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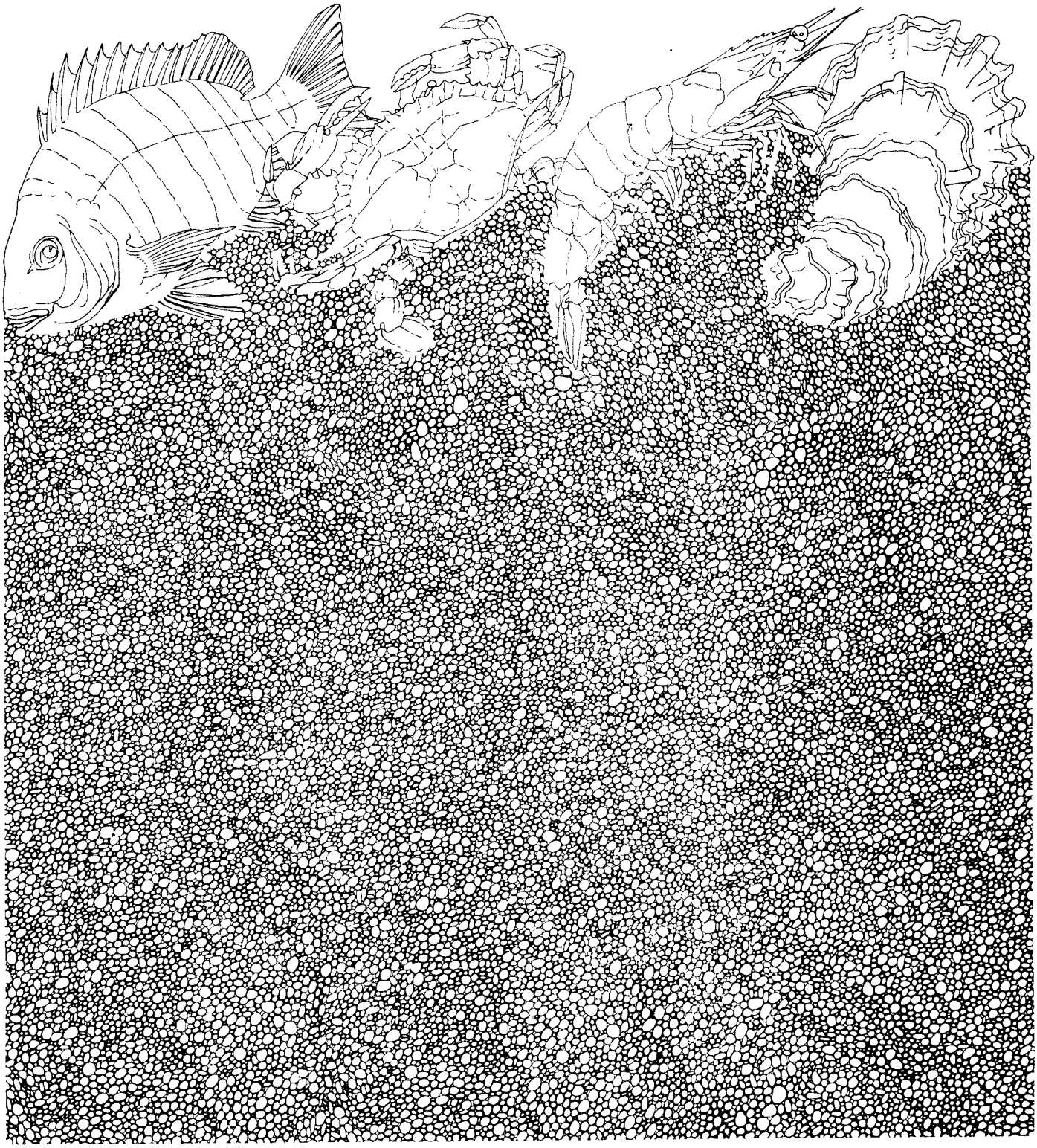

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Coastal Fisheries Branch
4200 Smith School Road
Austin, Texas 78744

EXECUTIVE SUMMARY

The Texas Parks and Wildlife Department's Coastal Fisheries Branch has been monitoring recreational fishing in Texas saltwater bays since May 1974. Monitoring has been accomplished by intercepting fishermen on weekends at boat ramps and interviewing them as they completed fishing trips in all bay systems except in Sabine Lake. Over 56,000 weekend sport-boat fishermen have been interviewed in the 1,810 weekend surveys conducted during this 9-year period. In addition, over 156,000 fishes landed by these sport fishermen were measured.

Weekend sport-boat fishing pressure (in man-trip-hours/year) declined during the first 3 years of this study. In 1974-75 and 1975-76 there was an estimated 3.2 million man-trip-hours spent by weekend sport-boat fishermen. The lowest estimate occurred in 1976-77 with 2.0 million man-trip-hours. Since 1977-78 the annual estimates have ranged from 2.1 to 2.5 million man-trip-hours.

The Galveston Bay system had the highest mean annual fishing pressure with 943,000 man-trip-hours. The San Antonio Bay system had the least mean annual fishing pressure (154,000 man-trip-hours). All the other bay systems had mean annual fishing pressures between 163,000 and 357,000 man-trip-hours. Fishing intensity was greatest in the Galveston Bay system (2.7 man-trip-hours/acre/year) and was least in the Matagorda and San Antonio Bay systems (1.1 man-trip-hours/acre/year).

There was a downward trend in the estimated weekend sport harvest during this 9-year period. In 1974-75 and 1975-76 the estimated annual weekend harvest was 2.6 million fishes. In 1982-83 it was a little greater than 1.0 million fishes. Although these data have not been subjected to rigorous statistical analyses to evaluate the true significance of this trend, it should be noted that no succeeding estimate has been greater than a previous estimate except for 1982-83. Furthermore this downward trend cannot be accounted for solely by a decline in fishing pressure after the first 3 years, a declining catch rate has also contributed to the decline in the harvest.

During the 9 year study the Galveston Bay system accounted for 49% of the annual harvest. The amount of the annual harvest coming from any other bay system ranged from 6% to 12% each.

Weekend sport-boat fishermen harvested more spotted seatrout (by number and weight) than any other species. The species composition (percent by numbers) in the sport harvest was 39% spotted seatrout, 19% Atlantic croaker, 18% sand seatrout, 5% red drum, and 19% "other" species.

The fish with the greatest mean weight harvested by weekend sport-boat fishermen was black drum (3.3 lb). Gafftopsail catfish and red drum had mean weights of 2.7 lb and 2.2 lb, respectively. The mean weights for sheepshead, southern flounder, and spotted seatrout were 1.6 lb, 1.4 lb and 1.1 lb, respectively. The smallest of the economically important fishes were sand seatrout (0.7 lb) and Atlantic croaker (0.5 lb).

ACKNOWLEDGEMENTS

We would like to thank each member of the Sport Creel Program who so conscientiously collected all scheduled samples. A special thank you is due each of the team leaders--G. Cordova, M. Weixelman, P. Campbell, K. Spiller and J. Breuer--without whose assistance the program would not have been completed successfully. Bill Mercer drew the maps and Maury Ferguson assisted in the writing of computer programs used to summarize the data and provided assistance in data retrieval. Thanks go to Tom Heffernan, Roy Johnson, Ed Hegen and Gary Saul for editing the manuscript and to the Information Processing Center for typing it.

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ABSTRACT

Creel surveys conducted in Texas bays since fall 1974 have shown a decline in annual landings by weekend sport boat fishermen. The estimated annual landings during 1974-76 for seven bay systems were 2.6 million fishes (1.2 million kg). During 1982-83 annual landings for these same seven bay systems were 1.1 million fishes (0.6 million kg). This decline in landings was accompanied by a decline in the mean annual catch rates and possibly in fishing pressure. The mean annual catch rate fell from an estimated 0.98 fish/man-h during 1974-75 to an estimated 0.49 fish/man-h during 1982-83. Pressure fell from 3.2 million fishing trip man-h during 1974-76 to 2.3 million fishing trip man-h during 1982-83. The Galveston Bay system had the highest fishing pressure with a mean of 0.94 million fishing trip man-h/year and the San Antonio Bay system had the lowest fishing pressure with a mean of 0.15 million fishing trip man-h/year. Spotted seatrout (Cynoscion nebulosus) was the fish most frequently landed (39%) in each year, and with the exception of several species grouped in the "other fishes" category, gafftopsail catfish (Bagre marinus) was landed the least ($\sim$ 2%). Red drum (Sciaenops ocellatus) and black drum (Pogonias cromis) accounted for $\sim$5% and $\sim$4% of the total annual landings, respectively.

INTRODUCTION

The Texas Parks and Wildlife Department (TPWD) has conducted surveys of the weekend sport-boat fishermen in the bays of Texas since 1974 (Heffernan et al. 1976, Breuer et al. 1977, Green et al. 1978, McEachron 1980a, McEachron 1980b, McEachron and Green 1981, McEachron and Green 1982, McEachron and Green 1983). These surveys were jointly funded by the TPWD and the National Oceanic and Atmospheric Administration under the "Commercial Fisheries Research and Development Act" (P.L. 88-309) and the U.S. Department of Interior, Fish and Wildlife Service under DJ 15.605. These on-going surveys were designed to monitor the harvest, catch rates, mean size and composition of economically important species on a yearly basis in Galveston, Matagorda, San Antonio, Aransas, and Corpus Christi Bays and in upper and lower Laguna Madre.

The objectives of the surveys were to:

1. determine the total daylight harvest, catch per unit effort and size of economically important finfishes by species and method of capture of weekend sport-boat fishermen in Galveston, Matagorda, San Antonio, Aransas and Corpus Christi Bays and in upper and lower Laguna Madre;

2. determine the species, size and catch per unit effort of commercially important finfishes caught in Gulf waters by sport-boat fishermen; and,

3. publish the results in report form which will assist resource managers in effectively regulating the harvest of commercially important finfishes.

MATERIALS AND METHODS

From May 1974 through May 1982 inventoried boat ramps were surveyed in Galveston, Matagorda (including East Matagorda), San Antonio, Aransas, and Corpus Christi Bays and in upper and lower Laguna Madre (Appendices A and B). Area descriptions for each bay (Matlock and Weaver 1979) are presented in Appendix C.

Each project year was divided into a high use season (15 May-20 November) and a low use season (21 November-14 May) based on fishing pressure, harvest and catch rate analyses of sport boat fishermen completing a fishing trip (McEachron 1979; McEachron et al. 1984). Interviews and roving counts of boat trailers were made on randomly selected weekend days during each season in each bay system. Roving counts and interviews were not necessarily conducted on the same day.

The creel survey sampling design for weekend sport boat fishermen was described in Heffernan et al. (1976) and was modified by Green et al. (1978). A roving clerk traveled through each bay system at a constant rate on randomly selected weekend days and counted boat trailers. Fishing pressure estimates were obtained by adjusting trailer counts with data

collected from interviewed fishermen. Department personnel were stationed at randomly selected boat ramps on randomly selected weekend days to collect catch data by interviewing fishing parties that had completed a trip.

Interviewers recorded species (Hoese and Moore 1977, Robins et al. 1980), number and weight (kg) of all fish brought to the dock by fishing parties as well as number of persons in the party, fishing location, gear used and trip length. Fish were measured (total length) to the nearest mm.

Interview sites were selected at random in proportion to mean boat trailer counts obtained during the previous 3 years. (TPWD unpublished data). This resulted in boat ramps with high mean trailer counts being visited more often than boat ramps with low mean trailer counts. Interviews were conducted from 1000 to 1800 as a result of an evaluation of data obtained during the first 2-year study (Heffernan et al. 1976, Breuer et al. 1977) which indicated that sampling during these time periods would increase the amount of data collected per unit of sampling effort (McEachron et al. 1984).

All fishermen fishing inside (bayward) of the surfline were considered to be bay fishermen. Gulf of Mexico fishermen were divided into three categories--pass and jetty fishermen, Texas territorial water fishermen, and Federal Conservation Zone (FCZ) fishermen. Pass and jetty fishermen fished outside (Gulfward) of the surfline but within 1.6 km of an "open" pass (bay and Gulf connected by water) or jettied area. Texas territorial water fishermen fished in the Gulf from the surfline to 16.7 km offshore excluding the 1.6 km area around an "open" pass or jettied area. FCZ fishermen fished in the Gulf beyond 16.7 km offshore.

In previous surveys conducted by TPWD, the sport fish harvest was estimated as the product of the mean catch rate and the fishing pressure in man-hours (Heffernan et al. 1976). Since interview sites were selected at random in proportion to total fishing pressure, this technique was dependent upon a roving clerk traveling through the fishery getting measures of fishing pressure at all sites at any given time during the survey period. In the fall of 1979 gas shortages and irregular operating hours by gas stations made it impossible to strictly comply with these procedures. The potential for similar problems in the future exists (1979 was the second gas shortage within a 4-year period). Therefore, the development of an alternate method of estimating the sport fish harvest and the fishing pressure which would not depend upon the extensive use of an automobile was required. Data collected since 1974 by TPWD were used to estimate a set of probabilities that described the patterns of fishing pressure that occurred within a day and at each inventoried fishing site (TPWD unpublished data).

The following equations were used to estimate harvest (H):

$$H = \sum_{i=1}^{4} D_i \cdot \bar{h}_i,$$

where

$$\bar{h}_i = \frac{1}{n} \cdot \sum_{j=1}^{n} h_{ij} p_j / e_j$$

The variable $\bar{h}_i$ was the mean number of fish landed per day in the ith stratum (weekend, weekday, high and low use seasons) and D_i was the total number of days that occurred in the ith stratum. The number of fish landed per day in the bay system within a given stratum was estimated by adjusting the total number of fish actually observed at the site (h_{ij}) by the proportion of parties missed by the interviewers that day (p_j) and by the estimated proportion of total fishing activity in the bay system that occurred at that site (e_j). The total number of days and sites sampled was n. The adjustment for missed interviews was calculated as the ratio of the total number of parties seen divided by the total number of parties interviewed. The proportion of total fishing activity occurring at site j (e_j) was estimated as

$$e_j = FH_j / \sum_{j=1}^{k} FH$$

where the total number of trailers or fishermen (FH_j) observed at site j for the most recent 3-year period was divided by the total number of trailers or fishermen observed at al sites (j=1,2,3,...k) within the strata during the most recent 3-year period. This technique is described by Kish (1965) and is used to make estimates from samples selected from clusters which are proportional.

A roving clerk is still required to inventory fishing sites but the objective is no longer to estimate the total pressure occurring at each site but to estimate what proportion of the total pressure is occurring at each site. This can be accomplished with fewer roves by roving during a short time period (0800-1200) when there is little change in boating activity. This reduces the use of the automobile from 1/3 to 1/6 of the previous requirements depending on the actual rove schedule adopted. A comparison of estimates made from selecting survey sites as strictly random samples and by selecting survey sites in proportion to the activity that occurs at each site is in Appendix D.

Data collected from this survey, on an annual basis, are comparable to previous survey data. However, one assumption must be made when comparing catch data from year to year. The mean catch rate and mean fish size for parties returning before (1000) or after (1800) the interview period must be the same as those found for parties returning during the interview period.

For the purpose of making annual coastwide harvest and fishing pressure comparisons the data of 1974-75 and 1975-76 have been combined. Four of the Texas bays were surveyed in 1974-75 (Galveston, San Antonio, and Aransas Bays and upper Laguna Madre) and three were surveyed

in 1975-76 (Matagorda and Corpus Christi Bays and lower Laguna Madre). From 1976-77 through 1982-83 all bay systems were surveyed each year.

Any differences in the estimates in this report compared with previously published estimates for the same item are due to updating of the data base and the most recent report should be considered the most accurate.

RESULTS

Bay Fishery

From 15 May 1974 through 15 May 1983, surveys were conducted on 1,810 weekend days in the Galveston, Matagorda, San Antonio, Aransas, Corpus Christi Bays and in upper and lower Laguna Madre (Appendix E). This effort resulted in the completion of over 17,000 interviews (∿ 56,000 fishermen) and the measurment of more than 156,000 fishes.

The greatest estimated coastwide annual weekend sport-boat fishing pressure of ∿3,200,000 man-h occurred in 1974-75 and 1975-76; the lowest estimated pressure of ∿2,000,000 man-h occurred in 1976-77 and 1979-80 (Table 1). All other annual coastwide weekend sport-boat pressure estimates were similar (2,400,000 man-h). The high use season constituted 59-79% (1,382,300-1,889,600 man-h) of the coastwide weekend sport boat fishing pressure in each year. Fishing pressure in Galveston Bay constituted 29-49% (564,200-1,190,500 man-h) of the coastwide annual fishing pressure estimates.

On a coastwide basis, estimated finfish landings (by number) by weekend sport-boat fishermen decreased ∿ 61% from 2,636,900 fish (1,259,000 kg) in 1974-75 and 1975-76 to 1,017,000 fish (502,800 kg) in 1981-82 then increased slightly to 1,141,500 fish (646,900 kg) in 1982-83 (Tables 2 and 3). Galveston Bay fishermen accounted for 30-60% (303,900-1,300,300 fish) of the annual landings in each year. The high use season constituted 73-88% (776,600 fish, 349,500 kg to 1,912,800 fish, 875,300 kg) of the annual landings (by number) in each year (Tables 4-7).

