 mm.

Gulf Headboat and Charterboat Fisheries

Headboats

Weekday: Mean annual catch rates (no/boat trip) for all species combined were 120 fish/boat trip off the lower Laguna Madre (Table 11),

158.5 off the Aransas-Corpus Christi (Table 12) and 169.5 off the Galveston-Freeport areas (Table 13). Catches for all species combined varied between seasons. Red snapper (Lutjanus campechanus) dominated the catches in all seasons except fall off the Aransas-Corpus Christi area when the vermilion snapper (Rhomboplites aurorubens) catch exceeded that of red snapper. Few other species of fishes were retained.

The annual mean catch rate by headboat fishermen ranged from 1.33 to 1.90 fish/man-h. Red snapper dominated the catch with 1.12 to 1.32 fish/man-h. Except for triggerfishes (Balistidae) and lane snapper (L. synagris) off the Galveston-Freeport area and vermilion snapper off the Aransas-Corpus Christi area, no other species exceeded 0.02 fish/man-h.

Generally, groupers (Serranidae), sharks (Squaliformes), king mackerel (Scomberomorus cavalla) and jackfishes (Carrangidae) were the largest fishes landed. The snappers (Lutjanidae) and "other" fishes were the smallest species landed, except for sheepshead (Archosargus probatocephalus) in the lower Laguna Madre area.

Weekend: Annual catch rates (no/boat trip) for headboat fishermen were 205.8 fish/boat trip off the Aransas-Corpus Christi area (Table 14) and 302.6 off the Galveston-Freeport area (Table 15). Red snapper dominated the catches.

Mean annual catch rates (no/man-h) for weekend headboat fishermen were 1.35 and 2.26 fish/man-h off the Galveston-Freeport and Aransas-Corpus Christi areas, respectively. Red snapper constituted between 71 and 85% of all fishes retained. Off the Aransas-Corpus Christi area, vermilion snapper was the only other species with a catch rate > 0.05 fish/man-h.

King mackerel, groupers, sharks, jackfishes and greater amberjack (Seriola dumerili) were the largest of the fishes measured. The snappers were the smallest fishes landed.

Charterboats

Weekend and weekday Gulf charterboat fishermen caught red snapper, king mackerel, Spanish mackerel (Scomberomorus maculatus), cobia (Rachycentron canadum), sheepshead, shark and "other" fishes.

Mean catch rates for the year were 30.3 fish/boat trip for weekday fishermen and 37.7 for weekend fishermen off the Galveston Freeport area (Table 16), and 13.3 fish/boat trip for weekday fishermen and 11.4 for weekend fishermen off the Aransas-Corpus Christi area (Table 17). Off the Galveston-Freeport area, weekend catch rates for king mackerel and Spanish mackerel, and weekday catch rates for king mackerel were > 14.3 fish/boat trip, compared with < 4.7 for other fishes. Catch rates of Gulf fishes off the Aransas-Corpus Christi area did not exceed 6.5 fish/boat trip.

Mean annual catch rates (no/man-h) for all species combined off the Galveston-Freeport area were 1.08 fish/man-h for weekday and 1.02 for weekend charterboat fishermen. Catch rates off the Aransas-Corpus Christi area were 0.60 and 0.59 fish/man-h for weekday and weekend fishermen, respectively. King mackerel and Spanish mackerel mean annual catch rates were higher than the catch rates for all other fishes except for red snapper and "other" fishes in the Galveston-Freeport area and sheepshead off the Aransas-Corpus Christi area.

King mackerel, cobia and shark were the largest fishes retained; red snapper were the smallest fishes retained.

DISCUSSION

Even though 103 headboat and 74 charterboat interviews were conducted, the information obtained must be used with caution. These data are reported in terms of three bay systems, Gulf vs. bay fishing and weekend vs. weekday fishing. Therefore, the sample size for each group is small. General trends in each fishery can be observed but specific conclusions about these data are tenuous. Therefore, it is recommended that if specific trends are to be observed then each "strata" (ex. bay headboat) should be studied separately in the future.

Headboat catches in the Gulf of Mexico were dominated by reef fishes, mainly red snapper; headboat catches in the bay were dominated by sand seatrout. Other species were caught incidental to these fishes. Since headboats carry up to 150 persons per trip, captains of the vessels must seek fishes that are easily caught or concentrated in specific areas. The reef fishes in the Gulf and sand seatrout in the bays fit these criteria. Therefore, these fishes are impacted the most by headboat fishermen. Although it was not evident in this survey, black drum in Galveston and Corpus Christi Bays and spotted seatrout in Aransas Bay are sought by headboat captains and are caught in large numbers during certain seasons (personal communication). Therefore, these fishes are probably impacted by the headboat fishermen.

Generally, catches were slightly higher on weekends than on weekdays. Higher catches were a direct result of more people fishing on the boats during the weekend than on the weekdays. Experienced headboat captains are aware of the areas where fish can be caught easily and attempt to place clients where fish are accessible. Often, captains will rotate spots, thus distributing fishing pressure over a wide area to maintain a larger daily catch. Due to this fishing technique there may be no real difference between weekend and weekday catch rates (no/man-h). A larger number of headboat interviews should help to detect differences if they occur.

The majority of the fish landed by charterboat fishermen during this study was spotted seatrout in the bay and king mackerel, Spanish mackerel and red snapper in the Gulf of Mexico. Ditton et al. (1978a) reported

that king mackerel and spotted seatrout were the two main species sought by Texas charterboat operators; red snapper was considered fifth and Spanish mackerel was not listed. Apparently, Spanish mackerel was overlooked by the charterboat operators in Ditton's study or they have become more common since then.

Department personnel found that it was difficult to obtain charterboat interviews except during late spring, summer and early fall. This is probably due to increased demand by clients during these periods. Ditton et al. (1978a) reported that the "best customer demand" months were June, July and August with lesser demand in May and September-November.

During this study headboat and charterboat interview days were picked at random one month prior to the survey day. Such scheduling proved to be impractical primarily because of weather-related trip cancellation. Cancelled headboat trips were rescheduled when possible. Based on this knowledge it is recommended that in future surveys a set number of surveys should be conducted during a specified time period; for example, three headboat surveys could be conducted during a 1-mo period. The survey days could then be chosen when the interviewer felt that the boats were going out and thus avoid frequent rescheduling because of trip cancellations.

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Table 1. Catch rates (no/boat trip and no/man-h) and mean size (mm) of fishes caught in Galveston Bay by weekday fishermen on headboats, by species and season (Sept. 1978-Aug. 1979). Blanks = no data; 0.00 = catches < 0.01. Number in parenthesis = no. of interviews.

Season	No/boat trip										
	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Whiting	Other	All ^a species combined
Fall (1)						6.00	869.00				875.00
Winter (4)				0.20	0.20	5.50	63.50			1.20	70.80
Spring (5)			9.80					0.40	0.80	0.80	11.80
Summer (6)	0.70	0.20	4.20	0.30		41.80	16.80		5.10	8.10	77.20
Annual	0.20	0.10	4.60	0.20	0.10	17.40	76.50	0.10	2.10	3.40	105.00
Season	No/man-h										
	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Whiting	Other	All ^a species combined
Fall (1)						0.05	6.74				6.78
Winter (4)				0.01	0.01	0.17	1.92			0.04	2.14
Spring (5)			0.15					0.01	0.02	0.01	0.18
Summer (6)	0.01	0.00	0.04	0.00		0.39	0.16		0.05	0.08	0.72
Annual	0.00	0.00	0.06	0.00	0.00	0.23	0.99	0.00	0.03	0.05	1.36
Species	Mean size (mm)										
	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Whiting	Other	
Fall (1)						230	259				
Winter (4)				290	266	254	293				
Spring (5)			808					556	293		
Summer (6)	335	300	244	386		206	247		238	440	
Annual	335	300	628	354	266	211	275	556	244	440	

^aDue to rounding of numbers these totals may not equal exactly individual species.

Table 2. Catch rates (no/boat trip and no/man-h) and mean size (mm) of fishes caught in Aransas-Corpus Christi bays by weekday fishermen on headboats, by species and season (Sept. 1978-Aug. 1979). Blanks = no data; 0.00 = catches <0.01. Number in parenthesis = no. of interviews.

		No/boat trip									
Season		Spotted seatrout	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Whiting	Other	All ^a species combined
Fall	(5)		0.60	0.80		0.80	36.80		4.40		43.40
Winter	(1)					5.00	21.0				26.0
Spring	(6)	2.50	0.30	0.20			4.00	1.00	3.30	0.30	11.70
Summer	(3)	9.30				2.00	64.00	1.70	3.70		80.70
Annual		2.90	0.30	0.30		1.00	28.10	0.70	3.50	0.10	37.00

		No/man-h									
Season		Spotted seatrout	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Whiting	Other	All ^a species combined
Fall	(5)		0.02	0.03		0.03	1.48		0.18		1.74
Winter	(1)					0.06	0.26				0.33
Spring	(6)	0.05	0.01	0.00			0.09	0.02	0.07	0.01	0.26
Summer	(3)	0.20				0.04	1.38	0.04	0.08		1.74
Annual		0.07	0.01	0.01		0.02	0.68	0.02	0.09	0.00	0.90

		Mean size (mm)								
Season		Spotted seatrout	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Whiting	Other
Fall	(5)		620	355		293	341		285	
Winter	(1)					236	312			
Spring	(6)	324	818	485			290	411	291	
Summer	(3)					241	297	488	290	
Annual		324	699	381		253	321	446	288	

^a Due to rounding of numbers these totals may not equal exactly individual species.