Spotted seatrout (Cynoscion nebulosus) constituted 29-49% of the total number of fish landed in each year. From 1974-76 to 1978-79 spotted seatrout landings decreased 69% from 1,195,300 fish (574,100 kg) to 368,000 fish (188,900 kg); landings in later years ranged from 422,600 fish (197,800 kg) in 1979-80 to 497,100 fish (255,000 kg) in 1981-82. Landings of red drum (Sciaenops ocellatus) ranged from 53,900 fish (51,400 kg) to 76,100 fish (78,000 kg) each year with the exception of 1974-75 and 1975-76 when 148,400 red drum (112,900 kg) were landed. Estimated black drum (Pogonias cromis) landings ranged from 60,400 fish (74,300 kg) to 89,200 fish (57,700 kg) each year except for 1981-82 when 35,100 black drum (27,000 kg) were landed. Southern flounder (Paralichthys lethostigma) landings decreased 67% from 116,000 fish (77,400 kg) in 1974-75 and 1975-76 to 37,800 fish (22,700 kg) in 1981-82 then increased to 97,400 fish (58,200 kg) in 1982-83. The annual landings of sheepshead (Archosargus probatocephalus) were 106,500 fish (86,400 kg) in 1977-78; landings

in all other years were ≤ 54,900 fish (39,700 kg). Atlantic croaker (Micropogonias undulatus) landings decreased 69% from 383,500 fish (79,800 kg) in 1974-75 and 1975-76 to 119,400 fish (28,600 kg) in 1982-83. Sand seatrout (C. arenarius) landings decreased 81% from 563,300 fish (192,700 kg) in 1974-75 and 1975-76 to 104,900 fish (27,600 kg) in 1981-82 then increased to 197,000 fish (50,600 kg) in 1982-83. Gafftopsail catfish (Bagre marinus) annual landings ranged from 23,400 fish (30,200 kg) to 37,100 fish (52,800 kg) prior to 1979-80; annual landings since 1979-80 have ranged from 7,100 fish (6,400 kg) to 8,300 fish (9,600 kg). Annual landings of "other" species were ≤ 97,800 fish (41,400 kg) during each year.

The annual coastwide mean catch rate, for all species combined, decreased from 0.83 fish/man-h in 1976-77 to 0.41 fish/man-h in 1980-81 then increased to 0.49 fish/man-h in 1982-83 (Table 8). Coastwide catch rates for spotted seatrout were 0.34 fish/man-h in 1976-77; since 1977-78 catch rates have ranged from 0.15 to 0.21 fish/man-h each year. Atlantic croaker catch rates declined 69% from 0.16 fish/man-h in 1976-77 to 0.05 fish/man-h in 1982-83. Sand seatrout catch rates declined 78% from 0.18 fish/man-h in 1976-77 to 0.04 fish/man-h in 1981-82 then increased to 0.08 fish/man-h in 1982-83. Catch rates of all other species ranged from 0.01 to 0.05 fish/man-h annually. Both annual and species catch rates varied among bays and among years.

Generally, catch rates during the high use season followed the same pattern as the annual catch rates (Table 9). The catch rates during the low use season did not follow any consistent pattern but varied among bays and among years (Table 10).

The annual coastwide mean weights for all species varied among bays and among years (Table 11). Black drum (0.79-2.95 kg), gafftopsail catfish (0.90-1.48 kg) and red drum (0.75-1.35 kg) were the heaviest fishes landed coastwide and Atlantic croaker (0.20-0.28 kg) was the smallest fish landed coastwide. The mean weights of fishes retained during the high and low use seasons varied among bays and among years (Tables 12 and 13).

Pass, Jetty and Gulf of Mexico Sport Boat Fisheries

Pass and Jetty

Pass and jetty sport-boat fishermen generally caught the same species as bay fishermen. On a coastwide basis, ∿ 207,000 fish were landed in 1982-83 by pass and jetty sport-boat fishermen (Table 14). Of these landings, sand seatrout constituted 31%, spotted seatrout constituted 27% and sheepshead constituted 15%; all other species landings were ≤10% of the total landings. Galveston Bay area pass and jetty fishermen accounted for 67% of the landings. The high use season constituted 84% of the landings (Tables 15 and 16).

During the high use season mean catch rates, for all species combined, were ≤0.67 fish/man-h except for the Corpus Christi Bay area in 1978 (1.19 fish/man-h), 1980 (0.93 fish/man-h) and 1982 (1.14 fish/man-h) and for the lower Laguna Madre area in 1982 (0.79 fish/man-h) (Table 17).

In each year, fishermen adjacent to the Corpus Christi Bay system had the highest mean catch rates of fishermen in all areas (0.59-1.19 fish/man-h). Catch rates varied widely (0.00 to 1.96 fish/man-h) during the low use season among bays and among years (Table 18). Generally, catch rates were lower during the low use season than during the high use season.

Gulf of Mexico

On a coastwide basis, ~159,000 fish were landed in 1982-83 by Gulf of Mexico sport-boat fishermen (Table 14). Of these landings, sand seatrout constituted 45%, red snapper (Lutjanus campechanus) constituted 26%, and king mackerel (Scomberomorous cavalla) constituted 15%; all other species constituted $\leq$ 9% of the total landings. Galveston and Matagorda Gulf fishermen accounted for 44% and 37% of the landings, respectively. The high use season constituted 70% of the landings (Tables 20 and 21).

During the high use season mean catch rates for all species combined ranged from 0.13 to 0.75 fish/man-h (Table 22). Lowest catch rates (0.13-0.21 fish/man-h) were recorded for Gulf of Mexico fishermen near the Corpus Christi area. Generally, catch rates for king mackerel, red snapper and "other" fishes were higher than for any other species (0.05-0.33 fish/man-h). King mackerel mean weights generally declined from 1978 (4.18-6.86 kg) through 1980 (2.50-4.57 kg) then increased in 1981 (3.65-5.44 kg) and 1982 (4.01-6.05 kg). Cobia and "other" fishes were the heaviest fishes landed in all areas.

During the low use season mean catch rates ranged from 0.00 to 6.78 fish/man-h (Table 23). Catch rates varied among years and among Gulf areas. Catch rates for each species were generally $\leq$0.01 fish/man-h.

Texas Territorial Sea sport-boat fishermen accounted for 40% of the annual Gulf of Mexico landings on a coastwide basis (Appendix F). The majority of each species landed with the exception of red snapper, sand seatrout and "other" fishes were caught in the Territorial Sea.

DISCUSSION

The decline in the Texas weekend sport boat fish landings was most likely caused by concurrent declines in fish availability and fishing pressure. The decline in sport fish landings (1975-1979) was not restricted to boat fishing. The decline in catch rates and pressure were also noted in wade-bank and lighted pier fishing (McEachron and Green 1981, and Appendix F). Regulations prohibiting the sale of native red drum and spotted seatrout, regulations establishing size, bag and possession limits, regulations prohibiting the use of monofilament nets and regulations prohibiting the use of nets and trotlines on weekends were enacted by the Texas legislature and Texas Parks and Wildlife Commission to curb the decline in finfish availability (Anonymous 1979, Anonymous 1981). Increasing mean weights for spotted seatrout and red drum and the stabilization of mean catch rates for these two species during the last 2 years offers encouragement that these regulations are beginning to work.

Small sample sizes and procedural problems (i.e., not knowing basic fishing behavior of Texas fishermen) in the beginning years of this survey (1974-1976) could have caused these conclusions to be suspect if they had not been supported by other independent information. The TPWD has been conducting fisheries independent monitoring surveys of economically important finfish in Texas bays with gill and trammel nets since fall 1975 and spring 1976 (Matlock and Weaver 1979, Hegen and Matlock 1980, Hegen 1981, Hegen 1983). Data in these reports show a coastwide decline in catch rates for spotted seatrout (which constitute 45-75% of sport landings) and red drum (which constitute 5-10% of sport landings). Coastwide gill net catch rates for spotted seatrout declined from 1976 to 1979. The fall of 1980 marked the first time that a coastwide catch rate for spotted seatrout was greater than the catch rate observed the previous year. Catch rates for red drum showed a similar pattern except a slight increase in the gill net catch rates was noted in 1979 and 1980. Fall gill net catch rates observed in 1981 for these two species were not as high as in 1976 indicating that they were not as abundant as they were when the creel surveys began. Even though gill net catch rates indicated that the abundance of these fish may be increasing, sport catch rates continue to be low. This may be caused by a change in feeding behavior caused by a density threshold. Radovich (1975) reported that some species of fish may not feed as aggressively when a population is below a certain density threshold. It could be that the density threshold required to obtain "good fishing" lies somewhere between current levels and the levels observed in 1975.

The low coastal fishing pressure in 1976-77 and the general decline in coastal fishing pressure from 1977-78 through 1979-80 was not associated with a real decline in the number of fishermen. Therefore, the decline must have been a result of fisherman inactivity (i.e., not going fishing as often) or a shift in fishing preference (i.e., going fishing in a lake or river). The TPWD reported $\sim$1.6 million fishing licenses sold in 1975 and $\sim$1.7 million in 1980 (Appendix H). One of the most important factors which would contribute to a change in fisherman behavior would be the cost of a fishing trip. Ditton et al. (1980) reported that approximately one-half of fishing trip expenditures for boat fishermen in the Houston-Galveston area of the Texas coast was for fuel. Price of regular gasoline increased 131% from 1974 through 1980 (U.S. Dept. of Energy 1977, 1980, 1981). Regular gasoline cost \$0.14/l in 1974 and \$0.34/l in 1980. Fishermen have experienced a direct increase in expenses from the increase in fuel costs when buying gasoline for cars and boats as well as an increase in costs of other goods associated with fishing (i.e., tackle, food and lodging). These increases in fishing costs probably caused fishermen to go fishing less often or to go fishing closer to home.

It would seem that the results observed in this survey could best be explained as a result of weekend coastal fishermen going fishing less often in later years because of declining fishing success and increased trip costs. No apparent decrease in the total number of Texas fishermen during the period of the survey (TPWD License Sales) indicates that fishermen did not go saltwater fishing as often or they shifted their efforts to freshwater areas closer to home in later years.

The harvest and pressure estimates in this survey should be considered minimum estimates. There are areas (i.e. condominiums, marinas and private residences) where boats can be docked and TPWD has no access. TPWD has preliminary data that indicates harvest and pressure could be 25% greater than estimated.

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Table 1. Total pressure estimates in man-h (x 1000) for weekend sport-boat fishing by season and year in seven Texas bay systems (May 1974-May 1983). ND = no data collected.

Bay system	Season		Annual[a] total
	High use	Low use	
Galveston			
1974-75	684.8	505.5	1190.3
1975-76	ND	ND	ND
1976-77	481.7	82.5	564.2
1977-78	1019.2	171.3	1190.5
1978-79	893.6	184.7	1078.4
1979-80	675.6	225.6	901.3
1980-81	465.4	303.1	768.5
1981-82	809.1	257.5	1066.6
1982-83	712.8	75.2	788.1
Matagorda			
1974-75	ND	ND	ND
1975-76	357.3	123.5	480.8
1976-77	171.1	52.4	223.5
1977-78	206.6	75.5	282.1
1978-79	257.4	71.9	329.4
1979-80	165.0	80.8	245.8
1980-81	292.9	63.2	356.1
1981-82	216.3	59.2	275.5
1982-83	173.3	26.2	199.5
San Antonio			
1974-75	156.5	59.1	215.6
1975-76	ND	ND	ND
1976-77	119.8	43.6	163.4
1977-78	116.4	51.0	167.5
1978-79	120.6	35.8	156.4
1979-80	81.4	53.8	135.2
1980-81	83.3	86.9	170.2
1981-82	78.5	26.5	105.0
1982-83	101.2	14.0	115.3
Aransas			
1974-75	170.6	73.0	243.6
1975-76	ND	ND	ND
1976-77	161.4	58.6	220.0
1977-78	127.0	54.7	181.7
1978-79	131.3	42.1	173.5

Table 1. (Cont'd)

Bay system	Season		Annual[a] total
	High use	Low use	
Aransas (Continued)			
1979-80	125.8	20.1	145.9
1980-81	119.3	42.0	161.4
1981-82	157.3	50.2	207.5
1982-83	114.1	37.4	151.5
Corpus Christi			
1974-75	ND	ND	ND
1975-76	103.8	50.8	154.7
1976-77	92.3	37.4	129.7
1977-78	83.8	27.0	110.9
1978-79	113.0	58.7	171.7
1979-80	79.4	79.3	158.8
1980-81	82.0	71.9	153.9
1981-82	109.6	42.0	151.7
1982-83	140.0	137.4	277.4
upper Laguna Madre			
1974-75	117.1	297.9	415.1
1975-76	ND	ND	ND
1976-77	171.8	62.3	234.1
1977-78	98 2	101.2	199.4
1978-79	132.5	65.9	198.4
1979-80	139.3	108.3	247.6
1980-81	392.9	164.4	557.3
1981-82	371.2	126.3	497.5
1982-83	404.0	105.2	509.1
lower Laguna Madre			
1974-75	ND	ND	ND
1975-76	299.7	182.7	482.4
1976-77	288.3	143.1	431.4
1977-78	208.4	112.8	321.2
1978-79	240.9	48.3	289.2
1979-80	115.7	107.9	223.5
1980-81	134.6	83.9	218.5
1981-82	134.6	48.5	183.1
1982-83	215.2	80.2	295.4

Table 1. (Cont'd)

Bay system	Season		Annual[a] total
	High use	Low use	
Grand Total[a]			
1974-75[b]	1129.0	935.6	2064.7
1975-76[c]	760.8	357.0	1117.8
1976-77	1486.0	479.9	1965.9
1977-78	1859.7	593.5	2453.3
1978-79	1889.6	507.6	2397.2
1979-80	1382.3	676.0	2058.3
1980-81	1570.5	815.4	2385.9
1981-82	1876.6	610.2	2486.8
1982-83	1860.7	475.6	2336.3

[a]Due to rounding of numbers these totals may not exactly equal individual totals.

[b]Only four bay systems are represented in the 1974-75 totals.

[c]Only three bay systems are represented in the 1975-76 totals.

Table 2. Estimated annual harvest of fishes (No. x 1000) by species and bay system caught by weekend sport-boat fishermen in Texas bays (May 1974-May 1983). ND = no data collected.

Year	Bay system							
	Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre	Coastwide[a] total
Spotted seatrout								
1974-75	347.3	ND	184.2	180.5	ND	146.7	ND	858.9
1975-76	ND	175.6	ND	ND	42.6	ND	118.3	336.4
1976-77	50.5	19.6	53.2	92.8	43.3	200.1	200.2	659.7
1977-78	98.6	71.6	32.9	62.2	42.2	49.8	101.8	459.1
1978-79	111.8	56.0	13.6	49.4	31.7	29.6	76.0	368.0
1979-80	90.7	28.1	34.4	69.0	32.7	84.6	82.8	422.6
1980-81	39.4	33.5	36.6	36.9	28.2	180.6	68.0	423.2
1981-82	78.0	78.0	30.3	53.0	55.9	118.4	83.5	497.1
1982-83	106.8	24.6	28.4	30.4	45.4	116.8	110.9	463.4
Red drum								
1974-75	34.8	ND	26.8	12.4	ND	17.1	ND	91.1
1975-76	ND	29.5	ND	ND	9.1	ND	18.7	57.3
1976-77	10.3	11.2	18.6	11.0	5.3	4.1	10.1	70.7
1977-78	31.3	7.1	10.7	14.3	2.2	2.1	8.4	76.1
1978-79	13.1	14.4	15.8	2.7	2.5	1.6	3.8	53.9
1979-80	9.7	19.3	11.2	5.3	6.8	7.0	7.3	66.7
1980-81	11.4	20.3	8.2	4.7	4.8	17.6	6.0	72.9
1981-82	12.4	11.9	9.2	7.5	3.4	8.4	3.8	56.5
1982-83	14.7	7.4	6.8	10.0	5.6	7.5	9.0	61.0
Black drum								
1974-75	32.0	ND	1.7	1.3	ND	8.8	ND	43.9
1975-76	ND	9.3	ND	ND	5.5	ND	5.2	19.9
1976-77	28.2	6.5	15.6	3.0	2.5	6.8	4.2	66.9
1977-78	47.2	11.0	3.4	2.2	2.4	3.5	5.4	75.1
1978-79	39.8	8.6	2.3	0.8	1.2	2.6	2.4	57.7
1979-80	33.6	8.1	1.4	9.6	3.6	1.4	2.9	60.8
1980-81	45.8	29.1	2.1	0.2	4.3	3.4	4.3	89.2
1981-82	5.5	14.2	2.0	2.9	2.0	6.2	2.5	35.1
1982-83	34.5	7.4	0.8	1.1	7.3	6.0	3.2	60.4

Table 2. (Cont'd)