Table 3. Catch rates (no/boat trip and no/man-h) and mean size (mm) of fishes caught in lower Laguna Madre by weekday fishermen on headboats, by species and season (Sept. 1978-Aug. 1979). Blanks = no data; 0.00 = catches < 0.01. Number in parenthesis = no. of interviews.

Season	No/boat trip							All species ^a combined
	Spotted seatrout	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Whiting	
Fall (2)		8.00			0.50	35.50	4.50	48.50
Winter (0)								
Spring (6)	2.00			1.20	0.10	12.70	1.00	17.00
Summer (4)	0.50					24.50	3.00	28.00
Annual	1.20	1.30		0.60	0.20	20.40	2.30	25.90
Season	No/man-h							All species ^a combined
	Spotted seatrout	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Whiting	
Fall (2)		0.46			0.02	2.03	0.26	2.77
Winter (0)								
Spring (6)	0.04			0.02	0.00	0.27	0.02	0.36
Summer (4)	0.01					0.46	0.06	0.53
Annual	0.02	0.02		0.01	0.00	0.31	0.03	0.40
Season	Mean size (mm)							
	Spotted seatrout	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Whiting	
Fall (2)		689				310	300	
Winter (0)								
Spring (6)	311			223	250	310	296	
Summer (4)	325					273	265	
Annual	313	689		223	250	290	215	

^a Due to rounding of numbers these totals may not equal exactly individual species.

Table 4. Catch rates (no/boat trip and no/man-h) and mean size (mm) of fishes caught in Galveston Bay by weekend fishermen on headboats, by species and season (Sept. 1978-Aug. 1979). Blanks = no data; 0.00 = catches < 0.01. Number in parentheses = no. of interviews

Season	No/boat trip										
	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Whiting	Other	All ^a species combined
Fall (2)						45.00	219.00		1.50	0.50	267.00
Winter (1)											0.00
Spring (1)							58.00		3.00	2.00	63.00
Summer (0)											
Annual						23.00	124.00		1.50	0.80	149.20

Season	No/man-h										
	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Whiting	Other	All ^a species combined
Fall (2)						0.53	2.53		0.02	0.01	3.09
Winter (1)											0.00
Spring (1)							0.79		0.04	0.03	0.86
Summer (0)											
Annual						0.33	1.80		0.02	0.01	2.17

Species	Mean size (mm)										
	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Whiting	Other	
Fall (2)							270				
Winter (1)											
Spring (1)							242		260		
Summer (0)											
Annual							259		260		

^aDue to rounding of numbers these totals may not equal exactly individual species.

Table 5. Catch rates (no/boat trip and no/man-h) and mean size (mm) of fishes caught in Aransas-Corpus Christi bays by weekend fishermen on headboats, by species and season (Sept. 1978-Aug. 1979). Blanks = no data; 0.00 = catches <0.01. Number in parenthesis = no. of interviews.

Season	No/boat trip									
	Spotted seatrout	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Whiting	Other	All ^a species combined
Fall (3)		3.70		0.70		120.00		0.70		125.00
Winter (2)					0.50	5.00			3.00	8.50
Spring (2)		1.00	1.00			15.50				17.50
Summer (2)	20.50					16.50				38.00
Annual	4.60	1.40	0.20	0.20	0.20	48.20		0.20	0.70	55.70

Season	No/man-h									
	Spotted seatrout	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Whiting	Other	All ^a species combined
Fall (3)		0.11		0.02		3.75		0.02		3.91
Winter (2)					0.01	0.14			0.08	0.23
Spring (2)		0.02	0.02			0.29				0.32
Summer (2)	0.40					0.32				0.75
Annual	0.11	0.03	0.01	0.01	0.01	1.14		0.01	0.02	1.32

Season	Mean size (mm)									
	Spotted seatrout	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Whiting	Other	
Fall (3)		479		404		326		288		
Winter (2)						300				
Spring (2)		842	440			393				
Summer (2)	322					304				
Annual	322	535	440	404		330		288		

^a Due to rounding of numbers these totals may not equal exactly individual species.

Table 6. Catch rates (no/boat trip and no/man-h) and mean size (mm) of fishes caught in lower Laguna Madre by weekend fishermen on headboats, by species and season (Sept. 1978-Aug. 1979). Blanks = no data; 0.00 = catches < 0.01. Number in parenthesis = no. of interviews.

No/boat trip								
Season	Spotted seatrout	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Whiting	All species ^a combined
Fall (4)	0.50	0.30	0.50		0.50	9.80	4.30	15.80
Winter (0)								
Spring (2)						9.00	6.50	15.50
Summer (2)					2.00	7.50	5.50	15.00
Annual	0.30	0.10	0.30		0.80	9.00	5.10	15.50
No/man-h								
Season	Spotted seatrout	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Whiting	All species ^a combined
Fall (4)	0.01		0.01		0.01	0.21	0.09	0.34
Winter (0)								
Spring (2)						0.15	0.11	0.26
Summer (2)					0.04	0.16	0.12	0.32
Annual	0.01		0.01		0.02	0.18	0.10	0.31
Mean size (mm)								
Season	Spotted seatrout	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Whiting	
Fall (4)	325		310		230	133	279	
Winter (0)								
Spring (2)						302	295	
Summer (2)					420	270	285	
Annual	325		310		357	213	283	

^a Due to rounding of numbers these totals may not equal exactly individual species.

Table 7. Catch rates (no/boat trip and no/man-h) and mean size (mm) of fishes caught in Galveston Bay by weekend and weekday charterboat fishermen, by species and season (Sept. 1978-Aug. 1979). Blanks = no data; 0.00 = catches < 0.01. Number in parenthesis = no. of interviews.

No/boat trip									
Weekend				Weekday					
Season	Spotted seatrout	Gafftopsail catfish	Other	All ^a species combined ^a	Season	Spotted seatrout	Gafftopsail catfish	Other	All ^a species combined ^a
Fall (1)	10.00			10.00	Fall (0)				
Winter (0)					Winter (0)				
Spring (1)	0.00			0.00	Spring (2)	17.50			17.50
Summer (1)	16.00			16.00	Summer (1)	14.00	1.00	5.00	20.00
Annual	8.70			8.70	Annual	16.30	0.30	1.70	18.30

No/man-h									
Weekend				Weekday					
Season	Spotted seatrout	Gafftopsail catfish	Other	All ^a species combined ^a	Season	Spotted seatrout	Gafftopsail catfish	Other	All ^a species combined ^a
Fall (1)	0.80			0.80	Fall (0)				
Winter (0)					Winter (0)				
Spring (1)	0.00			0.00	Spring (2)	1.50			1.50
Summer (1)	0.90			0.90	Summer (1)	0.90	0.10	0.30	1.30
Annual	0.60			0.60	Annual	1.30	0.00	0.10	1.40

Mean size (mm)							
Weekend				Weekday			
Season	Spotted seatrout	Gafftopsail catfish	Other	Season	Spotted seatrout	Gafftopsail catfish	Other
Fall (1)	433			Fall (0)			
Winter (0)				Winter (0)			
Spring (1)				Spring (2)	385		
Summer (1)	405			Summer (1)	432	575	
Annual	416			Annual	399	575	

^a Due to rounding of numbers these totals may not equal exactly individual species.

Table 8. Catch rates (no/boat trip and no/man-h) and mean size (mm) of fishes caught in the Aransas-Corpus Christi area by weekend and weekday charterboat fishermen, by species and season (Sept. 1978-Aug. 1979). Blanks = no data; 0.00 = catches < 0.01. Number in parenthesis = no. of interviews.