Year	Bay system							
	Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre	Coastwide[a] total
Southern flounder								
1974-75	25.3	ND	7.4	17.8	ND	37.2	ND	87.8
1975-76	ND	22.9	ND	ND	1.8	ND	3.6	28.2
1976-77	15.9	10.0	4.8	4.1	3.8	1.3	2.9	42.7
1977-78	21.1	9.7	4.7	6.2	2.1	2.3	5.2	51.3
1978-79	19.3	12.8	2.2	4.0	8.4	1.5	4.9	53.1
1979-80	16.8	11.1	2.2	1.9	6.7	3.5	6.9	49.1
1980-81	13.6	6.2	5.2	6.8	1.7	7.6	4.9	46.1
1981-82	16.5	2.7	1.4	3.6	2.8	6.4	4.4	37.8
1982-83	56.5	2.9	3.4	7.3	3.2	11.6	12.5	97.4
Sheepshead								
1974-75	5.1	ND	2.3	9.1	ND	3.0	ND	19.6
1975-76	ND	10.8	ND	ND	4.7	ND	2.0	17.5
1976-77	10.0	9.6	1.0	5.3	2.8	1.7	4.5	34.9
1977-78	78.1	10.5	3.2	5.4	1.7	2.1	5.4	106.5
1978-79	16.9	13.2	1.0	2.3	3.4	1.5	6.3	44.1
1979-80	14.7	5.8	1.4	2.4	5.1	0.7	14.0	44.6
1980-81	10.3	13.4	1.0	2.2	17.7	5.3	5.0	54.9
1981-82	9.6	17.6	3.4	14.0	1.9	2.5	1.2	50.2
1982-83	17.0	7.0	0.8	1.5	25.6	3.6	2.9	53.4
Atlantic croaker								
1974-75	313.3	ND	2.7	3.0	ND	29.7	ND	348.8
1975-76	ND	16.7	ND	ND	9.2	ND	8.9	34.7
1976-77	268.0	16.1	0.6	3.2	10.6	17.0	8.8	324.3
1977-78	437.6	12.0	0.5	2.0	8.1	17.5	5.7	483.4
1978-79	240.9	12.5	1.4	0.6	8.4	33.9	4.5	302.2
1979-80	244.4	6.7	1.8	1.3	8.9	6.8	2.3	272.2
1980-81	108.8	13.7	0.4	0.7	13.5	16.2	2.0	155.3
1981-82	96.1	4.3	0.3	0.1	26.6	22.5	2.1	152.0
1982-83	80.9	4.4	0.5	3.5	4.3	21.4	4.6	119.4

Table 2. (Cont'd)

Year	Bay system							
	Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre	Coastwide[a] total
Sand seatrout								
1974-75	451.1	ND	1.6	6.6	ND	5.7	ND	465.1
1975-76	ND	29.3	ND	ND	49.4	ND	19.5	98.2
1976-77	250.1	13.4	0.1	24.7	47.4	9.6	9.9	355.2
1977-78	143.2	14.0	1.3	6.0	21.0	2.4	22.8	210.6
1978-79	287.4	10.8	<.1	4.4	14.9	1.9	2.7	322.2
1979-80	134.6	8.7	2.0	0.5	16.2	2.6	2.3	166.8
1980-81	74.4	2.5	0.3	8.4	32.8	2.6	5.0	126.0
1981-82	30.5	20.5	1.6	5.6	29.8	4.9	12.0	104.9
1982-83	130.9	7.9	1.3	5.0	38.4	4.0	9.5	197.0
Gafftopsail catfish								
1974-75	15.6	ND	3.4	0.9	ND	0.0	ND	19.9
1975-76	ND	8.2	ND	ND	3.3	ND	0.0	11.6
1976-77	8.3	21.1	2.6	1.9	3.1	0.0	<.1	37.1
1977-78	3.3	15.5	3.0	0.9	0.7	0.0	0.0	23.4
1978-79	13.0	13.8	1.8	2.5	3.2	<.1	0.2	34.6
1979-80	3.1	1.3	0.8	0.1	1.6	<.1	0.0	7.1
1980-81	4.6	0.9	0.4	0.6	1.1	<.1	<.1	7.6
1981-82	2.2	2.8	0.5	1.0	0.9	0.2	<.1	7.5
1982-83	0.7	2.1	1.0	0.8	3.6	<.1	<.1	8.3
Other species								
1974-75	75.3	ND	4.1	3.5	ND	1.4	ND	84.4
1975-76	ND	1.2	ND	ND	7.8	ND	4.4	13.4
1976-77	13.5	4.1	3.7	3.0	3.8	2.2	10.3	40.6
1977-78	29.3	10.3	3.1	2.4	1.9	3.0	2.5	52.5
1978-79	30.9	7.9	1.4	2.0	5.1	0.2	1.1	48.5
1979-80	49.7	6.8	1.2	1.0	5.5	1.2	1.4	66.8
1980-81	47.6	4.7	2.0	2.2	10.2	12.5	2.0	81.3
1981-82	53.0	4.3	1.1	4.0	6.7	4.1	2.5	75.8
1982-83	35.7	2.7	1.9	3.0	24.8	9.4	4.0	81.3

Table 2. (Cont'd)

Year	Bay system							
	Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre	Coastwide[a] total
All species combined[a]								
1974-75	1300.3	ND	234.3	235.0	ND	249.8	ND	2019.5
1975-76	ND	303.5	ND	ND	133.3	ND	180.6	617.4
1976-77	654.7	111.7	100.3	149.0	122.7	242.8	250.9	1632.1
1977-78	889.7	161.8	62.8	101.6	82.3	82.6	157.1	1537.9
1978-79	773.2	150.0	39.7	68.5	78.8	72.7	102.0	1284.9
1979-80	597.3	96.1	56.6	91.1	87.1	108.0	120.0	1156.2
1980-81	355.9	124.4	56.2	62.6	114.3	245.8	97.0	1056.3
1981-82	303.9	156.2	49.9	91.7	129.9	173.5	112.0	1017.0
1982-83	477.6	61.3	45.8	62.6	158.1	180.4	156.6	1141.5

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

Table 3. Estimated annual harvest of fishes (kg x 1000) by species and bay system caught by weekend sport-boat fishermen in Texas bays (May 1974-May 1983). ND = no data collected.

Year	Bay system							
	Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre	Coastwide total
Spotted seatrout								
1974-75	217.2	ND	76.2	53.2	ND	79.2	ND	425.8
1975-76	ND	66.3	ND	ND	15.9	ND	64.2	146.4
1976-77	29.2	8.5	25.2	28.7	19.8	113.7	101.5	326.6
1977-78	67.3	33.9	15.3	19.7	18.4	22.4	54.3	231.3
1978-79	79.5	23.5	5.4	15.3	14.4	16.2	34.6	188.9
1979-80	47.5	11.5	15.6	26.4	17.3	42.6	36.9	197.8
1980-81	19.4	15.1	16.9	15.6	15.9	78.9	34.2	196.0
1981-82	53.0	36.1	14.3	20.4	30.2	55.9	45.1	255.0
1982-83	70.5	12.1	13.9	14.3	22.7	58.4	72.1	264.0
Red drum								
1974-75	24.3	ND	29.7	14.2	ND	19.0	ND	87.2
1975-76	ND	2.4	ND	ND	7.8	ND	15.5	25.7
1976-77	13.4	11.0	22.2	10.7	5.5	4.3	8.4	75.5
1977-78	33.7	8.2	7.6	14.6	2.2	2.3	9.4	78.0
1978-79	15.9	11.8	12.0	2.0	3.0	1.7	5.0	51.4
1979-80	5.7	15.9	9.9	3.7	5.8	5.0	4.7	50.7
1980-81	10.4	24.3	8.8	4.4	4.7	16.4	4.8	76.6
1981-82	19.4	12.5	10.8	7.0	3.8	8.8	5.4	67.7
1982-83	15.1	11.3	10.4	14.4	8.3	11.0	13.5	84.0
Black drum								
1974-75	59.6	ND	1.9	1.1	ND	17.6	ND	80.2
1975-76	ND	8.6	ND	ND	5.6	ND	4.7	18.9
1976-77	22.4	2.7	26.7	2.7	7.3	5.6	15.4	82.8
1977-78	48.5	7.6	4.0	1.2	9.2	4.9	24.7	100.1
1978-79	137.9	14.1	7.9	0.3	2.0	3.9	4.0	170.1
1979-80	12.6	3.9	2.7	4.8	15.9	0.9	1.5	42.3
1980-81	37.8	10.9	1.3	0.2	3.6	2.1	1.8	57.7
1981-82	4.4	6.3	1.2	4.2	1.1	6.3	3.5	27.0
1982-83	44.2	3.0	0.6	0.5	15.1	6.7	4.2	74.3

Table 3. (Cont'd)

Year	Bay system							
	Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre	Coastwide total
Southern flounder								
1974-75	12.7	ND	4.5	11.3	ND	27.8	ND	56.3
1975-76	ND	17.0	ND	ND	0.7	ND	3.4	21.1
1976-77	10.7	5.1	3.3	2.0	2.6	0.7	2.2	26.6
1977-78	13.7	5.0	2.8	3.9	1.2	1.5	4.3	32.4
1978-79	11.1	5.3	1.2	2.1	4.7	1.1	2.6	28.1
1979-80	8.5	6.6	0.9	0.9	4.3	2.6	4.2	28.6
1980-81	8.9	3.1	3.4	3.2	1.0	4.3	3.5	27.1
1981-82	9.2	1.2	1.1	1.8	1.6	4.6	3.2	22.7
1982-83	32.8	1.7	2.1	3.4	1.9	7.9	8.4	58.2
Sheepshead								
1974-75	3.4	ND	1.8	5.1	ND	4.0	ND	14.3
1975-76	ND	3.8	ND	ND	3.5	ND	2.2	9.5
1976-77	8.1	9.7	1.1	3.0	2.5	1.2	4.3	29.9
1977-78	67.5	6.5	2.3	3.1	1.1	2.0	3.9	86.4
1978-79	13.3	8.0	0.8	1.3	2.8	1.4	3.6	31.1
1979-80	12.7	4.3	1.3	1.5	5.0	0.8	8.6	34.2
1980-81	7.9	2.8	0.5	1.2	17.2	5.7	4.4	39.7
1981-82	8.1	6.1	2.3	13.0	2.1	2.9	2.4	36.9
1982-83	15.6	0.9	0.6	1.2	22.8	4.2	2.0	47.3
Atlantic croaker								
1974-75	59.3	ND	0.7	0.5	ND	10.2	ND	70.7
1975-76	ND	2.9	ND	ND	2.7	ND	3.5	9.1
1976-77	61.7	1.5	0.2	0.7	3.0	4.1	2.7	73.9
1977-78	96.3	1.7	0.3	0.5	1.7	5.2	1.3	107.0
1978-79	43.3	1.8	0.3	0.1	2.2	11.9	1.2	60.8
1979-80	49.9	1.4	0.5	0.2	1.8	1.6	0.6	56.0
1980-81	20.9	2.2	0.1	0.2	4.0	4.0	0.4	31.8
1981-82	16.4	0.7	0.1	0.1	7.5	6.3	0.5	31.6
1982-83	17.8	0.7	0.1	0.8	1.3	6.4	1.5	28.6

Table 3. (Cont'd)

Year	Bay system							
	Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre	Coastwide total
Sand seatrout								
1974-75	161.1	ND	0.5	1.7	ND	2.3	ND	165.6
1975-76	ND	7.3	ND	ND	14.3	ND	5.5	27.1
1976-77	90.0	3.2	0.1	5.2	15.3	2.4	3.0	119.1
1977-78	52.4	3.6	0.3	1.2	8.4	1.3	6.8	74.0
1978-79	83.9	2.9	0.1	1.3	4.5	0.7	0.6	94.0
1979-80	27.7	2.1	0.4	0.2	4.7	1.1	0.7	36.9
1980-81	15.6	0.6	0.1	1.8	9.9	0.8	1.4	30.2
1981-82	7.9	3.8	0.5	1.6	8.2	1.7	3.9	27.6
1982-83	32.7	1.6	0.3	1.2	10.4	1.3	3.1	50.6
Gafftopsail catfish								
1974-75	21.0	ND	4.3	0.7	ND	0.0	ND	26.0
1975-76	ND	9.5	ND	ND	4.2	ND	0.0	13.7
1976-77	16.5	26.3	3.2	2.7	4.1	0.0	<.1	52.8
1977-78	3.3	21.1	4.1	0.9	0.8	0.0	0.0	30.2
1978-79	16.3	20.0	1.6	3.2	4.2	0.2	0.2	45.7
1979-80	0.7	1.6	1.0	0.3	2.7	0.1	0.0	6.4
1980-81	4.2	1.0	0.6	0.6	1.2	0.1	0.1	7.8
1981-82	1.9	3.8	0.9	1.1	1.2	0.2	0.1	9.2
1982-83	0.5	2.1	1.7	0.8	4.3	<.1	<.1	9.6
Other species								
1974-75	23.2	ND	2.5	1.2	ND	0.5	ND	27.4
1975-76	ND	0.3	ND	ND	3.2	ND	10.5	14.0
1976-77	9.0	1.1	3.1	1.1	1.0	0.3	8.0	23.6
1977-78	14.3	8.1	1.5	0.5	0.5	0.6	0.7	26.2
1978-79	31.0	3.2	1.0	0.6	1.7	0.1	0.6	38.2
1979-80	10.8	6.0	0.8	0.1	1.6	0.3	0.4	20.0
1980-81	11.9	6.0	1.9	0.4	3.0	2.7	0.5	22.8
1981-82	16.0	2.2	0.8	2.4	2.0	0.8	0.9	25.1
1982-83	11.1	2.2	1.0	1.2	6.5	2.1	6.2	30.3

Table 3. (Cont'd)

Year	Bay system							
	Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre	Coastwide total
All species combined								
1974-75	581.8	ND	122.1	89.0	ND	160.6	ND	953.5
1975-76	ND	138.1	ND	ND	57.9	ND	109.5	305.5
1976-77	261.0	69.1	85.0	56.8	62.3	132.3	145.5	775.6
1977-78	397.0	95.7	38.2	45.6	43.5	40.2	105.4	765.6
1978-79	432.2	90.6	30.3	26.2	39.2	37.2	52.3	708.0
1979-80	176.2	53.3	33.1	38.1	59.3	55.0	57.6	472.6
1980-81	137.1	65.8	32.4	28.6	60.5	114.7	50.7	489.8
1981-82	136.3	72.7	32.0	51.6	57.7	87.5	65.0	502.8
1982-83	240.3	35.6	30.7	37.8	93.3	98.1	111.1	646.9

Table 4. Estimated harvest (No. x 1000) of fishes for the high use season (15 May-20 Nov) by species and bay system caught by weekend sport-boat fishermen in Texas bays (May 1974-May 1983). ND = no samples.