No/boat trip												
Weekend						Weekday						
Season	Spotted seatrout	Red drum	Southern flounder	Sand seatrout	All ^a species combined	Season	Spotted seatrout	Red drum	Atlantic croaker	Sand seatrout	Other	All ^a species combined
Fall (0)						Fall (1)	6.00	1.00	1.00	1.00		9.00
Winter (0)						Winter (0)						
Spring (2)	6.00				6.00	Spring (0)						
Summer (4)	47.50	1.80	5.30	4.30	58.80	Summer (2)	11.50				5.00	16.50
Annual	33.70	1.20	3.50	2.80	41.20	Annual	9.70	0.30	0.30	0.30	3.30	14.00

No/man-h												
Weekend						Weekday						
Season	Spotted seatrout	Red drum	Southern flounder	Sand seatrout	All ^a species combined	Season	Spotted seatrout	Red drum	Atlantic croaker	Sand seatrout	Other	All ^a species combined
Fall (0)						Fall (1)	0.75	0.13	0.13	0.13		1.13
Winter (0)						Winter (0)						
Spring (2)	0.30				0.30	Spring (0)						
Summer (4)	0.57	0.02	0.06	0.05	0.70	Summer (2)	0.47				0.21	0.68
Annual	0.54	0.02	0.06	0.05	0.66	Annual	0.51	0.02	0.02	0.02	0.18	0.74

Mean size (mm)												
Weekend						Weekday						
Season	Spotted seatrout	Red drum	Southern flounder	Sand seatrout		Season	Spotted seatrout	Red drum	Atlantic croaker	Sand seatrout	Other	
Fall (0)						Fall (1)	325	390	246	312		
Winter (0)						Winter (0)						
Spring (2)						Spring (0)						
Summer (4)	340	408	347			Summer (2)	337					
Annual	340	408	347			Annual	334	390	246	312		

^a Due to rounding of numbers these totals may not equal exactly individual species.

Table 9. Catch rates (no/boat trip and no/man-h) and mean size (mm) of fishes caught in lower Laguna Madre by weekday charterboat fishermen, by species and season (Sept. 1978-Aug. 1979). Blanks = no data; 0.00 = catches < 0.01. Number in parenthesis = no. of interviews.

Season	No/boat trip						All species ^a combined
	Spotted seatrout	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Whiting	
Fall (1)	49.00			1.00	1.00		51.00
Winter (0)							
Spring (9)	13.90	0.20	1.10		0.20	0.10	15.60
Summer (7)	16.10	0.30	0.10			0.10	16.70
Annual	16.90	0.20	0.60	0.10	0.20	0.10	18.10

Season	No/man-h						All species ^a combined
	Spotted seatrout	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Whiting	
Fall (1)	4.08			0.08	0.08		4.25
Winter (0)							
Spring (9)	1.29	0.02	0.10		0.02	0.01	1.44
Summer (7)	1.71	0.03	0.02			0.02	1.77
Annual	1.64	0.02	0.06	0.01	0.02	0.01	1.76

Season	Mean size (mm)					
	Spotted seatrout	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Whiting
Fall (1)	300	705		240	293	310
Winter (0)						
Spring (9)	228	310	260		275	310
Summer (7)	260	308	500			
Annual	263	529	282	240	284	310

^aDue to rounding of numbers these totals may not equal exactly individual species.

Table 10. Catch rates (no/boat trip and no/man-h) and mean size (mm) of fishes caught in lower Laguna Madre by weekend charterboat fishermen, by species and season (Sept. 1978-Aug. 1979). Blanks = no data; 0.00 = catches < 0.01. Number in parenthesis = no. of interviews.

Season	No/boat trip						All species ^a combined
	Spotted seatrout	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Whiting	
Fall (3)	10.30		0.30				10.70
Winter (0)							
Spring (2)	9.00				1.00		10.00
Summer (3)	18.00						18.00
Annual	12.90		0.10		0.30		13.30
Season	No/man-h						All species ^a combined
	Spotted seatrout	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Whiting	
Fall (3)	1.35		0.04				1.39
Winter (0)							
Spring (2)	0.86				0.10		0.95
Summer (3)	1.32						1.32
Annual	1.21		0.01		0.02		1.25
Season	Mean size (mm)						
	Spotted seatrout	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Whiting	
Fall (3)	351		300				
Winter (0)							
Spring (2)	350				293		
Summer (3)							
Annual	309		300		293		

^aDue to rounding of numbers these totals may not equal exactly individual species.

Table 11. Catch rates (no/boat trip and no/man-h) and mean size (mm) of fishes caught in the Gulf of Mexico off lower Laguna Madre by weekday fishermen on headboats, by species and season (Sept. 1978-Aug. 1979). Blanks = no data; 0.00 = catches < 0.01. Number in parenthesis = no. of interviews.

Season	No/boat trip					All ^a species combined
	Red snapper	Sheepshead	King mackerel	Shark	Other	
Fall (0)						
Winter (1)	69.00					69.00
Spring (0)						
Summer (1)	159.00	4.00	1.00	3.00	4.00	171.00
Annual	114.00	2.00	0.50	1.50	2.00	120.00

Season	No/man-h					All ^a species combined
	Red snapper	Sheepshead	King mackerel	Shark	Other	
Fall (0)						
Winter (1)	0.63					0.63
Spring (0)						
Summer (1)	2.52	0.06	0.02	0.05	0.06	2.71
Annual	1.32	0.02	0.01	0.02	0.02	1.39

Season	Mean size (mm)				
	Red snapper	Sheepshead	King mackerel	Shark	Other
Fall (0)					
Winter (1)	322				
Spring (0)					
Summer (1)	320	224	660	890	313
Annual	321	224	660	890	313

^aDue to rounding of numbers these totals may not equal exactly individual species.

Table 12. Catch rates (no/boat trip and no/man-h) and mean size (mm) of fishes caught in the Gulf of Mexico off Aransas-Corpus Christi bays by weekday fishermen on headboats, by species and season (Sept. 1978-Aug. 1979). Blanks = no data; 0.00 = catches <0.01. Number in parenthesis = no. of interviews.

		No/boat trip										
Season		Red snapper	Lane snapper	Vermillion snapper	King mackerel	Spanish mackerel	Grouper	Shark	Jackfish	Greater amberjack	Other	All ^a species combined
Fall	(4)	100.50	1.00	111.30	0.80			0.50		1.30	0.80	216.00
Winter	(1)	516.00		21.00			3.00				1.00	541.00
Spring	(4)	99.50		19.00	1.00	0.80	0.50	2.30	4.50		1.50	118.00
Summer	(3)				3.30			4.00	1.00			8.30
Annual		106.00	0.30	45.20	1.40	0.30	0.40	1.9	1.80	0.40	0.80	158.50
		No/man-h										
Season		Red snapper	Lane snapper	Vermillion snapper	King mackerel	Spanish mackerel	Grouper	Shark	Jackfish	Greater amberjack	Other	All ^a species combined
Fall	(4)	1.51	0.07	1.67	0.01			0.01		0.02	0.01	3.24
Winter	(1)	2.95		0.12			0.02				0.01	3.09
Spring	(4)	0.78		0.17	0.01	0.01	0.00	0.02	0.04		0.02	1.04
Summer	(3)				0.05			0.06	0.02			0.13
Annual		1.27	0.00	0.54	0.02	0.00	0.00	0.02	0.02	0.01	0.01	1.90
		Mean size (mm)										
Season		Red snapper	Lane snapper	Vermillion snapper	King mackerel	Spanish mackerel	Grouper	Shark	Jackfish	Greater amberjack	Other	
Fall	(4)	361	267	248	830			910		491		
Winter	(1)	349		280			530					
Spring	(4)	329		253	996	958	821	965	1000		250	
Summer	(3)				968			1084	1015			
Annual		339	267	251	945	958	646	1034	1001	491	250	

^aDue to rounding of numbers these totals may not equal exactly individual species.

Table 13. Catch rates (no/boat trip and no/man-h) and mean size (mm) of fishes caught in the Gulf of Mexico off Galveston Bay by weekday fishermen on headboats, by species and season (Sept. 1978-Aug. 1979). Blanks = no data; 0.00 = catches < 0.01. Number in parenthesis = no. of interviews.

Season	No/boat trip										All ^a species combined
	Red snapper	Lane snapper	Vermillion snapper	King mackerel	Spanish mackerel	Spadefish	Triggerfish	Grouper	Shark	Other	
Fall (3)	182.00	5.30	7.60	0.70	0.70	0.30	4.00		0.60	14.30	215.30
Winter (1)	312.00					2.00	1.00	5.00		2.10	323.00
Spring (4)	52.00			1.00	0.5		5.50			10.70	69.80
Summer (2)	181.50	17.50	3.00	3.50	0.50					17.50	223.50
Annual	142.90	5.10	2.90	1.30	0.50	0.30	3.50	0.50	0.10	12.40	169.50

Season	No/man-h										All ^a species combined
	Red snapper	Lane snapper	Vermillion snapper	King mackerel	Spanish mackerel	Spadefish	Triggerfish	Grouper	Shark	Other	
Fall (3)	1.48	0.04	0.06	0.01	0.01	0.00	0.03		0.00	0.12	1.75
Winter (1)	2.11					0.01	0.01	0.03		0.02	2.18
Spring (4)	0.47			0.01	0.01		0.05			0.08	0.64
Summer (2)	1.13	0.11	0.02	0.02	0.00					0.11	1.39
Annual	1.12	0.04	0.02	0.01	0.00	0.00	0.03	0.00	0.00	0.09	1.33

Season	Mean size (mm)									
	Red snapper	Lane snapper	Vermillion snapper	King mackerel	Spanish mackerel	Spadefish	Triggerfish	Grouper	Shark	Other
Fall (3)	252	298	246	961	606	202	344		978	427
Winter (1)	286		234			388	435	1092		628
Spring (4)	293			806	583		315			540
Summer (2)	310	267	241	1013	643					324
Annual	278	276	243	941	604	326	328	1092	978	490

^aDue to rounding of numbers these totals may not equal exactly individual species.