	Bay system							
Year	Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre	Coastwide[a] total
Spotted seatrout								
1974	330.3	ND	123.8	146.2	ND	36.9	ND	637.2
1975	ND	152.1	ND	ND	27.5	ND	77.6	257.2
1976	38.4	15.2	52.4	83.6	40.6	189.5	123.5	540.4
1977	96.4	62.7	28.0	55.9	38.1	31.5	85.9	398.5
1978	107.6	40.7	12.6	41.1	29.0	18.5	67.7	317.1
1979	70.4	17.7	31.1	59.0	20.9	39.8	46.9	285.7
1980	33.8	30.1	28.8	28.1	18.5	119.1	56.7	315.1
1981	67.6	62.7	23.2	39.0	44.2	80.6	65.0	382.4
1982	105.6	22.7	27.3	26.1	35.5	95.1	88.6	401.0
Red drum								
1974	21.6	ND	20.2	10.4	ND	9.6	ND	61.8
1975	ND	14.2	ND	ND	7.2	ND	13.0	34.5
1976	9.5	9.3	17.7	9.5	5.2	2.5	8.0	61.8
1977	29.3	4.5	4.0	9.3	1.9	1.4	5.6	56.1
1978	12.2	10.5	2.2	1.1	2.2	1.4	2.9	32.6
1979	8.9	12.4	5.4	2.7	2.0	0.6	1.4	33.4
1980	6.1	18.7	3.5	3.9	3.4	14.5	4.6	54.7
1981	11.6	5.9	2.8	2.6	2.8	5.1	1.7	32.6
1982	13.8	5.9	5.8	4.7	5.3	6.0	6.8	48.4
Black drum								
1974	12.1	ND	1.3	0.4	ND	1.0	ND	14.9
1975	ND	5.4	ND	ND	4.6	ND	3.4	13.4
1976	27.7	4.3	14.3	2.3	1.9	6.2	1.7	58.4
1977	41.8	9.5	1.0	1.2	1.2	1.1	1.4	57.3
1978	20.8	8.4	1.4	0.4	0.8	0.8	1.0	33.5
1979	32.9	2.9	0.6	9.6	1.0	0.5	<.1	47.8
1980	14.3	23.2	0.7	0.1	3.1	2.9	3.7	48.0
1981	4.3	11.3	0.6	1.1	1.4	0.7	0.9	20.3
1982	31.6	6.8	0.2	0.8	4.9	5.0	0.7	50.0

Table 4. (Cont'd)

Year	Bay system							
	Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre	Coastwide[a] total
Southern flounder								
1974	18.8	ND	6.1	16.5	ND	22.6	ND	64.0
1975	ND	14.4	ND	ND	0.6	ND	2.6	17.5
1976	15.0	3.9	4.3	3.5	3.3	1.2	2.9	34.2
1977	17.7	6.9	3.9	5.6	1.7	1.6	3.8	41.1
1978	16.8	8.9	2.1	2.0	7.6	0.5	4.2	42.1
1979	15.0	9.1	1.3	1.4	4.7	2.3	4.5	38.4
1980	9.4	5.2	5.2	3.5	1.3	5.7	3.8	34.1
1981	9.7	1.9	1.3	2.9	2.0	3.8	3.0	24.5
1982	47.0	2.1	3.4	6.5	2.2	10.1	9.7	81.0
Sheepshead								
1974	0.2	ND	1.2	1.6	ND	1.1	ND	4.1
1975	ND	8.2	ND	ND	2.0	ND	0.6	10.8
1976	8.8	8.9	1.0	4.2	2.0	1.2	3.5	29.5
1977	73.2	8.4	1.6	2.4	1.4	0.8	1.1	88.8
1978	13.6	9.7	0.3	0.7	2.3	0.1	1.1	27.9
1979	14.1	3.0	1.2	2.4	1.7	0.3	1.4	24.2
1980	7.9	5.2	0.5	2.1	0.5	3.7	2.4	22.3
1981	8.8	6.4	1.5	3.7	1.2	0.4	0.4	22.5
1982	16.9	1.6	0.4	0.9	2.1	1.9	1.1	25.0
Atlantic croaker								
1974	199.9	ND	2.6	2.9	ND	27.7	ND	233.1
1975	ND	13.9	ND	ND	3.7	ND	8.0	25.6
1976	265.2	8.3	0.3	3.2	9.7	16.1	7.7	315.7
1977	434.3	11.4	0.5	2.1	7.5	16.1	5.2	477.1
1978	238.3	12.5	1.4	0.6	8.4	33.9	4.3	299.4
1979	231.9	4.2	1.3	1.3	3.9	6.4	2.0	251.0
1980	108.5	13.4	0.4	0.7	13.0	15.1	1.4	152.6
1981	95.6	4.0	0.3	0.1	26.3	18.6	1.8	146.7
1982	79.6	3.4	0.5	3.5	4.1	21.3	3.5	115.8

Table 4. (Cont'd)

Year	Bay system							
	Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre	Coastwide[a] total
Sand seatrout								
1974	393.7	ND	1.0	5.9	ND	3.4	ND	404.0
1975	ND	29.0	ND	ND	41.5	ND	17.1	87.6
1976	249.1	13.4	0.1	24.7	30.1	9.6	9.5	336.4
1977	129.7	11.6	0.9	5.5	19.4	1.9	21.3	190.2
1978	229.8	10.8	<.1	1.3	13.9	0.9	2.3	259.0
1979	119.2	8.6	2.0	0.4	13.4	1.4	0.9	145.9
1980	74.1	2.5	0.3	8.4	22.4	2.4	4.4	114.6
1981	30.5	19.2	1.6	1.2	25.6	4.7	10.6	93.5
1982	130.9	7.9	1.3	5.0	32.5	3.8	9.4	190.7
Gafftopsail catfish								
1974	14.7	ND	1.9	0.9	ND	0.0	ND	17.5
1975	ND	4.2	ND	ND	0.0	ND	0.0	4.2
1976	6.6	20.6	1.0	1.6	2.1	0.0	<.1	31.9
1977	2.3	13.6	2.6	0.2	0.6	0.0	0.0	19.3
1978	3.5	13.6	1.5	1.0	2.2	<.1	0.2	22.1
1979	3.1	1.4	0.3	0.1	0.9	<.1	0.0	5.9
1980	4.6	0.4	0.1	0.4	0.7	<.1	0.1	6.2
1981	2.2	2.6	0.5	0.6	0.9	0.0	<.1	6.8
1982	0.7	2.1	0.4	0.8	1.0	<.1	<.1	5.1
Other species								
1974	11.1	ND	3.6	2.4	ND	1.4	ND	18.6
1975	ND	0.5	ND	ND	4.5	ND	1.8	6.8
1976	13.4	2.9	2.7	2.9	3.2	2.2	3.7	30.8
1977	9.1	9.4	1.8	1.5	1.2	3.0	1.5	27.5
1978	24.0	7.8	1.2	0.9	1.0	0.2	1.0	36.2
1979	45.7	4.0	0.8	1.0	3.6	0.7	0.8	56.5
1980	39.6	4.3	1.1	1.0	7.3	11.0	0.2	64.5
1981	20.1	4.0	1.1	1.1	5.4	3.3	2.3	37.3
1982	32.6	2.7	1.6	2.7	7.9	8.2	3.9	59.4

Table 4. (Cont'd)

Year	Bay system							
	Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre	Coastwide[a] total
All species combined[a]								
1974	1002.5	ND	161.8	187.2	ND	103.8	ND	1455.2
1975	ND	241.8	ND	ND	91.6	ND	124.2	457.6
1976	633.7	91.8	93.8	135.6	98.0	228.5	160.5	1441.9
1977	833.8	138.0	44.4	83.6	73.0	57.4	125.8	1356.0
1978	666.6	123.2	22.9	49.1	67.4	56.3	84.6	1070.0
1979	541.3	63.3	44.1	77.9	52.0	52.0	58.1	888.8
1980	298.3	103.1	40.6	48.4	70.1	174.4	77.4	812.1
1981	250.6	118.0	32.8	52.2	110.0	117.2	85.7	766.6
1982	458.7	55.3	40.9	51.0	95.6	151.4	123.7	976.6

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

Table 5. Estimated harvest (No. x 1000) of fishes for the low use season (21 Nov-14 May) by species and bay system caught by weekend sport-boat fishermen in Texas bays (May 1974-May 1983). ND = no data collected.

Year	Bay system							
	Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre	Coastwide[a] total
Spotted seatrout								
1974	ND	ND	ND	ND	ND	ND	ND	ND
1975	17.0	ND	60.4	34.3	ND	110.0	ND	221.8
1976	ND	23.5	ND	ND	15.1	ND	40.6	79.2
1977	12.1	4.3	0.9	9.2	2.7	10.7	76.7	116.6
1978	2.3	8.8	4.9	6.3	4.1	18.3	15.9	60.6
1979	4.2	15.2	1.1	8.3	2.7	11.1	8.3	50.9
1980	20.3	10.5	3.4	10.0	11.8	44.8	40.0	136.8
1981	5.6	3.5	7.8	8.7	9.8	61.5	11.2	108.0
1982	10.4	15.3	7.1	13.9	11.6	37.8	18.6	114.7
1983	1.1	1.9	1.1	4.3	10.0	21.7	22.3	62.3
Red drum								
1974	ND	ND	ND	ND	ND	ND	ND	ND
1975	13.2	ND	6.6	2.0	ND	7.5	ND	29.3
1976	ND	15.3	ND	ND	1.9	ND	5.7	22.9
1977	0.8	1.9	0.9	1.5	0.2	1.6	2.0	8.9
1978	2.0	2.7	6.7	5.0	0.3	0.7	2.8	20.0
1979	0.9	3.9	13.6	1.6	0.3	0.2	0.9	21.4
1980	0.8	6.9	5.8	2.7	4.8	6.5	5.9	33.3
1981	5.3	1.6	4.7	0.7	1.4	3.2	1.4	18.3
1982	0.8	6.0	6.4	4.9	0.6	3.3	2.0	23.9
1983	0.8	1.5	0.9	5.3	0.2	1.5	2.2	12.6
Black drum								
1974	ND	ND	ND	ND	ND	ND	ND	ND
1975	19.9	ND	0.4	1.0	ND	7.8	ND	29.0
1976	ND	3.8	ND	ND	0.9	ND	1.8	6.5
1977	0.5	2.3	1.3	0.7	0.6	0.7	2.5	8.5
1978	5.3	1.5	2.4	1.0	1.2	2.4	4.0	17.8
1979	19.1	0.2	1.0	0.4	0.4	1.8	1.4	24.2
1980	0.7	5.2	0.8	0.0	2.6	0.9	2.8	13.1
1981	31.5	5.9	1.3	0.1	1.2	0.5	0.6	41.2
1982	1.2	2.9	1.4	1.8	0.5	5.5	1.5	14.9
1983	2.9	0.6	0.6	0.3	2.5	1.0	2.6	10.4

Table 5. (Cont'd)

Year	Bay system							
	Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre	Coastwide[a] total
Southern flounder								
1974	ND	ND	ND	ND	ND	ND	ND	ND
1975	6.6	ND	1.3	1.3	ND	14.6	ND	23.7
1976	ND	8.5	ND	ND	1.2	ND	1.1	10.8
1977	0.9	6.1	0.5	0.6	0.4	< .1	< .1	8.6
1978	3.4	2.8	0.8	0.6	0.4	0.7	1.4	10.2
1979	2.5	3.9	0.1	1.9	0.8	1.0	0.8	11.0
1980	1.7	2.0	0.9	0.4	2.0	1.2	2.3	10.7
1981	4.2	1.0	0.1	3.3	0.4	1.9	1.1	11.9
1982	6.8	0.8	0.1	0.8	0.8	2.7	1.4	13.3
1983	9.5	0.7	<.1	0.8	1.0	1.6	2.7	16.4
Sheepshead								
1974	ND	ND	ND	ND	ND	ND	ND	ND
1975	4.9	ND	1.1	7.4	ND	1.9	ND	15.4
1976	ND	2.6	ND	ND	2.6	ND	1.4	6.7
1977	1.1	0.7	<.1	1.1	0.9	0.5	1.0	5.3
1978	5.0	2.1	1.6	3.0	0.3	1.3	4.3	17.7
1979	3.3	3.4	0.6	1.6	1.1	1.3	5.2	16.7
1980	0.6	2.8	0.1	0.0	3.5	0.4	12.5	19.9
1981	2.5	8.2	0.5	0.1	17.2	1.6	2.6	32.5
1982	0.8	11.2	1.9	10.3	0.7	2.0	0.9	27.8
1983	0.1	0.4	0.4	0.6	23.5	1.7	1.8	28.4
Atlantic croaker								
1974	ND	ND	ND	ND	ND	ND	ND	ND
1975	113.5	ND	0.2	0.1	ND	2.0	ND	115.7
1976	ND	2.9	ND	ND	5.4	ND	0.9	9.2
1977	2.8	2.8	0.3	0.0	0.9	0.8	1.0	8.7
1978	3.3	0.7	<.1	0.0	0.6	1.3	0.4	6.3
1979	2.6	0.0	0.0	0.0	0.0	<.1	0.2	2.8
1980	12.5	2.6	0.5	0.0	5.0	0.4	0.3	21.1
1981	0.3	0.3	0.0	<.1	0.4	1.1	0.5	2.7
1982	0.5	0.3	0.0	0.0	0.3	3.8	0.4	5.3
1983	1.3	0.9	0.0	0.0	0.1	0.1	1.1	3.6

Table 5. (Cont'd)

Year	Bay system							
	Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre	Coastwide[a] total
Sand seatrout								
1974	ND	ND	ND	ND	ND	ND	ND	ND
1975	57.5	ND	0.6	0.7	ND	2.3	ND	61.1
1976	ND	0.3	ND	ND	7.9	ND	2.4	10.6
1977	1.0	<.1	0.0	0.0	17.3	0.0	0.4	18.8
1978	13.4	2.4	0.4	0.5	1.6	0.5	1.5	20.3
1979	57.6	0.0	0.0	3.0	1.0	0.9	0.5	63.1
1980	15.5	0.1	0.0	<.1	2.8	1.2	1.3	20.9
1981	0.3	0.0	0.0	0.0	10.4	0.1	0.6	11.4
1982	0.0	1.3	<.1	4.5	4.1	0.1	1.4	11.4
1983	0.0	0.0	<.1	0.0	5.9	0.2	0.1	6.2
Gafftopsail catfish								
1974	ND	ND	ND	ND	ND	ND	ND	ND
1975	1.0	ND	1.5	0.0	ND	0.0	ND	2.4
1976	ND	4.0	ND	ND	3.3	ND	0.0	7.3
1977	1.7	0.5	1.7	0.2	1.1	0.0	0.0	5.2
1978	1.0	1.9	0.4	0.7	0.1	0.0	0.0	4.1
1979	9.5	0.2	0.3	1.5	1.0	0.0	0.0	12.5
1980	0.0	0.0	0.5	<.1	0.7	0.0	0.0	1.3
1981	0.0	0.5	0.3	0.2	0.5	0.0	0.0	1.4
1982	0.0	0.2	0.0	0.4	0.0	0.2	0.0	0.7
1983	0.0	0.0	0.6	0.0	2.6	0.0	0.0	3.2
Other species								
1974	ND	ND	ND	ND	ND	ND	ND	ND
1975	64.3	ND	0.5	1.0	ND	0.0	ND	65.8
1976	ND	0.7	ND	ND	3.3	ND	2.6	6.6
1977	0.1	1.3	1.0	0.1	0.7	0.0	6.6	9.7
1978	20.2	0.9	1.3	0.9	0.7	0.0	1.0	25.0
1979	6.8	<.1	0.2	1.1	4.1	0.0	0.1	12.3
1980	4.0	2.8	0.4	0.0	2.0	0.5	0.6	10.3
1981	8.0	0.4	0.9	1.2	2.8	1.6	1.7	16.7
1982	32.9	0.3	0.1	3.0	1.3	0.9	0.2	38.6
1983	3.1	0.0	0.3	0.3	16.9	1.2	0.1	21.9

Table 5. (Cont'd)

Year	Bay system							
	Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre	Coastwide[a] total
All species combined[a]								
1974	ND	ND	ND	ND	ND	ND	ND	ND
1975	297.9	ND	72.5	47.9	ND	146.0	ND	564.3
1976	ND	61.7	ND	ND	41.7	ND	56.4	159.8
1977	21.0	19.9	6.5	13.5	24.7	14.3	90.4	190.3
1978	55.9	23.9	18.5	18.0	9.3	25.2	31.3	182.0
1979	106.6	26.9	16.8	19.4	11.4	16.4	17.3	214.9
1980	56.0	32.8	12.5	13.2	35.1	55.9	61.8	267.4
1981	57.7	21.3	15.6	14.3	44.3	71.4	19.6	244.2
1982	53.3	38.1	17.1	39.4	20.0	56.3	26.4	250.5
1983	18.9	6.1	3.9	11.5	62.6	29.0	32.9	164.9

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

Table 6. Estimated harvest (kg x 1000) of fishes for the high use season (15 May-20 Nov) by species and bay system caught by weekend sport-boat fishermen in Texas bays (May 1974-May 1983). ND = no data collected.