Table 14. Catch rates (no/boat trip and no/man-h) and mean size (mm) of fishes caught in the Gulf of Mexico off Aransas-Corpus Christi bays by weekend fishermen on headboats, by species and season (Sept. 1973-Aug. 1979). Blanks = no data; 0.00 = catches <0.01. Number in parenthesis = no. of interviews.

		No/boat trip										
Season		Red snapper	Lane snapper	Vermillion snapper	King mackerel	Spanish mackerel	Grouper	Shark	Jackfish	Greater amberjack	Other	All ^a species combined
Fall	(1)	0.00	0.00	0.00	0.00		0.00		0.00	0.00	0.00	0.00
Winter	(1)	537.00	2.00	82.00			2.00				7.00	630.00
Spring	(0)											
Summer	(2)	26.00	3.50	55.00	2.00		1.00		0.50	3.00	5.50	96.50
Annual		147.30	2.30	48.00	1.00		1.00		0.30	1.50	4.50	205.80
		No/man-h										
Season		Red snapper	Lane snapper	Vermillion snapper	King mackerel	Spanish mackerel	Grouper	Shark	Jackfish	Greater amberjack	Other	All ^a species combined
Fall	(1)	0.00	0.00	0.00	0.00		0.00		0.00	0.00	0.00	0.00
Winter	(1)	5.97	0.02	0.91			0.02				0.08	7.00
Spring	(0)											
Summer	(2)	0.21	0.03	0.45	0.02		0.01		0.00	0.02	0.05	0.79
Annual		1.62	0.02	0.53	0.01		0.01		0.00	0.02	0.05	2.26
		Mean size (mm)										
Season		Red snapper	Lane snapper	Vermillion snapper	King mackerel	Spanish mackerel	Grouper	Shark	Jackfish	Greater amberjack	Other	
Fall	(1)											
Winter	(1)	346	382	247			606					
Spring	(0)											
Summer	(2)	397	292	247	1060		713		1018	814		
Annual		363	312	247	1060		660		1018	814		

^aDue to rounding of numbers these totals may not equal exactly individual species.

Table 15. Catch rates (no/boat trip and no/man-h) and mean size (mm) of fishes caught in the Gulf of Mexico off Galveston Bay by weekend fishermen on headboats, by species and season (Sept. 1978-Aug. 1979). Blanks = no data; 0.00 = catches < 0.01. Number in parenthesis = no. of interviews.

Season	No/boat trip										All ^a species combined
	Red snapper	Lane snapper	Vermillion snapper	King mackerel	Spanish mackerel	Spadefish	Triggerfish	Grouper	Shark	Other	
Fall (1)	171.00	13.00	28.00				1.00			7.00	220.00
Winter (1)	418.00					8.00	2.00			10.00	438.00
Spring (2)	471.50	9.00	7.00				6.00	1.00	1.50	21.00	517.00
Summer (4)	129.80	7.20	7.80	2.50	0.80	18.00	1.80	0.20	3.20	10.80	182.20
Annual	256.40	7.50	9.10	1.00	0.40	10.00	2.80	0.40	1.90	12.70	302.60

Season	No/man-h										All ^a species combined
	Red snapper	Lane snapper	Vermillion snapper	King mackerel	Spanish mackerel	Spadefish	Triggerfish	Grouper	Shark	Other	
Fall (1)	1.12	0.08	0.18				0.01			0.05	1.45
Winter (1)	2.61					0.05	0.01			0.06	2.74
Spring (2)	1.40	0.03	0.02				0.02	0.00	0.00	0.06	1.54
Summer (4)	0.64	0.04	0.04	0.01	0.00	0.09	0.01	0.00	0.02	0.06	0.90
Annual	1.15	0.03	0.04	0.01	0.00	0.04	0.01	0.00	0.01	0.05	1.35

Season	Mean size (mm)									
	Red snapper	Lane snapper	Vermillion snapper	King mackerel	Spanish mackerel	Spadefish	Triggerfish	Grouper	Shark	Other
Fall (1)	303	350	230				535			
Winter (1)	301					299	360			
Spring (2)	304	268	256				324	1015	875	
Summer (4)	297	279	225	1075	647	236	376	925	950	
Annual	300	291	231	1075	647	242	360	985	938	

^aDue to rounding of numbers these totals may not equal exactly individual species.

Table 16. Catch rates (no/boat trip and no/man-h) and mean size (mm) of fishes caught in the Gulf of Mexico off Galveston Bay by weekend and weekday charterboat fishermen, by species and season (Sept. 1978-Aug. 1979). Blanks = no data; 0.00 = catches < 0.01. Number in parenthesis = no. of interviews.

No/boat trip													
Weekend						Weekday							
Season	Red snapper	King mackerel	Spanish mackerel	Cobia	Other	All ^a species combined	Season	Red snapper	King mackerel	Spanish mackerel	Cobia	Other	All ^a species combined
Fall (1)	14.00	1.00				2.00	Fall (0)						
Winter (0)							Winter (0)						
Spring (0)							Spring (0)						
Summer (2)		21.00	26.50	0.50		48.00	Summer (3)	7.00	16.30	3.00		4.00	30.30
Annual	4.700	14.30	17.70	0.30	0.70	37.70	Annual	7.00	16.30	3.00		4.00	30.30
No/man-h													
Weekend						Weekday							
Season	Red snapper	King mackerel	Spanish mackerel	Cobia	Other	All ^a species combined	Season	Red snapper	King mackerel	Spanish mackerel	Cobia	Other	All ^a species combined
Fall (1)	0.58	0.04				0.08	Fall (0)						
Winter (0)							Winter (0)						
Spring (0)							Spring (0)						
Summer (2)		0.48	0.61	0.01		1.10	Summer (3)	0.25	0.58	0.11		0.14	1.08
Annual	0.13	0.39	0.48	0.01	0.02	1.02	Annual	0.25	0.58	0.11		0.14	1.08
Mean size (mm)													
Weekend						Weekday							
Season	Red snapper	King mackerel	Spanish mackerel	Cobia	Other	Season	Red snapper	King mackerel	Spanish mackerel	Cobia	Other		
Fall (1)						Fall (0)							
Winter (0)						Winter (0)							
Spring (0)						Spring (0)							
Summer (2)		856	494	1410		Summer (3)	290	838	581		457		
Annual		855	494	1410		Annual	290	838	581		457		

^a Due to rounding of numbers these totals may not equal exactly individual species.

Table 17. Catch rates (no/boat trip and no/man-h) and mean size (mm) of fishes caught in the Gulf of Mexico off the Aransas-Corpus Christi area by weekend and weekday charterboat fishermen, by species and season (Sept. 1978-Aug. 1979). Blanks = no data; 0.00 = catches < 0.01. Number in parenthesis = no. of interviews.

No/boat trip													
Weekend							Weekday						
Season	Red snapper	King mackerel	Spanish mackerel	Sheepshead	Other	All ^a species combined	Season	King mackerel	Spanish mackerel	Cobia	Shark	Other	All ^a species combined
Fall (9)	0.40	2.60	3.30		1.30	7.70	Fall (1)		10.00			1.00	11.00
Winter (0)							Winter (0)						
Spring (2)				39.00	2.50	41.50	Spring (5)	0.40	12.20	0.60	0.40	1.40	15.00
Summer (1)		8.00				8.00	Summer (10)	5.60		0.30	0.80	2.90	9.60
Annual	0.30	2.60	2.50	6.50	1.40	13.30	Annual	3.60	4.40	0.40	0.60	2.30	11.40

No/man-h													
Weekend							Weekday						
Season	Red snapper	King mackerel	Spanish mackerel	Sheepshead	Other	All ^a species combined	Season	King mackerel	Spanish mackerel	Cobia	Shark	Other	All ^a species combined
Fall (9)	0.02	0.11	0.14		0.06	0.32	Fall (1)		0.56			0.06	0.61
Winter (0)							Winter (0)						
Spring (2)				2.60	0.07	2.77	Spring (5)	0.02	0.61	0.03	0.02	0.07	0.75
Summer (1)		0.32				0.32	Summer (10)	0.30		0.02	0.04	0.16	0.52
Annual	0.01	0.12	0.11	0.29	0.06	0.59	Annual	0.19	0.23	0.02	0.03	0.12	0.60

Mean size (mm)													
Weekend							Weekday						
Season	Red snapper	King mackerel	Spanish mackerel	Sheepshead	Other		Season	King mackerel	Spanish mackerel	Cobia	Shark	Other	
Fall (9)	254	896	443		494		Fall (1)						
Winter (0)							Winter (0)						
Spring (2)				326	985		Spring (5)	935	429	1335	1096	979	
Summer (1)							Summer (10)	893		1182	1112	548	
Annual	254	896	443	326	635		Annual	894	429	1274	1109	632	

^a Due to rounding of numbers these totals may not equal exactly individual species.

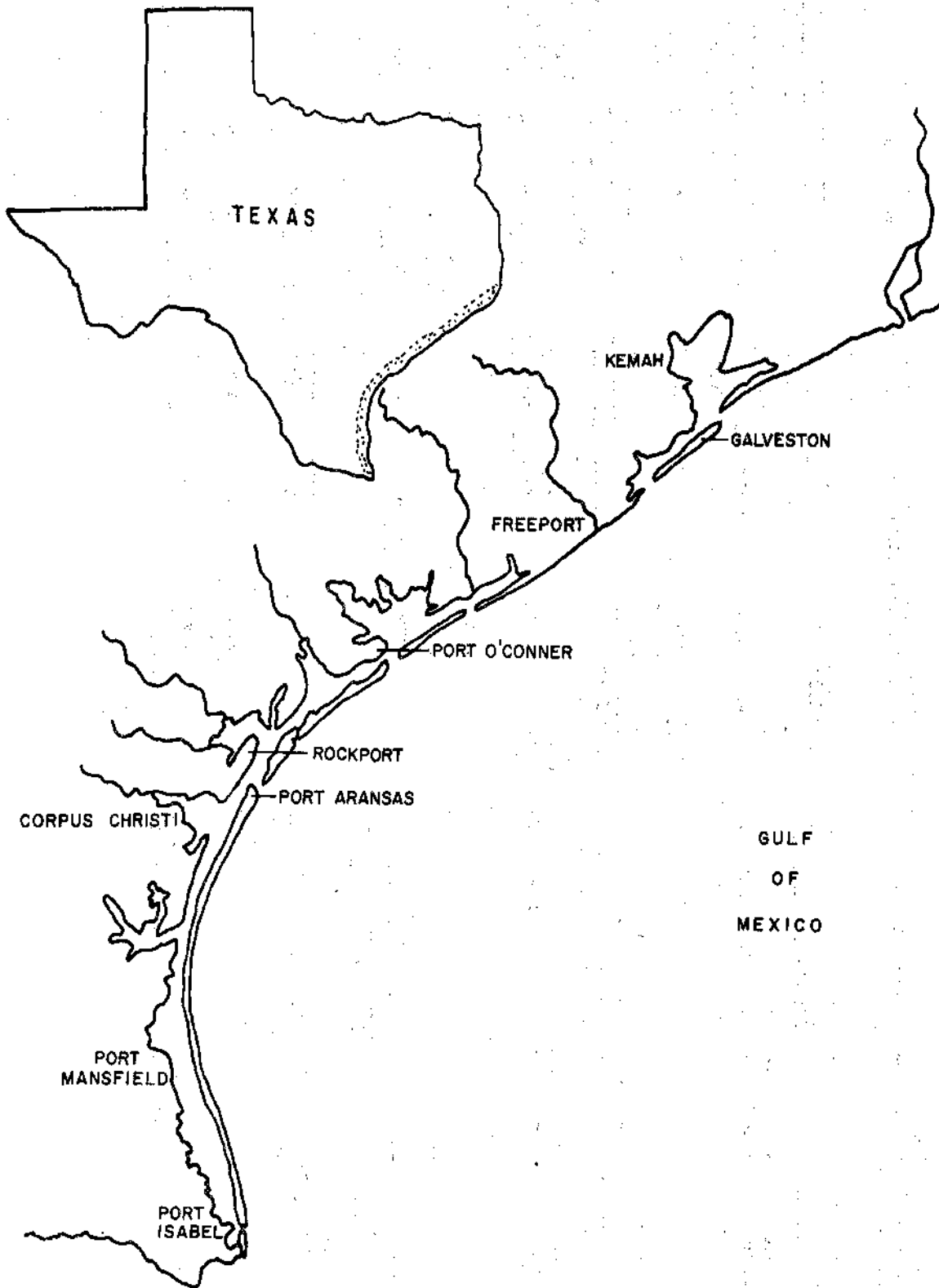


Figure 1. Map of Texas coast with main centers of headboat and charterboat activity (Sept. 1978-Aug. 1979).

Appendix A. Area maps of headboat access points.

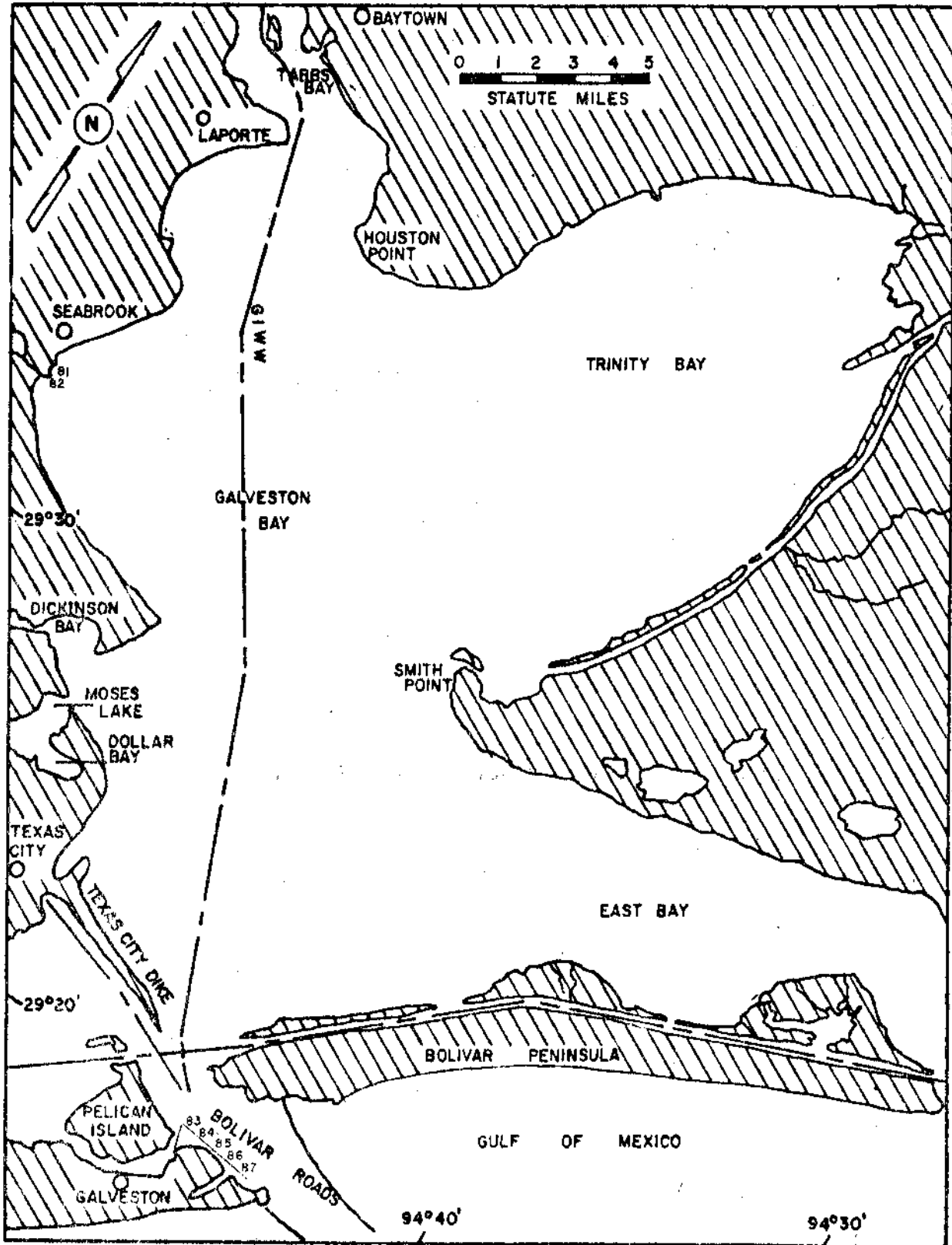


Figure 1. Headboat access points in the Galveston Bay system.
(Sept. 1978-Aug. 1979).