Year	Bay system							
	Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre	Coastwide total
Spotted seatrout								
1974	204.8	ND	50.8	40.9	ND	19.9	ND	316.4
1975	ND	53.2	ND	ND	10.5	ND	42.7	106.4
1976	21.5	6.0	24.6	25.1	18.3	108.0	59.3	262.8
1977	65.5	28.2	12.9	16.7	16.4	13.8	46.3	199.8
1978	76.4	17.1	4.8	11.6	12.7	10.5	29.7	162.7
1979	29.5	6.2	13.7	21.8	10.9	21.1	22.5	125.7
1980	15.9	12.9	13.0	12.0	8.0	51.2	28.3	141.3
1981	46.0	26.3	10.9	14.4	23.9	36.2	31.9	189.6
1982	69.7	11.1	13.1	12.0	17.8	47.6	55.8	227.1
Red drum								
1974	12.7	ND	22.8	12.7	ND	11.6	ND	59.8
1975	ND	11.8	ND	ND	6.6	ND	10.9	29.3
1976	12.2	9.7	20.9	9.0	5.4	3.0	6.3	66.5
1977	31.6	5.4	3.2	10.8	2.1	1.7	7.3	62.1
1978	14.9	9.5	2.8	0.9	2.8	1.6	4.1	36.6
1979	5.3	11.4	6.7	2.0	2.7	0.6	1.3	30.0
1980	5.6	22.6	3.7	3.8	3.4	14.1	4.0	57.2
1981	18.3	6.1	4.3	3.0	3.0	5.6	2.6	42.9
1982	14.2	8.9	8.6	6.7	7.8	9.2	11.6	67.0
Black drum								
1974	15.2	ND	1.5	0.2	ND	2.7	ND	19.6
1975	ND	6.4	ND	ND	2.7	ND	2.7	11.8
1976	21.6	1.8	7.7	1.7	1.4	4.8	1.5	40.5
1977	38.00	4.5	0.8	0.4	0.8	1.3	1.0	46.8
1978	7.9	14.0	1.3	0.1	1.0	2.1	1.5	27.9
1979	12.2	1.3	0.2	4.8	0.7	0.2	<.1	19.5
1980	6.3	9.7	0.3	<.1	2.5	1.9	1.5	22.3
1981	3.0	4.5	0.3	0.6	0.8	0.4	2.2	11.8
1982	42.0	2.6	0.1	0.3	2.3	3.9	1.1	52.3

Table 6. (Cont'd)

Year	Bay system							
	Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre	Coastwide total
Southern flounder								
1974	8.6	ND	3.6	10.7	ND	16.3	ND	39.2
1975	ND	13.7	ND	ND	0.4	ND	2.8	16.9
1976	10.2	1.7	3.1	1.5	2.4	0.7	2.2	21.8
1977	12.1	3.7	2.4	3.5	1.1	1.1	3.1	27.0
1978	9.9	4.2	1.1	0.9	4.2	0.4	2.2	22.9
1979	7.7	5.6	0.8	0.7	3.4	1.8	3.2	23.2
1980	5.9	2.8	3.3	1.8	0.7	3.1	3.1	20.7
1981	4.6	0.8	1.0	1.4	1.1	3.2	2.7	14.5
1982	27.7	1.2	2.2	3.1	1.3	7.1	6.5	49.1
Sheepshead								
1974	0.1	ND	1.0	1.0	ND	1.1	ND	3.2
1975	ND	2.7	ND	ND	1.8	ND	0.5	5.0
1976	6.8	9.0	1.1	2.4	1.7	0.8	3.4	25.2
1977	62.9	5.6	1.4	1.6	0.8	0.8	0.8	73.9
1978	10.7	5.3	0.3	0.4	1.7	0.1	0.9	19.4
1979	12.3	2.0	1.2	1.5	1.6	0.3	1.0	19.9
1980	4.0	1.5	0.4	1.1	0.3	3.9	1.7	12.9
1981	7.3	3.2	1.4	3.0	1.2	0.4	0.4	16.9
1982	15.6	0.7	0.5	0.7	1.9	2.2	0.6	22.3
Atlantic croaker								
1974	40.0	ND	0.6	0.4	ND	9.7	ND	50.7
1975	ND	2.6	ND	ND	1.3	ND	3.3	7.2
1976	61.0	1.2	0.1	0.7	2.8	4.0	2.4	72.2
1977	95.5	1.5	0.2	0.5	1.6	4.8	1.2	105.3
1978	42.9	1.8	0.3	0.1	2.2	11.8	1.1	60.2
1979	48.7	1.1	0.4	0.1	0.9	1.5	0.5	53.2
1980	20.6	2.1	0.1	0.2	3.9	3.5	0.3	30.7
1981	16.3	0.6	.1	.1	7.4	5.2	0.4	30.1
1982	17.5	0.5	0.1	0.8	1.3	6.4	1.4	28.0

Table 6. (Cont'd)

Year	Bay system							
	Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre	Coastwide total
Sand seatrout								
1974	145.6	ND	0.3	1.5	ND	1.1	ND	148.5
1975	ND	7.2	ND	ND	12.0	ND	4.6	23.8
1976	89.7	3.2	<.1	5.2	9.3	2.4	2.8	112.6
1977	48.0	3.0	0.2	1.1	7.3	0.9	6.4	66.9
1978	66.6	2.9	<.1	0.5	4.0	0.4	0.5	75.0
1979	23.8	2.0	0.1	0.1	3.9	0.5	0.3	31.0
1980	15.5	0.6	0.1	1.8	6.5	0.7	1.1	26.3
1981	7.9	3.3	0.4	0.3	6.9	1.6	3.3	23.7
1982	32.7	1.6	0.3	1.2	8.5	1.2	3.1	48.6
Gafftopsail catfish								
1974	19.7	ND	2.6	0.7	ND	0.0	ND	23.0
1975	ND	2.5	ND	ND	0.0	ND	0.0	2.5
1976	13.6	25.5	1.1	2.4	3.0	0.0	<.1	45.6
1977	2.0	18.9	3.6	0.4	0.6	0.0	0.0	25.5
1978	4.4	19.7	1.4	1.4	2.7	0.2	0.2	30.0
1979	0.7	1.6	0.3	0.1	1.5	0.1	0.0	4.3
1980	4.2	0.5	0.3	0.4	0.7	0.1	0.1	6.3
1981	1.9	3.6	0.9	0.7	1.2	0.0	<.1	8.4
1982	0.5	2.1	0.7	0.8	0.8	<.1	<.1	5.1
Other species								
1974	5.9	ND	2.3	0.6	ND	0.5	ND	9.3
1975	ND	0.1	ND	ND	1.9	ND	0.7	2.7
1976	8.3	0.8	2.8	1.1	0.8	0.3	6.1	20.2
1977	3.8	7.8	1.2	0.2	0.3	0.6	0.4	14.3
1978	29.3	3.1	0.9	0.4	0.2	0.1	0.4	34.4
1979	10.0	2.9	0.4	0.1	1.2	0.2	0.2	15.0
1980	9.5	2.2	1.6	0.3	1.9	2.3	<.1	17.9
1981	4.8	2.1	0.7	1.1	1.5	0.6	0.8	11.6
1982	10.1	2.2	0.9	1.1	1.9	1.7	6.2	24.1

Table 6. (Cont'd)

Year	Bay system							
	Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre	Coastwide total
All species combined								
1974	452.6	ND	85.5	68.7	ND	62.9	ND	669.7
1975	ND	100.2	ND	ND	37.2	ND	68.2	205.6
1976	244.9	58.9	61.4	49.1	45.1	124.0	84.0	667.4
1977	359.4	78.6	25.9	35.2	31.0	25.0	66.5	621.6
1978	263.0	77.6	13.0	16.2	31.5	27.2	40.6	469.1
1979	150.2	34.1	24.1	31.2	26.8	26.3	29.1	321.8
1980	87.5	54.9	21.5	22.5	27.9	80.8	40.2	335.6
1981	110.1	50.5	20.0	24.6	47.0	53.2	44.1	349.5
1982	230.0	30.9	26.5	26.7	43.6	79.4	86.4	523.6

Table 7. Estimated harvest (kg x 1000) of fishes for the low use season (21 Nov-14 May) by species and bay system caught by weekend sport-boat fishermen in Texas bays (May 1974-May 1983). ND = no data collected.

Year	Bay system							
	Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre	Coastwide total
Spotted seatrout								
1974	ND	ND	ND	ND	ND	ND	ND	ND
1975	12.4	ND	25.4	12.3	ND	59.3	ND	109.4
1976	ND	13.1	ND	ND	5.4	ND	21.5	40.0
1977	7.7	2.5	0.6	3.6	1.5	5.7	42.2	63.8
1978	1.8	5.7	2.4	3.0	2.0	8.6	8.0	31.5
1979	3.1	6.4	0.6	3.8	1.7	5.7	4.9	26.2
1980	18.0	5.3	1.9	4.6	6.4	21.5	14.4	72.1
1981	3.5	2.2	3.9	3.6	7.9	27.7	5.9	54.7
1982	7.0	9.8	3.4	6.0	6.3	19.7	13.2	65.4
1983	1.4	1.1	0.8	2.4	5.4	12.4	16.5	40.0
Red drum								
1974	ND	ND	ND	ND	ND	ND	ND	ND
1975	11.6	ND	6.9	1.5	ND	7.4	ND	27.4
1976	ND	10.6	ND	ND	1.2	ND	4.6	16.4
1977	1.2	1.3	1.3	1.7	<.1	1.3	2.1	9.0
1978	2.1	2.8	4.4	3.8	0.1	0.6	2.1	15.9
1979	1.0	2.3	9.2	1.1	0.2	0.1	0.9	14.8
1980	0.5	4.5	3.2	1.7	3.1	4.4	3.4	20.8
1981	4.8	1.7	5.1	0.6	1.3	2.3	0.8	16.6
1982	1.1	6.4	6.5	4.0	0.8	3.2	2.8	24.8
1983	0.7	2.4	1.6	7.9	0.4	1.4	1.9	16.3
Black drum								
1974	ND	ND	ND	ND	ND	ND	ND	ND
1975	44.4	ND	0.4	0.9	ND	14.9	ND	60.6
1976	ND	2.2	ND	ND	2.9	ND	2.0	7.1
1977	0.8	0.9	19.0	1.0	5.9	0.8	13.9	42.3
1978	10.5	3.1	3.2	0.8	8.4	3.6	23.7	53.3
1979	130.0	<.1	6.6	0.2	1.0	1.8	2.5	142.2
1980	0.4	2.6	2.5	0.0	15.2	0.7	1.4	22.8
1981	31.5	1.2	1.0	0.1	1.1	0.2	0.3	35.4
1982	1.4	1.8	0.9	3.6	0.3	5.9	1.3	15.2
1983	1.8	0.4	0.6	0.2	19.3	2.9	3.1	28.3

Table 7. (Cont'd)

Year	Bay system							
	Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre	Coastwide total
Southern flounder								
1974	ND	ND	ND	ND	ND	ND	ND	ND
1975	4.1	ND	0.9	0.6	ND	11.5	ND	17.1
1976	ND	3.3	ND	ND	0.3	ND	0.6	4.2
1977	0.5	3.4	0.2	0.5	0.2	0.1	0.1	4.8
1978	1.6	1.3	0.4	0.4	0.1	0.4	1.2	5.4
1979	1.2	1.1	0.1	1.2	0.5	0.7	0.4	5.2
1980	0.8	1.0	0.1	0.2	0.9	0.8	1.0	4.8
1981	3.0	0.3	0.1	1.4	0.3	1.2	0.4	6.7
1982	4.6	0.4	0.1	0.4	0.5	1.4	0.8	8.2
1983	4.7	0.4	0.1	0.4	0.6	0.9	1.8	8.9
Sheepshead								
1974	ND	ND	ND	ND	ND	ND	ND	ND
1975	3.3	ND	0.8	4.1	ND	2.9	ND	11.1
1976	ND	1.1	ND	ND	1.7	ND	1.7	4.5
1977	1.3	0.7	0.1	0.6	0.8	0.4	0.9	4.7
1978	4.6	0.9	0.9	1.5	0.3	1.2	3.1	12.5
1979	2.6	2.7	0.5	0.9	1.1	1.3	2.6	11.7
1980	0.4	2.3	0.1	0.0	3.4	0.5	7.6	14.3
1981	4.0	1.6	0.2	0.1	16.9	1.6	2.6	27.0
1982	0.8	2.9	0.9	10.0	0.9	2.5	2.0	20.0
1983	0.1	0.5	0.2	0.4	20.7	2.1	1.4	25.4
Atlantic croaker								
1974	ND	ND	ND	ND	ND	ND	ND	ND
1975	19.3	ND	<.1	<.1	ND	0.5	ND	20.0
1976	ND	0.3	ND	ND	1.4	ND	0.2	1.9
1977	0.7	0.3	0.1	0.0	0.2	0.1	0.3	1.7
1978	0.8	0.2	<.1	0.0	0.1	0.4	0.1	1.7
1979	0.4	0.0	0.0	0.0	0.0	<.1	<.1	0.6
1980	1.2	0.3	0.1	<.1	0.9	0.1	<.1	2.8
1981	0.3	<.1	0.0	0.0	0.1	0.4	0.1	1.0
1982	0.1	<.1	0.0	0.0	0.1	1.1	0.1	1.5
1983	0.4	0.2	0.0	0.0	<.1	<.1	0.1	0.9

Table 7. (Cont'd)

Year	Bay system							
	Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre	Coastwide total
Sand seatrout								
1974	ND	ND	ND	ND	ND	ND	ND	ND
1975	15.5	ND	0.2	0.2	ND	1.2	ND	17.1
1976	ND	0.1	ND	ND	2.3	ND	0.9	3.3
1977	0.3	< .1	0.0	0.0	6.0	0.0	0.2	6.5
1978	4.4	0.6	0.1	0.1	1.1	0.4	0.4	7.1
1979	17.3	0.0	0.0	0.8	0.5	0.3	0.1	19.0
1980	3.9	< .1	0.0	< .1	0.8	0.6	0.4	5.9
1981	0.1	0.0	0.0	0.0	3.4	< .1	0.1	3.7
1982	0.0	0.5	< .1	1.3	1.3	< .1	0.6	3.9
1983	0.0	0.0	< .1	0.0	2.1	0.1	0.1	2.4
Gafftopsail catfish								
1974	ND	ND	ND	ND	ND	ND	ND	ND
1975	1.3	ND	1.7	0.0	ND	0.0	ND	3.0
1976	ND	7.0	ND	ND	4.2	ND	0.0	11.2
1977	2.9	0.8	2.1	0.3	1.1	0.0	0.0	7.2
1978	1.3	2.2	0.5	0.5	0.2	0.0	0.0	4.7
1979	11.9	0.3	0.2	1.8	1.5	0.0	0.0	15.7
1980	0.0	0.0	0.7	0.2	1.2	0.0	0.0	2.1
1981	0.0	0.5	0.3	0.2	0.5	0.0	0.0	1.5
1982	0.0	0.2	0.0	0.4	0.0	0.2	0.0	0.8
1983	0.0	0.0	< .1	0.0	4.3	0.0	0.0	4.4
Other species								
1974	ND	ND	ND	ND	ND	ND	ND	ND
1975	17.3	ND	0.2	0.6	ND	0.0	ND	18.1
1976	ND	0.2	ND	ND	1.3	ND	9.8	11.3
1977	0.7	0.3	0.3	.1	0.2	0.0	1.9	3.4
1978	10.5	0.3	0.3	0.3	0.2	0.0	0.3	11.9
1979	1.7	<.1	0.1	0.2	1.5	0.0	0.2	3.8
1980	0.8	3.1	0.4	0.0	0.6	0.1	0.2	5.2
1981	2.4	3.8	0.3	0.1	1.1	0.4	0.4	8.5
1982	11.2	<.1	<.1	1.3	0.5	0.2	0.1	13.5
1983	0.9	0.0	0.2	0.1	4.7	0.4	<.1	6.4

Table 7. (Cont'd)

Year	Bay system							
	Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre	Coastwide total
All species combined								
1974	ND	ND	ND	ND	ND	ND	ND	ND
1975	129.2	ND	36.6	20.3	ND	97.7	ND	283.8
1976	ND	37.9	ND	ND	20.7	ND	41.3	99.9
1977	16.1	10.2	23.6	7.7	16.0	8.3	1.5	143.4
1978	37.6	17.1	12.3	10.4	12.5	15.2	38.9	144.0
1979	169.2	13.0	17.3	10.0	7.7	10.0	11.7	238.9
1980	26.0	19.2	9.0	6.9	32.5	28.7	28.5	150.8
1981	49.6	10.9	10.9	6.1	32.6	33.9	10.5	155.7
1982	26.2	22.7	12.0	27.2	11.2	34.3	20.9	154.5
1983	10.0	5.0	3.7	11.4	57.6	20.3	25.0	133.0

Table 8. Annual mean catch rate of fishes (No./man-h) by species and bay system caught by weekend sport-boat fishermen in Texas bays (May 1974-May 1983). ND = no samples.