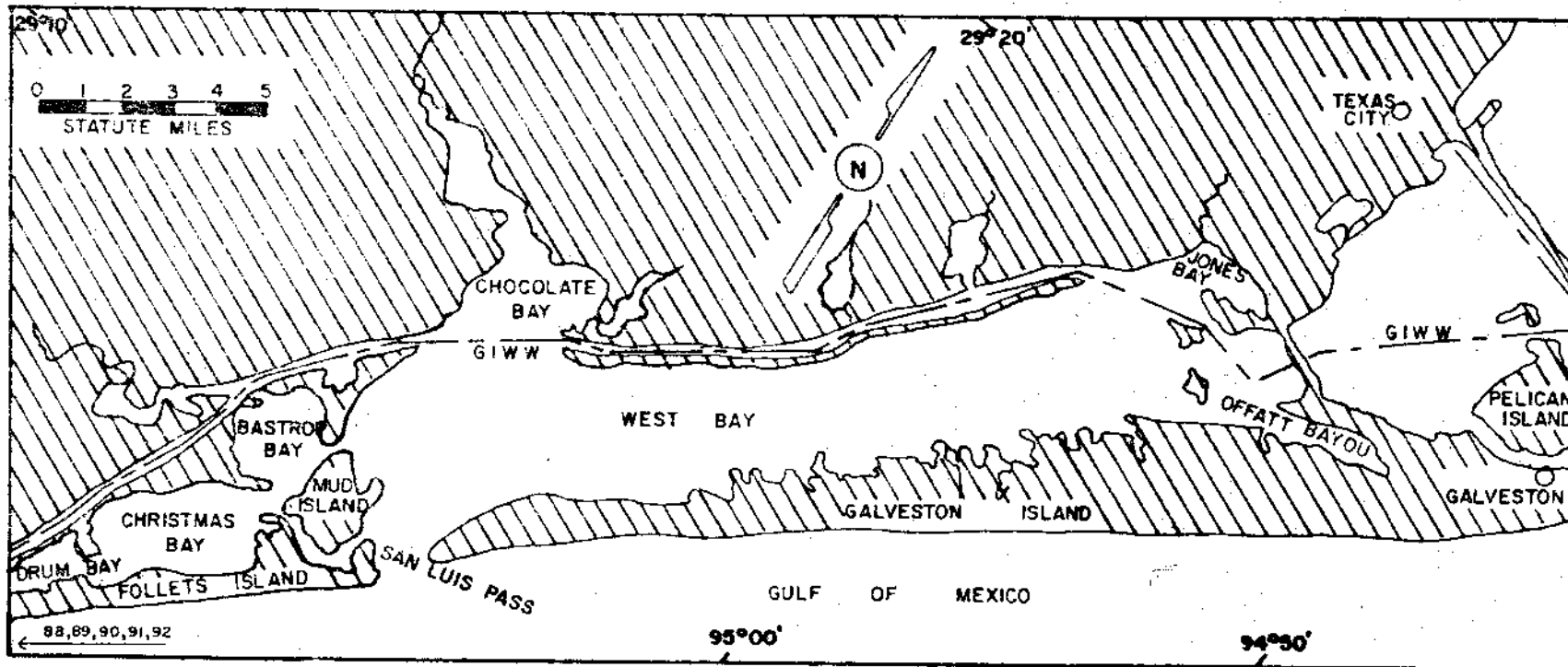


Figure 2. Headboat access points in the Galveston Bay system (Sept. 1978-Aug. 1979).

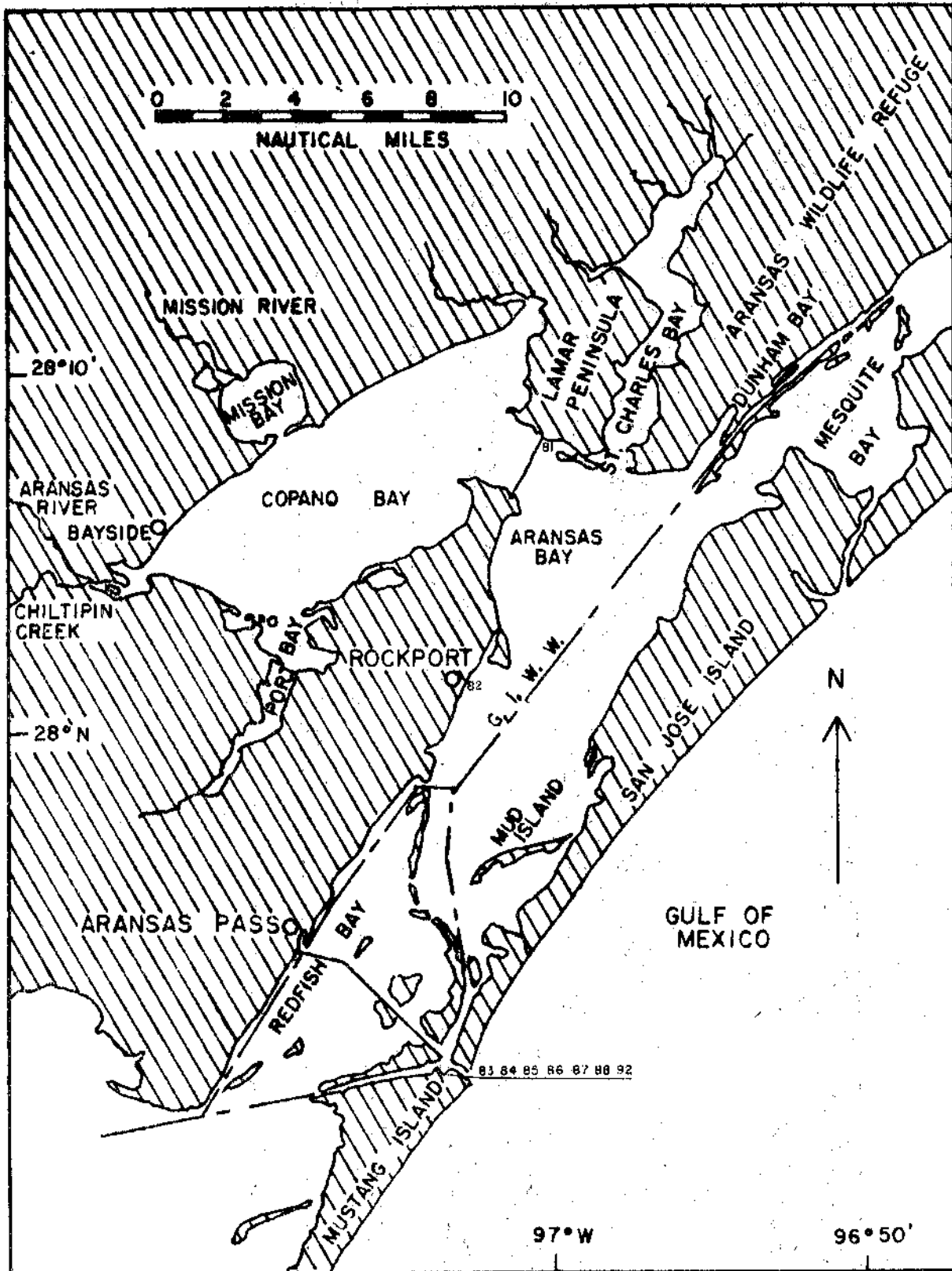


Figure 3. Headboat access points in the Aransas-Corpus Christi Bay systems (Sept. 1978-Aug. 1979).