Year	Bay system							
	Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre	Coastwide[a] total
Spotted seatrout								
1974-75	0.29	ND	0.85	0.74	ND	0.35	ND	0.42
1975-76	ND	0.36	ND	ND	0.28	ND	0.25	0.30
1976-77	0.09	0.09	0.33	0.42	0.33	0.86	0.45	0.34
1977-78	0.08	0.25	0.20	0.34	0.38	0.25	0.32	0.19
1978-79	0.10	0.17	0.09	0.28	0.18	0.15	0.26	0.15
1979-80	0.10	0.11	0.26	0.47	0.21	0.34	0.37	0.21
1980-81	0.05	0.09	0.22	0.23	0.18	0.32	0.31	0.18
1981-82	0.07	0.28	0.29	0.26	0.37	0.24	0.46	0.20
1982-83	0.14	0.12	0.25	0.21	0.16	0.23	0.38	0.20
Red drum								
1974-75	0.03	ND	0.12	0.05	ND	0.04	ND	0.04
1975-76	ND	0.06	ND	ND	0.06	ND	0.04	0.05
1976-77	0.02	0.05	0.11	0.05	0.04	0.02	0.03	0.04
1977-78	0.03	0.03	0.06	0.08	0.02	0.01	0.03	0.03
1978-79	0.01	0.04	0.10	0.02	0.01	0.01	0.01	0.02
1979-80	0.01	0.08	0.08	0.04	0.04	0.03	0.03	0.03
1980-81	0.01	0.06	0.05	0.03	0.03	0.03	0.03	0.03
1981-82	0.02	0.04	0.09	0.04	0.02	0.02	0.02	0.02
1982-83	0.02	0.04	0.06	0.07	0.02	0.02	0.03	0.03
Black drum								
1974-75	0.03	ND	0.01	0.01	ND	0.02	ND	0.02
1975-76	ND	0.02	ND	ND	0.04	ND	0.01	0.02
1976-77	0.05	0.03	0.10	0.01	0.02	0.03	0.01	0.04
1977-78	0.04	0.04	0.02	0.01	0.02	0.02	0.02	0.03
1978-79	0.04	0.03	0.02	<.01	0.01	0.01	0.01	0.02
1979-80	0.04	0.03	0.01	0.07	0.02	0.01	0.01	0.03
1980-81	0.06	0.08	0.01	.01	0.03	0.01	0.02	0.04
1981-82	.01	0.05	0.02	0.01	0.01	0.01	0.01	0.01
1982-83	0.04	0.04	0.01	0.01	0.03	0.01	0.01	0.03

Table 8. (Cont'd)

Year	Bay system							
	Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre	Coastwide[a] total
Southern flounder								
1974-75	0.02	ND	0.03	0.07	ND	0.09	ND	0.04
1975-76	ND	0.05	ND	ND	0.01	ND	0.01	0.03
1976-77	0.03	0.05	0.03	0.02	0.03	0.01	0.01	0.02
1977-78	0.02	0.03	0.03	0.03	0.02	0.01	0.02	0.02
1978-79	0.02	0.04	0.01	0.02	0.05	0.01	0.02	0.02
1979-80	0.02	0.04	0.02	0.01	0.04	0.01	0.03	0.01
1980-81	0.02	0.02	0.03	0.04	0.01	0.01	0.02	0.02
1981-82	0.02	0.01	0.01	0.02	0.02	0.01	0.02	0.01
1982-83	0.07	0.01	0.03	0.05	0.01	0.02	0.04	0.04
Sheepshead								
1974-75	<.01	ND	0.01	0.04	ND	0.01	ND	0.01
1975-76	ND	0.02	ND	ND	0.03	ND	<.01	0.02
1976-77	0.02	0.05	0.01	0.02	0.02	0.01	0.01	0.02
1977-78	0.07	0.04	0.02	0.03	0.02	0.01	0.02	0.04
1978-79	0.02	0.04	0.01	0.01	0.02	0.01	0.02	0.02
1979-80	0.02	0.02	0.01	0.02	0.03	<.01	0.06	0.01
1980-81	0.01	0.04	0.01	0.01	0.12	0.01	0.02	0.02
1981-82	<.01	0.06	0.03	0.07	0.01	<.01	0.01	0.02
1982-83	0.02	0.01	0.01	0.01	0.09	0.01	0.01	0.02
Atlantic croaker								
1974-75	0.26	ND	0.01	0.01	ND	0.07	ND	0.17
1975-76	ND	0.04	ND	ND	0.06	ND	0.02	0.03
1976-77	0.48	0.05	<.01	0.02	0.08	0.07	0.02	0.16
1977-78	0.37	0.04	<.01	0.01	0.07	0.09	0.02	0.20
1978-79	0.22	0.04	0.01	<.01	0.05	0.17	0.02	0.13
1979-80	0.27	0.03	0.01	0.01	0.06	0.03	0.01	0.13
1980-81	0.14	0.04	<.01	<.01	0.09	0.03	0.01	0.07
1981-82	0.09	0.02	<.01	0.00	0.18	0.04	0.01	0.06
1982-83	0.10	0.02	<.01	0.02	0.02	0.05	0.02	0.05

Table 8. (Cont'd)

Year	Bay system							
	Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre	Coastwide[a] total
Sand seatrout								
1974-75	0.38	ND	0.01	0.03	ND	0.01	ND	0.23
1975-76	ND	0.06	ND	ND	0.32	ND	0.04	0.09
1976-77	0.44	0.07	<.01	0.11	0.37	0.04	0.02	0.18
1977-78	0.12	0.05	0.01	0.03	0.19	0.01	0.07	0.09
1978-79	0.27	0.03	<.01	0.02	0.09	0.01	0.01	0.13
1979-80	0.15	0.03	0.01	<.01	0.10	0.01	0.01	0.08
1980-81	0.10	0.01	<.01	0.05	0.21	<.01	0.02	0.05
1981-82	0.03	0.07	0.01	0.03	0.20	0.01	0.07	0.04
1982-83	0.17	0.04	0.01	0.03	0.14	0.01	0.03	0.08
Gafftopsail catfish								
1974-75	0.01	ND	0.02	<.01	ND	0.00	ND	0.01
1975-76	ND	0.02	ND	ND	0.02	ND	0.00	0.01
1976-77	0.02	0.09	0.02	0.01	0.02	0.00	<.01	0.02
1977-78	<.01	0.05	0.02	<.01	0.01	0.00	0.00	0.01
1978-79	0.01	0.04	0.01	0.01	0.02	<.01	<.01	0.01
1979-80	<.01	0.01	0.01	<.01	0.01	<.01	0.0	<.01
1980-81	<.01	<.01	<.01	<.01	0.01	<.01	<.01	<.01
1981-82	<.01	0.01	<.01	0.01	0.01	0.00	0.00	<.01
1982-83	<.01	0.01	0.01	<.01	0.01	0.00	0.00	<.01
Other species								
1974-75	0.06	ND	0.02	0.01	ND	<.01	ND	0.04
1975-76	ND	<.01	ND	ND	0.05	ND	0.01	0.01
1976-77	0.02	0.02	0.02	0.01	0.03	0.01	0.02	0.02
1977-78	0.02	0.04	0.02	0.01	0.02	0.02	0.01	0.02
1978-79	0.03	0.02	0.01	0.01	0.03	<.01	<.01	0.02
1979-80	0.06	0.03	0.01	0.01	0.04	<.01	0.01	0.03
1980-81	0.06	0.01	0.01	0.01	0.07	0.02	0.01	0.03
1981-82	0.05	0.02	0.01	0.02	0.04	0.01	0.01	0.03
1982-83	0.05	0.01	0.02	0.02	0.09	0.02	0.01	0.04

Table 8. (Cont'd)

Year	Bay system							
	Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre	Coastwide[a] total
All species combined[a]								
1974-75	1.09	ND	1.09	0.96	ND	0.60	ND	0.98
1975-76	ND	0.63	ND	ND	0.86	ND	0.37	0.55
1976-77	1.16	0.50	0.61	0.68	0.95	1.04	0.58	0.83
1977-78	0.75	0.57	0.38	0.56	0.74	0.41	0.49	0.63
1978-79	0.72	0.46	0.25	0.40	0.46	0.37	0.35	0.54
1979-80	0.66	0.39	0.42	0.62	0.55	0.44	0.54	0.56
1980-81	0.46	0.35	0.33	0.39	0.74	0.44	0.44	0.44
1981-82	0.28	0.57	0.48	0.44	0.86	0.35	0.61	0.41
1982-83	0.61	0.31	0.39	0.41	0.57	0.35	0.53	0.49

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

Table 9. Mean catch rates of fishes (No./man-h) for the high use season (15 May-20 Nov) by species and bay system caught by weekend sport boat fishermen in Texas bays (May 1974-May 1983). ND = no samples.

Year	Bay system							
	Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre	Coastwide[a] total
Spotted seatrout								
1974	0.48	ND	0.79	0.86	ND	0.32	ND	0.56
1975	ND	0.43	ND	ND	0.26	ND	0.26	0.34
1976	0.08	0.09	0.44	0.52	0.49	1.10	0.45	0.37
1977	0.10	0.30	0.24	0.44	0.46	0.32	0.41	0.21
1978	0.12	0.16	0.10	0.31	0.26	0.14	0.28	0.17
1979	0.10	0.11	0.38	0.47	0.26	0.29	0.41	0.21
1980	0.07	0.10	0.35	0.24	0.22	0.30	0.42	0.20
1981	0.08	0.29	0.30	0.25	0.40	0.22	0.48	0.20
1982	0.15	0.13	0.27	0.23	0.25	0.24	0.41	0.22
Red drum								
1974	0.03	ND	0.13	0.06	ND	0.08	ND	0.05
1975	ND	0.04	ND	ND	0.07	ND	0.04	0.05
1976	0.02	0.05	0.15	0.06	0.06	0.02	0.04	0.04
1977	0.03	0.02	0.04	0.07	0.02	0.02	0.03	0.03
1978	0.01	0.04	0.02	0.01	0.02	0.01	0.01	0.02
1979	0.01	0.08	0.07	0.02	0.02	<.01	0.01	0.02
1980	0.01	0.06	0.04	0.03	0.04	0.04	0.03	0.03
1981	0.01	0.03	0.04	0.02	0.02	0.01	0.01	0.02
1982	0.02	0.03	0.06	0.04	0.04	0.02	0.03	0.03
Black drum								
1974	0.02	ND	0.01	<.01	ND	0.01	ND	0.01
1975	ND	0.02	ND	ND	0.04	ND	0.01	0.02
1976	0.06	0.02	0.12	0.01	0.02	0.04	0.01	0.04
1977	0.04	0.05	0.01	0.01	0.01	0.01	0.01	0.03
1978	0.02	0.03	0.01	<.01	0.01	0.01	<.01	0.02
1979	0.05	0.02	0.01	0.08	0.01	<.01	<.01	0.03
1980	0.03	0.08	0.01	<.01	0.04	0.01	0.03	0.03
1981	<.01	0.05	0.01	0.01	0.01	<.01	0.01	0.01
1982	0.04	0.04	<.01	<.01	0.04	0.01	<.01	0.03

Table 9. (Cont'd)

Year	Bay system							
	Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre	Coastwide[a] total
Southern flounder								
1974	0.03	ND	0.04	0.10	ND	0.19	ND	0.06
1975	ND	0.04	ND	ND	<.01	ND	0.01	0.02
1976	0.03	0.02	0.04	0.02	0.04	0.01	0.01	0.02
1977	0.02	0.03	0.03	0.04	0.02	0.02	0.02	0.02
1978	0.02	0.04	0.02	0.02	0.07	<.01	0.02	0.02
1979	0.02	0.06	0.02	0.01	0.06	0.02	0.04	0.03
1980	0.02	0.02	0.06	0.03	0.02	0.02	0.03	0.02
1981	0.01	0.01	0.02	0.02	0.02	0.01	0.02	0.02
1982	0.07	0.01	0.03	0.06	0.02	0.03	0.05	0.04
Sheepshead								
1974	<.01	ND	0.01	0.01	ND	0.01	ND	<.01
1975	ND	0.02	ND	ND	0.02	ND	<.01	0.01
1976	0.02	0.06	0.01	0.03	0.03	0.01	0.02	0.02
1977	0.07	0.04	0.01	0.02	0.02	0.01	0.01	0.05
1978	0.02	0.04	<.01	<.01	0.02	<.01	<.01	0.01
1979	0.02	0.02	0.01	0.02	0.02	<.01	0.12	0.02
1980	0.02	0.02	0.01	0.02	0.01	0.01	0.02	0.01
1981	0.01	0.03	0.02	0.02	0.01	<.01	<.01	0.01
1982	0.02	0.01	<.01	0.01	0.02	0.01	0.01	0.01
Atlantic croaker								
1974	0.29	ND	0.02	0.02	ND	0.24	ND	0.21
1975	ND	0.04	ND	ND	0.04	ND	0.03	0.03
1976	0.55	0.08	<.01	0.02	0.10	0.09	0.03	0.24
1977	0.43	0.06	<.01	0.02	0.09	0.16	0.03	0.26
1978	0.27	0.05	0.01	<.01	0.07	0.26	0.02	0.16
1979	0.34	0.02	0.01	0.01	0.05	0.05	0.02	0.18
1980	0.23	0.05	<.01	0.01	0.16	0.04	0.01	0.10
1981	0.12	0.02	<.01	0.00	0.24	0.05	0.01	0.08
1982	0.11	0.02	0.01	0.03	0.03	0.05	0.02	0.06

Table 9. (Cont'd)

Year	Bay system							
	Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre	Coastwide[a] total
Sand seatrout								
1974	0.58	ND	0.01	0.03	ND	0.03	ND	0.36
1975	ND	0.08	ND	ND	0.40	ND	0.06	0.12
1976	0.52	0.10	<.01	0.15	0.30	0.06	0.04	0.25
1977	0.13	0.06	0.01	0.04	0.23	0.02	0.10	0.10
1978	0.26	0.04	<.01	0.01	0.12	0.01	0.01	0.14
1979	0.18	0.05	0.02	<.01	0.17	0.01	0.01	0.11
1980	0.16	0.01	<.01	0.07	0.27	0.01	0.03	0.07
1981	0.04	0.09	0.02	0.01	0.23	0.01	0.08	0.05
1982	0.18	0.05	0.01	0.04	0.23	0.01	0.04	0.10
Gafftopsail catfish								
1974	0.02	ND	0.01	<.01	ND	0.0	ND	0.02
1975	ND	0.01	ND	ND	0.00	ND	0.00	<.01
1976	0.01	0.09	0.01	0.01	0.02	0.00	<.01	0.02
1977	<.01	0.07	0.02	<.01	0.01	0.00	0.00	0.01
1978	<.01	0.05	0.01	0.01	0.02	<.01	<.01	0.01
1979	<.01	0.01	<.01	<.01	0.01	<.01	0.00	<.01
1980	0.01	<.01	<.01	<.01	0.01	<.01	<.01	<.01
1981	<.01	0.01	0.01	<.01	0.01	0.00	<.01	<.01
1982	<.01	0.01	<.01	0.01	0.01	0.00	0.00	<.01
Other species								
1974	0.02	ND	0.02	0.01	ND	0.01	ND	0.02
1975	ND	0.01	ND	ND	0.04	ND	0.01	0.01
1976	0.03	0.02	0.02	0.02	0.04	0.01	0.01	0.02
1977	.01	0.04	0.02	0.01	0.01	0.03	0.01	0.01
1978	0.03	0.03	0.01	0.01	0.01	.01	<.01	0.02
1979	0.07	0.02	0.01	0.01	0.04	.01	0.01	0.04
1980	0.08	0.02	0.01	0.01	0.09	0.03	<.01	0.04
1981	0.02	0.02	0.01	0.01	0.05	0.01	0.02	0.02
1982	0.05	0.02	0.02	0.02	0.06	0.20	0.02	0.03

Table 9. (Cont'd)

Year	Bay system							
	Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre	Coastwide[a] total
All species combined[a]								
1974	1.46	ND	1.03	1.10	ND	0.89	ND	1.29
1975	ND	0.68	ND	ND	0.88	ND	0.41	0.60
1976	1.32	0.55	0.78	0.84	1.10	1.33	0.58	1.03
1977	0.82	0.67	0.38	0.66	0.87	0.58	0.60	0.73
1978	0.75	0.48	0.19	0.37	0.60	0.43	0.35	0.57
1979	0.80	0.38	0.54	0.62	0.66	0.37	0.50	0.64
1980	0.64	0.35	0.49	0.41	0.85	0.44	0.58	0.52
1981	0.31	0.55	0.42	0.33	1.00	0.32	0.64	0.41
1982	0.64	0.32	0.40	0.45	0.68	0.38	0.58	0.53

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

Table 10. Mean catch rates of fishes (No./man-h) for the low use season (21 Nov-14 May) by species and bay system caught by weekend sport-boat fishermen in Texas bays (May 1974-May 1983). ND = no data collected.

	Bay system							
Year	Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre	Coastwide total
Spotted seatrout								
1974	ND	ND	ND	ND	ND	ND	ND	ND
1975	0.03	ND	1.02	0.47	ND	0.37	ND	0.24
1976	ND	0.19	ND	ND	0.30	ND	0.22	0.22
1977	0.15	0.08	0.02	0.16	0.07	0.17	0.55	0.24
1978	0.01	0.11	0.10	0.11	0.15	0.18	0.14	0.10
1979	0.02	0.21	0.03	0.20	0.05	0.17	0.17	0.10
1980	0.09	0.13	0.06	0.50	0.15	0.41	0.33	0.20
1981	0.02	0.06	0.09	0.21	0.14	0.37	0.13	0.13
1982	0.04	0.26	0.27	0.28	0.28	0.30	0.38	0.19
1983	0.02	0.07	0.08	0.11	0.07	0.21	0.28	0.13
Red drum								
1974	ND	ND	ND	ND	ND	ND	ND	ND
1975	0.03	ND	0.11	0.03	ND	0.03	ND	0.03
1976	ND	0.12	ND	ND	0.04	ND	0.03	0.06
1977	0.01	0.04	0.12	0.02	<.01	0.03	0.01	0.02
1978	0.01	0.03	0.13	0.09	0.01	0.01	0.03	0.03
1979	<.01	0.05	0.38	0.04	0.01	<.01	0.02	0.04
1980	<.01	0.07	0.11	0.13	0.06	0.06	0.05	0.05
1981	0.02	0.02	0.05	0.02	0.02	0.02	0.02	0.02
1982	<.01	0.10	0.24	0.10	0.01	0.03	0.04	0.04
1983	0.01	0.06	0.07	0.14	<.01	0.02	0.03	0.03
Black drum								
1974	ND	ND	ND	ND	ND	ND	ND	ND
1975	0.03	ND	<.01	0.01	ND	0.03	ND	0.03
1976	ND	0.03	ND	ND	0.02	ND	0.01	0.02
1977	0.03	0.01	0.03	0.02	0.02	0.01	0.04	0.03
1978	0.10	0.02	0.05	0.01	0.04	0.02	0.03	0.05
1979	0.10	<.01	0.03	<.01	0.01	0.03	0.03	0.05
1980	<.01	0.06	0.02	0.00	0.03	0.01	0.03	0.02
1981	0.10	0.09	0.02	<.01	0.02	<.01	0.01	0.05
1982	<.01	0.05	0.05	0.04	0.01	0.04	0.03	0.02
1983	0.04	0.02	0.04	0.01	0.02	0.01	0.03	0.02

Table 10. (Cont'd)