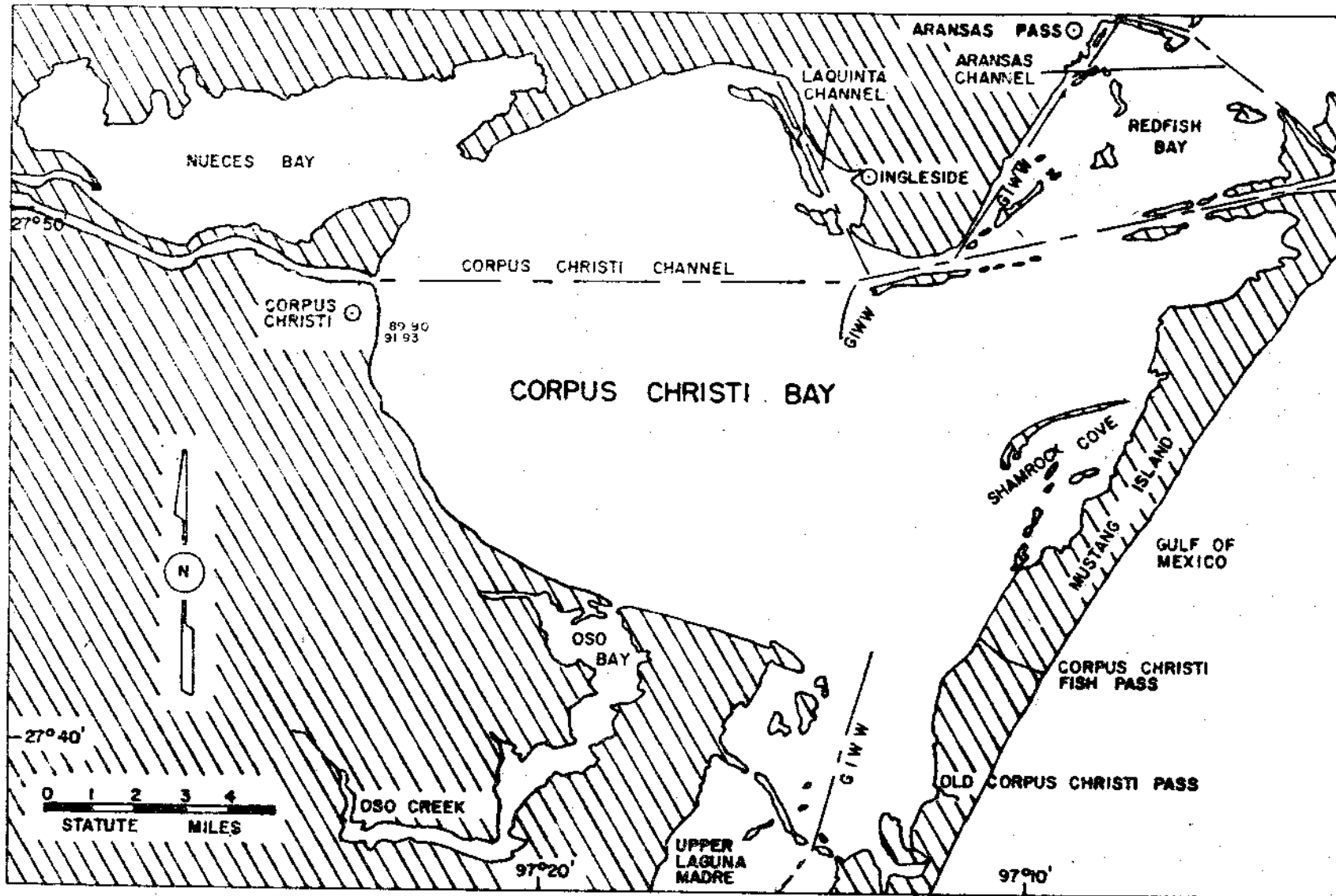


Figure 4. Headboat access points in the Aransas-Corpus Christi Bay systems (Sept. 1978-Aug. 1979).

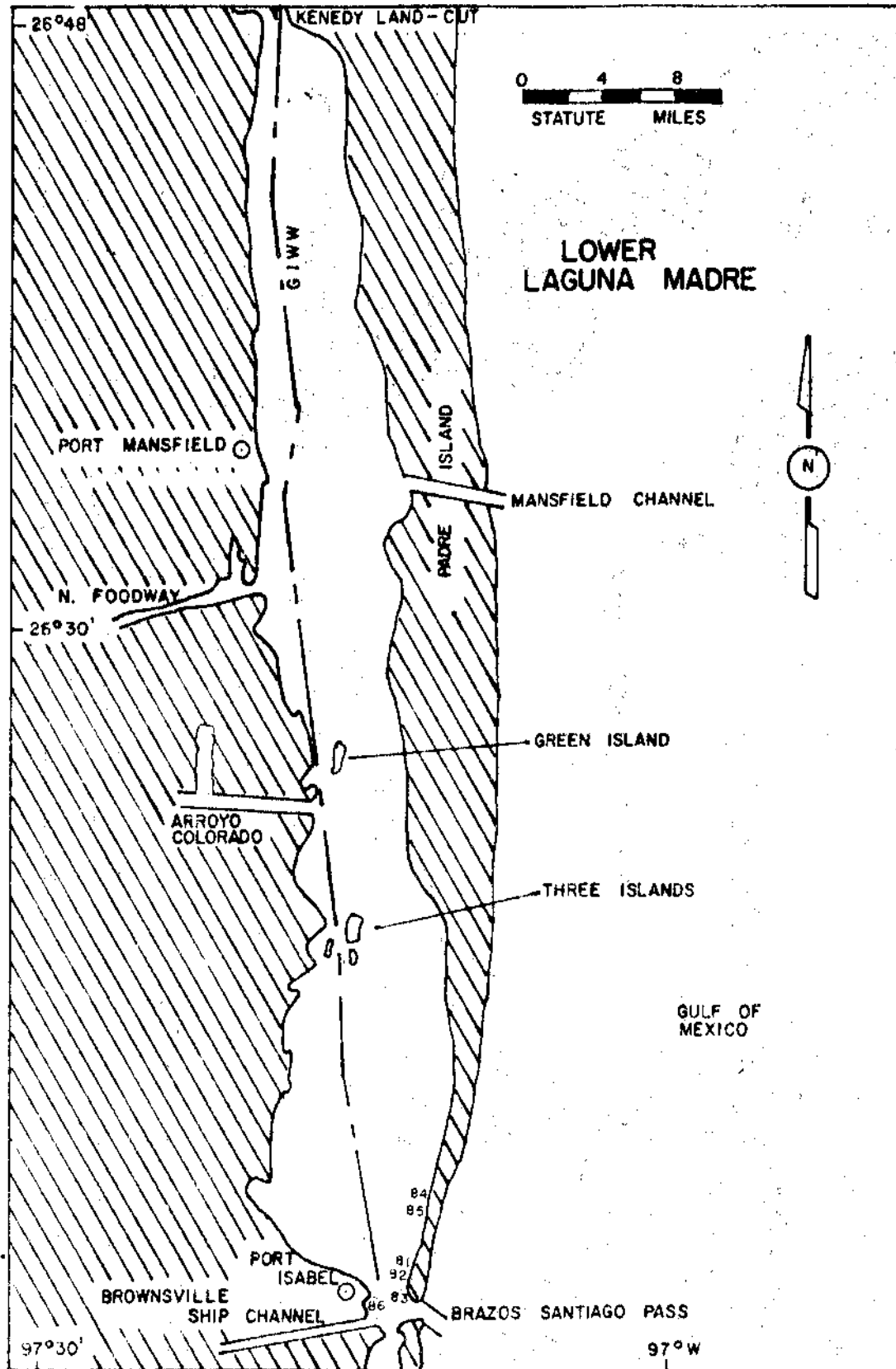


Figure 5. Headboat access points in the lower Laguna Madre system (Sept. 1978-Aug. 1979).

Appendix B. Identification of headboats and charterboats.

Table 1. Headboat identification and access points in each bay system (Sept. 1978-Aug. 1979).

Bay system	Headboat code number	Headboat Identification	Size (m)	Capacity (no. people)
Galveston ^a	81	Kemah Clipper (Kemah)	18.6	49
	82	Texas Queen (Seabrook)	19.8	49
	83	Dixie Queen (Galveston)	19.8	100
	84	New Buccaneer (Galveston)	25.9	100
	85	Old Buccaneer (Galveston)	25.9	90
	86	Jean Lafitte (Galveston)	22.9	87
	87	Williams Party Boat (Galveston)	21.3	69
	88	Capt. Elliots (Freeport) ^a	16.8	25
	89	Capt. Elliotts (Freeport) ^a	16.8	30
	90	Capt. Elliots (Freeport) ^a	18.3	45
	91	Capt. Elliots (Freeport) ^a	19.8	49
	92	Capt. Elliots (Freeport) ^a	19.8	60
Aransas ^b	81	Whooping Crane (Sea Gun)	22.9	150
	82	Mary Lou (Rockport)	16.5	30
	83	Wharf Cat (Port Aransas)	24.4	20
	84	Pelican (Port Aransas)	19.5	
	85	Marlin Queen I (Port Aransas)	19.8	25
	86	Marlin Queen II (Port Aransas)	29.0	150
	87	Dolphin (Port Aransas)	19.8	25
	88	Shark Hunter (Port Aransas)	12.8	
	89	Capt. Clark (Corpus Christi) ^b	19.8	90
	90	Sally D. (Corpus Christi) ^b	12.8	39
	91	Star Trek (Corpus Christi) ^b	18.3	85
	92	Scat Cat (Port Aransas)	24.4	110
	93	Buccaneer (Corpus Christi) ^b	18.3	85
Lower Laguna Madre	81	Laguna Queen (Sea Ranch Marina)	19.8	45
	82	Thunderbird (Sea Ranch Marina)	19.8	26
	83	Albatross (Sea Ranch Marina)	18.0	23
	84	Donny B. (Jim's Pier)	11.9	20
	85	Jan (Jim's Pier)	11.9	15
	86	Miss Hospitality (Lighthouse)	18.3	22

^a Includes headboats from Freeport

^b Includes headboats from Corpus Christi

Table 2. Charterboat identification and access points in each bay system (Sept. 1978-Aug. 1979).