Year	Bay system							
	Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre	Coastwide total
Southern flounder								
1974	ND	ND	ND	ND	ND	ND	ND	ND
1975	0.01	ND	0.02	0.02	ND	0.05	ND	0.03
1976	ND	0.07	ND	ND	0.02	ND	0.01	0.03
1977	0.01	0.11	0.01	0.01	0.01	< .01	< .01	0.03
1978	0.01	0.04	0.02	0.01	0.02	0.01	0.01	0.02
1979	0.01	0.05	< .01	0.05	0.01	0.02	0.02	0.02
1980	0.01	0.03	0.02	0.02	0.02	0.01	0.02	0.02
1981	0.01	0.02	< .01	0.08	0.01	0.01	0.01	0.01
1982	0.03	0.01	< .01	0.02	0.02	0.02	0.03	0.02
1983	0.13	0.03	< .01	0.02	0.01	0.02	0.03	0.04
Sheepshead								
1974	ND	ND	ND	ND	ND	ND	ND	ND
1975	0.01	ND	0.02	0.10	ND	0.01	ND	0.02
1976	ND	0.02	ND	ND	0.05	ND	0.01	0.02
1977	0.01	0.01	< .01	0.02	0.02	0.01	0.01	0.01
1978	0.02	0.03	0.03	0.06	0.01	0.01	0.04	0.03
1979	0.01	0.05	0.02	0.04	0.02	0.02	0.07	0.03
1980	< .01	0.02	< .01	0.00	0.04	< .01	0.11	0.03
1981	0.01	0.13	0.01	< .01	0.24	0.01	0.03	0.04
1982	< .01	0.19	0.07	0.21	0.02	0.02	0.02	0.05
1983	< .01	0.01	0.03	0.02	0.17	0.02	0.02	0.06
Atlantic croaker								
1974	ND	ND	ND	ND	ND	ND	ND	ND
1975	0.22	ND	< .01	< .01	ND	0.01	ND	0.12
1976	ND	0.02	ND	ND	0.11	ND	< .01	0.03
1977	0.03	0.05	< .01	0.00	0.02	0.01	0.01	0.02
1978	0.01	.01	< .01	0.00	0.02	0.01	< .01	0.01
1979	0.01	0.00	0.00	0.00	0.00	< .01	< .01	0.01
1980	0.05	0.04	0.01	< .01	0.06	< .01	< .01	0.03
1981	< .01	< .01	0.00	0.00	0.01	0.01	0.01	< .01
1982	< .01	< .01	0.00	0.00	0.01	0.03	0.01	0.01
1983	0.02	0.04	0.00	0.00	< .01	< .01	0.01	0.01

Table 10. (Cont'd)

Year	Bay system							
	Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre	Coastwide total
Sand seatrout								
1974	ND	ND	ND	ND	ND	ND	ND	ND
1975	0.11	ND	0.01	0.01	ND	0.01	ND	0.07
1976	ND	<.01	ND	ND	0.16	ND	0.01	0.03
1977	0.01	<.01	0.00	0.00	0.46	0.00	<.01	0.04
1978	0.07	0.03	<.01	0.01	0.06	<.01	0.01	0.03
1979	0.31	0.00	0.00	0.07	0.02	0.01	0.01	0.13
1980	0.07	<.01	0.00	<.01	0.04	0.01	0.01	0.03
1981	<.01	0.00	0.00	0.00	0.14	<.01	0.01	0.01
1982	0.00	0.02	<.01	0.09	0.10	<.01	0.03	0.02
1983	0.00	0.00	<.01	0.00	0.04	<.01	<.01	0.01
Gafftopsail catfish								
1974	ND	ND	ND	ND	ND	ND	ND	ND
1975	.01	ND	0.02	0.00	ND	0.00	ND	<.01
1976	ND	0.03	ND	ND	0.06	ND	0.00	0.02
1977	0.01	<.01	0.04	<.01	0.03	0.00	0.00	0.01
1978	<.01	0.02	<.01	0.01	<.01	0.00	0.00	0.01
1979	0.05	<.01	<.01	0.04	0.02	0.00	0.00	0.02
1980	0.00	0.00	<.01	<.01	0.01	0.00	0.00	<.01
1981	0.00	0.01	<.01	<.01	0.01	0.00	0.00	<.01
1982	0.00	<.01	0.00	0.01	0.00	<.01	0.00	<.01
1983	0.00	0.00	0.04	0.00	0.02	0.00	0.00	0.01
Other species								
1974	ND	ND	ND	ND	ND	ND	ND	ND
1975	0.13	ND	<.01	0.01	ND	0.00	ND	0.07
1976	ND	<.01	ND	ND	0.07	ND	0.01	0.02
1977	<.01	0.02	0.02	<.01	0.02	0.00	0.05	0.02
1978	0.11	0.01	0.02	0.02	0.03	0.00	0.01	0.04
1979	0.03	<.01	<.01	0.02	0.07	0.00	<.01	0.02
1980	0.02	0.02	0.01	0.00	0.02	<.01	0.01	0.02
1981	0.03	0.01	0.01	0.03	0.04	0.01	0.02	0.02
1982	0.13	<.01	<.01	0.06	0.03	0.01	<.01	0.06
1983	0.04	0.00	0.02	0.01	0.12	0.01	<.01	0.05

Table 10. (Cont'd)

Year	Bay system							
	Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre	Coastwide total
All species combined[a]								
1974	ND	ND	ND	ND	ND	ND	ND	ND
1975	0.58	ND	1.23	0.66	ND	0.49	ND	0.60
1976	ND	0.50	ND	ND	0.82	ND	0.31	0.45
1977	0.26	0.37	0.15	0.23	0.66	0.23	0.63	0.40
1978	0.33	0.32	0.36	0.33	0.34	0.25	0.28	0.31
1979	0.58	0.37	0.47	0.46	0.19	0.25	0.36	0.42
1980	0.25	0.37	0.23	0.66	0.44	0.52	0.57	0.40
1981	0.19	0.34	0.18	0.34	0.62	0.43	0.23	0.30
1982	0.21	0.64	0.64	0.79	0.48	0.45	0.54	0.41
1983	0.25	0.23	0.28	0.31	0.46	0.28	0.41	0.35

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

Table 11. Annual mean weight of fishes (kg/fish) by species and bay system caught by weekend sport-boat fishermen in Texas bays (May 1974-May 1983). ND = no data collected. Blank = no fish weighed.

Year	Bay system							
	Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre	Coastwide total
Spotted seatrout								
1974-75	0.63	ND	0.41	0.29	ND	0.54	ND	0.50
1975-76	ND	0.48	ND	ND	0.37	ND	0.55	0.44
1976-77	0.58	0.44	0.47	0.31	0.49	0.56	0.51	0.50
1977-78	0.68	0.47	0.47	0.32	0.44	0.45	0.53	0.50
1978-79	0.71	0.42	0.40	0.31	0.46	0.55	0.46	0.51
1979-80	0.45	0.41	0.45	0.39	0.53	0.50	0.45	0.45
1980-81	0.48	0.44	0.47	0.42	0.52	0.44	0.50	0.46
1981-82	0.68	0.45	0.47	0.38	0.54	0.46	0.53	0.50
1982-83	0.66	0.49	0.49	0.47	0.50	0.50	0.65	0.55
Red drum								
1974-75	0.70	ND	1.11	1.15	ND	1.12	ND	0.96
1975-76	ND	0.76	ND	ND	0.82	ND	0.81	0.78
1976-77	1.29	0.96	1.19	0.97	1.04	1.05	0.85	1.07
1977-78	1.08	1.15	0.72	1.03	1.05	1.10	1.13	1.02
1978-79	1.22	0.82	0.76	0.74	1.25	1.06	1.35	0.96
1979-80	0.59	0.82	0.76	0.70	0.87	0.73	0.64	0.75
1980-81	0.93	1.20	1.07	0.98	1.00	0.91	0.81	1.01
1981-82	1.56	1.03	1.08	1.03	1.09	1.06	1.47	1.13
1982-83	1.03	1.52	1.53	1.44	1.48	1.46	1.50	1.35
Black drum								
1974-75	1.86	ND	1.19	0.85	ND	2.02	ND	1.83
1975-76	ND	1.01	ND	ND	1.46	ND	1.04	1.22
1976-77	0.79	0.43	1.64	0.89	2.93	0.81	3.87	1.21
1977-78	1.03	0.69	1.21	0.55	3.83	1.44	4.66	1.33
1978-79	3.46	1.64	3.43	0.43	1.67	1.50	1.67	2.95
1979-80	0.38	0.48	3.04	0.50	4.42	0.64	0.52	1.65
1980-81	0.52	0.35	0.61	0.47	0.84	0.65	0.41	1.46
1981-82	0.79	0.43	0.62	1.05	0.58	0.94	1.67	0.79
1982-83	1.28	0.40	0.73	0.41	2.07	1.11	1.32	1.14

Table 11. (Cont'd)

Year	Bay system							
	Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre	Coastwide total
Southern flounder								
1974-75	0.50	ND	0.62	0.64	ND	0.75	ND	0.64
1975-76	ND	0.75	ND	ND	0.41	ND	0.94	0.75
1976-77	0.67	0.52	0.70	0.47	0.69	0.64	0.77	0.62
1977-78	0.65	0.52	0.60	0.64	0.60	0.68	0.84	0.63
1978-79	0.58	0.42	0.57	0.54	0.57	0.73	0.53	0.53
1979-80	0.51	0.60	0.59	0.50	0.65	0.74	0.61	0.61
1980-81	0.62	0.41	0.67	0.49	0.61	0.54	0.78	0.66
1981-82	0.56	0.44	0.73	0.48	0.56	0.77	0.76	0.66
1982-83	0.58	0.59	0.63	0.47	0.58	0.68	0.67	0.62
Sheepshead								
1974-75	0.67	ND	0.78	0.57	ND	1.33	ND	0.73
1975-76	ND	0.40	ND	ND	0.76	ND	1.10	0.71
1976-77	0.82	1.01	1.06	0.58	0.90	0.73	0.93	0.85
1977-78	0.86	0.63	0.72	0.58	0.69	0.95	0.72	0.81
1978-79	0.79	0.61	0.89	0.57	0.74	1.00	0.81	0.72
1979-80	0.88	0.75	1.00	0.65	0.98	1.14	0.64	0.82
1980-81	0.53	0.26	0.56	0.53	0.87	1.04	0.88	0.58
1981-82	0.83	0.37	0.73	0.94	0.99	1.09	0.95	0.68
1982-83	0.92	0.44	0.72	0.79	0.89	1.17	0.68	0.76
Atlantic croaker								
1974-75	0.19	ND	0.26	0.17	ND	0.34	ND	0.20
1975-76	ND	0.19	ND	ND	0.32	ND	0.39	0.28
1976-77	0.23	0.14	0.18	0.22	0.25	0.25	0.31	0.23
1977-78	0.22	0.14		0.25	0.21	0.30	0.23	0.22
1978-79	0.18	0.14	0.21	0.17	0.27	0.35	0.27	0.20
1979-80	0.20	0.21	0.29	0.10	0.20	0.24	0.27	0.21
1980-81	0.19	0.16	0.21	0.31	0.29	0.23	0.22	0.22
1981-82	0.17	0.15	0.12	0.34	0.28	0.28	0.24	0.25
1982-83	0.22	0.16	0.20	0.24	0.31	0.30	0.32	0.26

Table 11. (Cont'd)

Year	Bay system							
	Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre	Coastwide total
Sand seatrout								
1974-75	0.36	ND	0.31	0.26	ND	0.40	ND	0.36
1975-76	ND	0.25	ND	ND	0.29	ND	0.28	0.28
1976-77	0.36	0.24		0.21	0.33	0.25	0.31	0.34
1977-78	0.37	0.26	0.25	0.20	0.40	0.57	0.30	0.35
1978-79	0.29	0.27	0.22	0.28	0.30	0.39	0.24	0.29
1979-80	0.21	0.24	0.21	0.25	0.29	0.42	0.30	0.22
1980-81	0.21	0.24	0.31	0.21	0.29	0.30	0.23	0.26
1981-82	0.26	0.17	0.26	0.24	0.27	0.33	0.27	0.27
1982-83	0.25	0.20	0.23	0.23	0.27	0.32	0.33	0.27
Gafftopsail catfish								
1974-75	1.35	ND	1.30	0.88	ND		ND	1.31
1975-76	ND	1.16	ND	ND	1.27	ND		1.19
1976-77	1.98	1.26	1.19	1.48	1.26			1.48
1977-78	1.00	1.36	1.41	1.00	1.33			1.29
1978-79	1.25	1.45	0.94	1.33	1.31		1.00	1.32
1979-80	0.23	1.23	1.43	2.13	1.61			0.90
1980-81	0.93	1.04	0.87	1.58	1.22			1.13
1981-82	0.84	1.37	1.79	1.12	1.33			1.30
1982-83	0.72	0.98	1.72	0.96	1.18	0.20	1.40	1.25
Other species								
1974-75	0.31	ND	0.61	0.35	ND	0.36	ND	0.32
1975-76	ND	0.27	ND	ND	0.40	ND	2.75	0.99
1976-77	0.67	0.26	0.83	0.39	0.28	0.13	0.64	0.55
1977-78	0.49	0.79	0.50	0.22	0.26	0.21	0.28	0.50
1978-79	1.01	0.41	0.71	0.32	0.33	1.00	0.55	0.79
1979-80	0.22	0.88	0.74	0.08	0.31	0.23	0.32	0.40
1980-81	0.24	0.95	1.19	0.16	0.27	0.20	0.26	0.34
1981-82	0.25	0.51	0.61	0.59	0.29	0.18	0.34	0.35
1982-83	0.31	0.81	0.52	0.41	0.26	0.22	1.56	0.33

Table 12. Mean weight of fishes (kg/fish) for the high use season (15 May-20 Nov) by species and bay system caught by weekend sport-boat fishermen in Texas bays (May 1974-May 1983). ND = no data collected. Blank = no fish weighted.

Year	Bay system							
	Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre	Coastwide total
Spotted seatrout								
1974	0.62	ND	0.41	0.28	ND	0.54	ND	0.50
1975	ND	0.35	ND	ND	0.38	ND	0.55	0.44
1976	0.56	0.39	0.47	0.30	0.45	0.56	0.48	0.48
1977	0.68	0.45	0.46	0.30	0.43	0.44	0.54	0.50
1978	0.71	0.42	0.38	0.28	0.44	0.57	0.44	0.51
1979	0.42	0.35	0.44	0.37	0.52	0.53	0.48	0.44
1980	0.47	0.43	0.45	0.43	0.43	0.43	0.50	0.45
1981	0.68	0.42	0.47	0.37	0.54	0.45	0.49	0.49
1982	0.66	0.49	0.48	0.46	0.50	0.50	0.63	0.54
Red drum								
1974	0.59	ND	1.13	1.23	ND	1.22	ND	0.97
1975	ND	0.84	ND	ND	0.92	ND	0.84	0.86
1976	1.28	1.04	1.18	0.95	1.03	1.20	0.77	1.09
1977	1.08	1.23	0.81	1.16	1.17	1.22	1.30	1.11
1978	1.23	0.90	1.26	0.82	1.32	1.13	1.42	1.13
1979	0.60	0.92	1.24	0.77	1.35	1.14	0.94	1.09
1980	0.93	1.21	1.06	0.98	1.00	0.97	0.86	1.02
1981	1.58	1.03	1.47	1.16	1.08	1.09	1.51	1.23
1982	1.03	1.51	1.49	1.42	1.47	1.54	1.71	1.48
Black drum								
1974	1.26	ND	1.16	0.50	ND	2.74	ND	1.32
1975	ND	1.18	ND	ND	0.60	ND	0.79	0.74
1976	0.78	0.42	0.54	0.74	0.72	0.77	0.88	0.70
1977	0.91	0.47	0.79	0.34	0.77	1.14	0.79	0.82
1978	1.28	1.67	1.03	0.22	1.26	2.66	1.65	0.83
1979	0.37	0.46	0.39	0.50	0.65	0.46	0.58	0.45
1980	0.44	0.42	0.40	0.38	0.82	0.64	0.40	0.50
1981	0.69	0.40	0.53	0.54	0.59	0.56	2.39	0.75
1982	1.33	0.38	0.70	0.35	0.46	0.78	1.55	0.88

Table 12. (Cont'd)