Bay system	Charterboat code number	Charterboat ^a Identification (Location)	Major Fishing area
Galveston	1	Blue Water Enterprise (Galveston)	Gulf
	2	Capt. Elliotts Party Boats (Freeport) (5 boats)	Gulf
	3	Krumnow Charter	Gulf
	4	Jimmy Goddard (Houston)	Bay
	5	Lillymae Pepper	Bay
	6	Herbert Smith	Bay
	7	Forrest West (Dayton)	Bay
	8	Robert Perry (Seabrook)	Gulf
	9	E. M. Biggs (Freeport)	Gulf
	10	Marshall Deal (Houston)	Bay
	11	Harold Hallmark (Galveston)	Gulf
	12	Ken Huber	Gulf
	13	Skip Leggee (Galveston)	Gulf
	14	Gerald Needham	Gulf
	15	John Oliveras III	Gulf
	16	Larry Simmons	Bay & Gulf
	Aransas-Corpus Christi	17	Duke Wellington (M&M Camp)
1		J. B. Greeson (Sea Gun Marina)	Bay
2		L. A. Hagey (Sea Gun Marina)	Bay
3		Charlie Hale (Sea Gun Marina)	Bay
4		W. D. Heldenfels (Sea Gun Marina)	Bay
5		Robert Johnson (Sea Gun Marina)	Bay
7		Roy Latham (Sea Gun Marina)	Bay
11		Larry Washington (Sea Gun Marina)	Bay
60		Capt. Sherman (Sea Gun Marina)	Bay
12		J. C. Arilla, Jr. (Pt. Aransas, Rockport)	Bay & Gulf
13		W. C. Bardwell (Fulton)	Bay
14		Jim C. Barkdale (St. Charles Marina)	Bay
8		Virgil Barkdale (St. Charles Marina)	Bay
9		Jake Campbell (St. Charles Marina)	Bay
10		Roger Sherman (St. Charles Marina)	Bay
16		Hubert Johnson (Rockport)	Bay & Gulf
17		Wayne Lindsey (Key Allegro)	Bay & Gulf
18		Eddie Pena (Key Allegro)	Bay & Gulf
21		James Fox (Key Allegro)	Bay & Gulf
19	Evert Lytle (Key Allegro)	Bay & Gulf	

Table 2 . (Cont'd).

Bay system	Charterboat code number	Charterboat ^a Identification (Location)	Major Fishing area
Aransas- Corpus Christi	40	Gary Stryker (Rockport)	Bay
	53	B & S Charter (Rockport)	Bay
	63	Allan Dubose (Fulton)	Bay
	64	Jimjo Charter Service (Rockport)	Bay
	15	Ed Frazer (Fisherman's Wharf)	Gulf
	20	A. A. Swanson (Fisherman's Wharf)	Gulf
	54	Ray Hartley (Fisherman's Wharf)	Gulf
	55	Jerry Fisher (Fisherman's Wharf)	Gulf
	56	Ed Singleton (Fisherman's Wharf)	Bay
	57	Bill Cofield (Fisherman's Wharf)	Gulf
	58	Virgil Alexander (Fisherman's Wharf)	Gulf
	59	Sonny Gustafson (Fisherman's Wharf)	Gulf
	62	Shark Fisher (Fisherman's Wharf)	Gulf
	22	<u>Diablo</u> (Sports Center)	Gulf
	23	<u>Sand Dollar</u> (Sports Center)	Gulf
	24	<u>Hustler III</u> (Sports Center)	Gulf
	25	<u>Hustler V</u> (Sports Center)	Gulf
	26	<u>Hustler I</u> (Sports Center)	Gulf
	65	<u>Hustler IV</u> (Sports Center)	Gulf
	66	<u>Hustler VI</u> (Sports Center)	Gulf
	67	<u>Hustler VII</u> (Sports Center)	Gulf
	27	<u>Gulfwind</u> (Sports Center)	Gulf
	28	<u>Hankie</u> (Sports Center)	Gulf
	29	<u>Hot Tamale</u> (Sports Center)	Gulf
	30	<u>LaIsla</u> (Sports Center)	Gulf
	31	<u>Pasado Manana</u> (Sports Center)	Gulf
	32	<u>Peggy Sue</u> (Sports Center)	Gulf
	33	<u>Manana</u> (Sports Center)	Gulf
	35	<u>Touche</u> (Sports Center)	Gulf
	61	<u>Sail Fisher</u> (Sports Center)	Gulf
	34	Wayne Kirby (Marker I)	Gulf
	36	<u>Royal Flush</u> (Marker I)	Gulf
	37	Paisano (Marker I)	Gulf
	38	Duncan Neblett (Marker I)	Gulf
	39	Sea Robbin (Marker I)	Gulf
	41	Lucky Penny (Marker I)	Gulf
	42	Connie Lynn (Marker I)	Gulf
	43	Tom Sealy (marker I)	Gulf
	45	Bill Easum (Marker I)	Gulf
	68	<u>The Sting</u> (Marker I)	Gulf
	69	Ed Hall (Marker I)	Gulf
	70	<u>Charlie Boy</u> (Marker I)	Gulf
71	Deep Blue (Marker I)	Gulf	
72	Dolphin (Marker I)	Gulf	

Table 2 . (Cont'd).

Bay system	Charterboat ^b code number	Charterboat ^a Identification (Location)	Major Fishing area	
Aransas- Corpus Christi	73	<u>Randal</u> (Marker I)	Gulf	
	74	<u>Frenchie</u> (Marker I)	Gulf	
	46	<u>Milady</u> (Deep Sea Headquarters)	Gulf	
	47	<u>Terry Gayle</u> (Deep Sea Headquarters)	Gulf	
	48	<u>Pasa</u> (Deep Sea Headquarters)	Gulf	
	52	Bobby Roberts (Deep Sea Headquarters)	Gulf	
	44	Bob Kelly (Dolphin Dock)	Gulf	
	75	Gary Einhauf (Dolphin Dock)	Gulf	
	76	Hoot Bevers (Dolphin Dock)	Gulf	
	77	George Naglich (Dolphin Dock)	Gulf	
	78	Paul Dirk (Dolphin Dock)	Gulf	
	79	Jim Gates (Port Aransas)	Bay & Gulf	
	80	Frank Lazenby (Port Aransas)	Bay & Gulf	
	100	Earl Rasbeary (Port Aransas)	Bay & Gulf	
	49	<u>Min Edna</u> (T-Head)	Gulf	
	50	<u>Carla Ann</u> (T-Head)	Bay & Gulf	
	51	<u>Sea Serpent</u> (T-Head)	Bay & Gulf	
	Lower Laguna Madre	1	<u>Tarpon</u> (Sea Ranch Marina)	Gulf
		2	<u>TX 1854 XS</u> (Sea Ranch Marina)	Gulf
		3	<u>Silver Queen</u> (Sea Ranch Marina)	Gulf
		4	<u>Silver King</u> (Sea Ranch Marina)	Gulf
		5	<u>Silver King II</u> (Sea Ranch Marina)	Gulf
		6	<u>Misty</u> (Sea Ranch Marina)	Gulf
7		<u>Como No</u> (Sea Ranch Marina)	Gulf	
8		<u>TX 9463 XH</u> (Sea Ranch Marina)	Gulf	
9		<u>El Dorado</u> (Sea Ranch Marina)	Gulf	
10		<u>TX 2442 XS</u> (Sea Ranch Marina)	Gulf	
11		<u>TX 2956 XX</u> (Capt. Wiley's Marina)	Bay	
12		<u>TX 2736 XS</u> (Capt. Wiley's Marina)	Bay	
13		<u>TX 6784 WK</u> (Port Mansfield)	Gulf	
14		<u>TX 1779 XP</u> (Port Mansfield)	Gulf	
15		<u>TX 7823 BK</u> (Port Mansfield)	Gulf	
16		<u>TX 1727 XB</u> (Port Mansfield)	Gulf	
17		<u>TX 9283</u> (Port Mansfield)	Gulf	
18		<u>Sweet Baby</u> (Port Mansfield)	Bay	
19		<u>Baby Doll</u> (Port Mansfield)	Bay	
20		<u>Smokey's Lady</u> (Port Mansfield)	Gulf	
21		(Port Mansfield) ^b	Bay	
22		<u>Debra Jean</u> (South Padre Marina)	Gulf	
23		<u>TX 2933 XS</u> (South Padre Marina)	Bay	

Table 2. (Cont'd).

Bay system	Charterboat code number	Charterboat ^a Identification (Location)	Major Fishing area
Lower Laguna Madre	24	<u>No Mar</u> (South Padre Marina)	Gulf
	25	<u>TX 2738 XS</u> (South Padre Marina)	Bay
	26	<u>Dorothy H.</u> (Port Isabel)	Gulf
	27	<u>Harbor Light</u> (Port Isabel)	Gulf
	28	<u>Gulf Breeze</u> (Port Isabel)	Gulf
	29	<u>TX 2661 XS</u> (White Sands)	Bay
	30	<u>TX 3876 XX</u> (White Sands)	Bay
	31	<u>El Pescador</u> (White Sands)	Gulf
	32	<u>TX 1905 XS</u> (White Sands)	Bay
	33	<u>Squarehead</u> (Pt. Mansfield)	Bay
	34	<u>TX3554XS</u> (Capt. Wileys)	Bay
	35	<u>TX5925XS</u> (White Sands)	Bay
	36	<u>TX2720XS</u> (Capt. Wileys)	Bay
	37	<u>TX1382XS</u> (Capt. Adams)	Bay
	38	<u>TX2637XS</u> (Capt. Wileys)	Bay
	39	<u>TX6157CM</u> (Jerry Adams)	Bay

^a All boat names are underlined.

^b No name or TX number available.