Year	Bay system							
	Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre	Coastwide total
Southern flounder								
1974	0.46	ND	0.60	0.65	ND	0.72	ND	0.61
1975	ND	0.98	ND	ND	0.81	ND	1.13	0.97
1976	0.68	0.43	0.72	0.43	0.74	0.59	0.77	0.64
1977	0.69	0.53	0.63	0.63	0.70	0.76	0.85	0.66
1978	0.59	0.48	0.52	0.43	0.55	0.85	0.54	0.55
1979	0.51	0.62	0.62	0.49	0.74	0.80	0.71	0.65
1980	0.62	0.51	0.67	0.50	0.62	0.52	0.83	0.67
1981	0.47	0.42	0.77	0.49	0.55	0.84	0.79	0.68
1982	0.59	0.59	0.64	0.47	0.57	0.70	0.67	0.62
Sheepshead								
1974	0.72	ND	0.86	0.65	ND	1.00	ND	0.78
1975	ND	0.33	ND	ND	0.89	ND	0.87	0.56
1976	0.77	1.03	1.05	0.59	0.86	0.65	0.97	0.84
1977	0.86	0.67	0.92	0.68	0.61	1.11	0.70	0.83
1978	0.79	0.55	0.84	0.60	0.76	1.24	0.83	0.70
1979	0.87	0.69	1.00	0.66	1.01	0.93	0.74	0.85
1980	0.51	0.29	0.61	0.53	0.62	1.05	0.71	0.56
1981	0.82	0.50	0.93	0.82	0.90	0.88	0.90	0.74
1982	0.92	0.41	1.13	0.82	0.91	1.16	0.53	0.89
Atlantic croaker								
1974	0.20	ND	0.24	0.15	ND	0.35	ND	0.22
1975	ND	0.19	ND	ND	0.32	ND	0.41	0.34
1976	0.23	0.15	0.23	0.22	0.26	0.25	0.31	0.23
1977	0.22	0.13	0.39	0.27	0.21	0.30	0.23	0.22
1978	0.18	0.14	0.23	0.12	0.26	0.35	0.25	0.20
1979	0.21	0.28	0.30	0.10	0.24	0.24	0.23	0.21
1980	0.19	0.16	0.21	0.31	0.29	0.23	0.22	0.22
1981	0.17	0.15	0.12	0.34	0.28	0.28	0.21	0.24
1982	0.22	0.15	0.20	0.24	0.31	0.30	0.39	0.25

Table 12. (Cont'd)

Year	Bay system							
	Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre	Coastwide total
Sand seatrout								
1974	0.37	ND	0.28	0.26	ND	0.33	ND	0.37
1975	ND	0.25	ND	ND	0.28	ND	0.27	0.27
1976	0.36	0.24	0.22	0.21	0.31	0.25	0.29	0.34
1977	0.37	0.26	0.24	0.20	0.38	0.48	0.30	0.35
1978	0.29	0.27	0.22	0.37	0.29	0.41	0.21	0.29
1979	0.20	0.23	0.21	0.26	0.29	0.35	0.27	0.21
1980	0.21	0.24	0.31	0.21	0.29	0.30	0.24	0.25
1981	0.26	0.17	0.26	0.21	0.27	0.33	0.31	0.26
1982	0.25	0.20	0.24	0.23	0.26	0.32	0.33	0.26
Gafftopsail catfish								
1974	1.35	ND	1.39	0.92	ND		ND	1.32
1975	ND	0.59	ND	ND		ND		0.60
1976	2.06	1.24	1.11	1.52	1.52		0.22	1.51
1977	0.88	1.39	1.43	1.93	1.27			1.32
1978	1.26	1.45	0.91	1.51	1.24	2.42	0.83	1.36
1979	0.22	1.21	1.51		1.62	1.02		0.74
1980	0.92	1.27	0.67	1.37	1.17			1.13
1981	0.84	1.37	1.79	1.09	1.33			1.30
1982	0.72	0.98	1.72	0.96	0.77	0.20	1.40	0.93
Other species								
1974	0.54	ND	0.63	0.24	ND	0.36	ND	0.50
1975	ND	0.34	ND	ND	0.43	ND	0.38	0.42
1976	0.62	0.25	1.04	0.37	0.26	0.13	1.69	0.60
1977	0.42	0.84	0.64	0.13	0.23	0.22	0.26	0.52
1978	1.22	0.40	0.74	0.49	0.22		0.35	0.95
1979	0.22	0.75	0.53	0.08	0.33	0.23	0.31	0.35
1980	0.24	0.52	1.46	0.25	0.25	0.20	0.26	0.33
1981	0.24	0.53	0.62	0.98	0.27	0.18	0.34	0.35
1982	0.31	0.81	0.53	0.41	0.24	0.21	1.59	0.38

Table 13. Mean weight of fishes (kg/fish) for the low use season (21 Nov-14 May) by species and bay system caught by weekend sport-boat fishermen in Texas bays (May 1974-May 1983). ND = no data collected. Blank = no fish weighed.

Year	Bay system							
	Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre	Coastwide total
Spotted seatrout								
1974	ND	ND	ND	ND	ND	ND	ND	ND
1975	0.73	ND	0.42	0.36	ND	0.54	ND	0.49
1976	ND	0.56	ND	ND	0.36	ND	0.53	0.47
1977	0.64	0.58	0.63	0.39	0.57	0.53	0.55	0.55
1978	0.80	0.65	0.48	0.48	0.49	0.47	0.50	0.52
1979	0.76	0.42	0.59	0.46	0.63	0.51	0.60	0.52
1980	0.89	0.50	0.56	0.46	0.55	0.48	0.40	0.48
1981	0.62	0.64	0.50	0.41	0.81	0.45	0.53	0.54
1982	0.67	0.64	0.48	0.43	0.54	0.52	0.71	0.57
1983	1.29	0.60	0.68	0.56	0.54	0.57	0.74	0.64
Red drum								
1974	ND	ND	ND	ND	ND	ND	ND	ND
1975	0.88	ND	1.06	0.76	ND	1.00	ND	0.94
1976	ND	0.70	ND	ND	0.67	ND	0.79	0.73
1977	1.45	0.71	1.48	1.12	0.70	0.83	1.07	1.00
1978	1.11	1.09	0.67	0.77	0.69	0.97	0.79	0.80
1979	1.14	0.60	0.68	0.74	0.71	1.02	1.12	0.70
1980	0.70	0.67	0.56	0.68	0.65	0.67	0.57	0.60
1981	0.90	1.05	1.09	0.91	0.94	0.73	0.61	0.49
1982	1.32	1.06	1.01	0.81	1.27	0.96	1.42	1.04
1983	0.86	1.62	1.82	1.49	1.76	0.93	0.88	1.27
Black drum								
1974	ND	ND	ND	ND	ND	ND	ND	ND
1975	2.24	ND	1.20	1.04	ND	1.94	ND	2.10
1976	ND	0.59	ND	ND	3.62	ND	1.20	1.91
1977	1.59	0.43	14.65	1.39	9.84		5.57	4.81
1978	1.98	2.08	1.40	0.84	6.98	1.56	6.08	2.99
1979	6.84	0.45	7.32	0.54	3.48	1.07	1.78	5.88
1980	0.60	0.52	3.36		5.86	0.90	0.50	3.00
1981	1.00	0.20	0.73	0.66	0.93	0.60	0.67	4.61
1982	1.18	0.62	0.65	2.00	0.49	1.08	0.88	0.85
1983	0.62	0.72	0.93	0.75	7.72	2.88	1.18	3.22

Table 13. (Cont'd)

Year	Bay system							
	Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre	Coastwide total
Southern flounder								
1974	ND	ND	ND	ND	ND	ND	ND	ND
1975	0.63	ND	0.71	0.46	ND	0.79	ND	0.72
1976	ND	0.40	ND	ND	0.31	ND	0.68	0.39
1977	0.59	0.57	0.46	0.76	0.49		0.62	0.57
1978	0.46	0.48	0.56	0.62	0.35	0.65	0.89	0.53
1979	0.49	0.27	0.65	0.65	0.69	0.69	0.54	0.48
1980	0.50	0.50	0.16	0.56	0.49	0.65	0.42	0.48
1981	0.72	0.37	0.80	0.42	0.57	0.65	0.39	0.55
1982	0.67	0.46	0.50	0.46	0.62	0.53	0.57	0.59
1983	0.49	0.60	0.55	0.48	0.62	0.56	0.67	0.58
Sheepshead								
1974	ND	ND	ND	ND	ND	ND	ND	ND
1975	0.68	ND	0.70	0.55	ND	1.54	ND	0.72
1976	ND	0.42	ND	ND	0.68	ND	1.25	0.77
1977	1.19	0.95		0.54	0.91	0.95	0.88	0.88
1978	0.93	0.42	0.54	0.50	0.86	0.95	0.74	0.71
1979	0.80	0.80	0.76	0.58	1.00	0.98	0.80	0.78
1980	0.97	0.85	0.74		1.03	1.28	0.62	0.78
1981	1.60	0.19	0.41	0.35	0.98	1.02	1.00	0.61
1982	0.95	0.26	0.46	0.98	1.25	1.23	0.98	0.62
1983	0.75	1.13	0.58	0.63	0.88	1.22	0.76	0.86
Atlantic croaker								
1974	ND	ND	ND	ND	ND	ND	ND	ND
1975	0.17	ND	0.32	0.14	ND	0.25	ND	0.17
1976	ND		ND	ND	0.25	ND	0.20	0.21
1977	0.26	0.11	0.28		0.22	0.18	0.30	0.20
1978	0.25	0.25	0.22		0.29	0.34	0.21	0.27
1979	0.15					0.22	0.19	0.21
1980	0.10	0.13		0.11	0.18	0.29	0.21	0.13
1981	1.00	0.07			0.26	0.33	0.21	0.23
1982	0.25	0.14			0.21	0.29	0.38	0.39
1983	0.28	0.20			0.23	0.21	0.13	0.18

Table 13. (Cont'd)

Year	Bay system							
	Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre	Coastwide total
Sand seatrout								
1974	ND	ND	ND	ND	ND	ND	ND	ND
1975	0.27	ND	0.36	0.27	ND	0.54	ND	0.28
1976	ND		ND	ND	0.31	ND	0.39	0.31
1977	0.30				0.35		0.38	0.35
1978	0.33	0.23		0.26	0.76	0.79	0.32	0.35
1979	0.30			0.25	0.49	0.38	0.34	0.31
1980	0.25	0.20		0.40	0.26	0.50	0.33	0.28
1981	0.30				0.31		0.20	0.30
1982		0.36	0.22	0.28	0.31	0.35	0.40	0.32
1983			0.15		0.35	0.30	0.45	0.35
Gafftopsail catfish								
1974	ND	ND	ND	ND	ND	ND	ND	ND
1975	1.42	ND	1.20	1.41	ND		ND	1.25
1976	ND	1.79	ND	ND	1.28	ND		1.53
1977	1.73	1.67	1.29	1.35	0.97			1.38
1978	1.31	1.15	1.21	0.83	1.50			1.26
1979	1.25	1.56	0.85	1.22	1.47			1.26
1980			1.34	2.13	1.59			1.75
1981		0.70	1.08	2.21	1.34			1.13
1982				1.29				1.29
1983					1.65			1.65
Other species								
1974	ND	ND	ND	ND	ND	ND	ND	ND
1975	0.27	ND	0.41	0.62	ND	0.11	ND	0.28
1976	ND	0.25	ND	ND	0.39	ND	3.93	1.17
1977	6.84	0.25	0.25	0.45	0.32		0.29	0.37
1978	0.52	0.28	0.28	0.35	0.30		0.22	0.48
1979	0.25		0.53	0.20	0.38		2.03	0.31
1980	0.21	1.11	1.09		0.30	0.23	0.33	0.55
1981	0.30	9.55	0.35	0.09	0.38		0.28	0.67
1982	0.34	0.15	0.42	0.44	0.38	0.20	0.45	0.37
1983	0.30		0.51	0.19	0.28	0.34	0.25	0.29

Table 14. Estimated annual harvest (No. X 1000) of fishes by species and area caught by sport-boat fishermen in the pass and jetty areas of Texas.

Species	Year	Galveston	Matagorda	Corpus Christi	Lower Laguna Madre	Coastwide total
Spotted seatrout						
	1982-83	40.9	6.9	8.3	0.3	56.4
Red drum						
	1982-83	2.8	1.4	2.0	0.0	6.2
Black drum						
	1982-83	3.6	0.8	0.6	0.0	5.0
Southern flounder						
	1982-83	17.5	0.4	2.0	0.2	20.1
Sheepshead						
	1982-83	10.3	2.5	18.2	0.0	31.0
Atlantic croaker						
	1982-83	5.0	0.3	1.8	0.0	7.1
Sand seatrout						
	1982-83	48.5	3.9	11.0	0.9	64.3
Gafftopsail catfish						
	1982-83	0.7	0.4	0.2	0.0	1.3
Other						
	1982-83	0.2	2.6	3.6	0.2	15.6
All species combined[a]						
	1982-83	138.5	19.1	47.6	1.6	206.8

[a]Due to rounding of numbers, totals may not exactly equal individual species totals.

Table 15. Estimated harvest (No. X 1000) of fishes for the high use season (21 Nov-14 May) by species and area caught by sport-boat fishermen in the pass and jetty areas of Texas.

Species	Year	Galveston	Matagorda	Corpus Christi	Lower Laguna Madre	Coastwide Total
Spotted seatrout						
	1982	40.9	6.2	7.6	0.3	55.0
Red drum						
	1982	2.8	1.2	1.5	0.0	5.5
Black drum						
	1982	3.1	0.2	0.4	0.0	3.7
Southern flounder						
	1982	16.9	0.4	2.0	0.2	19.5
Sheepshead						
	1982	6.7	0.7	0.6	0.0	8.0
Atlantic croaker						
	1982	5.0	0.3	0.4	0.0	5.7
Sand seatrout						
	1982	48.5	3.7	7.1	0.9	60.2
Gafftopsail catfish						
	1982	0.7	0.2	0.1	0.0	1.0
Other						
	1982	9.2	2.0	3.1	0.2	14.5
All species combined[a]						
	1982	133.7	15.1	22.7	1.6	173.1

[a]Due to rounding of numbers, totals may not exactly equal individual species totals.

Table 16. Estimated harvest (No. X 1000) of fishes for the low use season (21 Nov-14 May) by species and area caught by sport-boat fishermen in the pass and jetty areas of Texas.

Species	Year	Galveston	Matagorda	Corpus Christi	Lower Laguna Madre	Coastwide Total
Spotted seatrout						
	1983	0.0	0.6	0.8	0.0	1.4
Red drum						
	1983	0.0	0.2	0.5	0.0	0.7
Black drum						
	1982	0.5	0.6	0.2	0.0	1.3
Southern flounder						
	1983	0.7	<.1	<.1	0.0	0.9
Sheepshead						
	1983	3.7	1.8	17.6	0.0	23.1
Atlantic croaker						
	1983	0.0	<.1	1.3	0.0	1.4
Sand seatrout						
	1983	0.0	0.2	3.9	0.0	4.1
Gafftopsail catfish						
	1983	0.0	0.2	0.1	0.0	0.3
Other						
	1983	0.0	0.4	0.5	0.0	0.9
All species combined[a]						
	1983	4.8	4.0	24.9	0.0	33.7

[a]Due to rounding of numbers, totals may not exactly equal individual species totals.

Table 17. Mean catch rates (No./man-h) and mean weights of fishes (kg) caught by sport-boat fishermen during the high use season (15 May-20 Nov) by species in the pass and jetty areas in Texas marine waters. Blank = no fish weighed.

Species Year	Pass and jetty area							
	Galveston		Matagorda		Corpus Christi		Lower Laguna Madre	
	No./man-h	Kg	No./man-h	Kg	No./man-h	Kg	No./man-h	Kg
Spotted seatrout								
1978	0.06	0.85	0.08	0.63	0.44	0.37	0.00	
1979	0.20	0.75	0.28	0.62	0.19	0.40	0.00	
1980	0.12	0.78	0.17	0.59	0.03	0.65	0.00	
1981	0.16	0.80	0.33	0.58	0.15	0.60	0.00	
1982	0.17	0.84	0.18	0.78	0.15	0.60	0.08	0.53
Red drum								
1978	0.01	5.26	0.01	3.87	0.00		0.00	
1979	0.01	3.82	0.04	3.36	0.01	0.53	0.00	
1980	0.03	2.72	0.05	2.53	0.06	1.77	0.02	8.15
1981	0.01	3.21	0.02	2.66	0.02	1.77	0.00	
1982	0.01	2.50	0.04	2.74	0.02	1.89	0.00	
Black drum								
1978	0.01	1.41	0.01	0.43	0.00		0.00	
1979	.01	1.02	0.01	0.94	0.00		0.00	
1980	0.01	1.18	0.01	2.89	.01		0.00	
1981	0.01	1.00	.01	1.46	.01	1.92	0.00	
1982	0.02	1.45	0.01	1.12	0.01	1.94	0.00	
Southern flounder								
1978	0.07	0.75	0.01	0.55	0.15	0.96	0.00	
1979	0.05	0.44	0.02	0.85	0.01	0.91	0.00	
1980	0.02	0.53	.01	0.47	0.08	0.38	0.00	
1981	0.02	0.69	0.01	0.71	0.02	0.82	0.00	
1982	0.05	0.64	0.01	0.63	0.03	0.34	0.06	0.49

Table 17. (Cont'd)

Species / Year	Pass and jetty area: Galveston No./man-h	Galveston Kg	Matagorda No./man-h	Matagorda Kg	Corpus Christi No./man-h	Corpus Christi Kg	Lower Laguna Madre No./man-h	Lower Laguna Madre Kg
Sheepshead								
1978	0.05	0.64	0.07	0.58	0.03	0.63	0.00	
1979	0.05	0.67	0.02	0.42	0.33	0.53	0.00	
1980	0.06	0.79	0.07	0.70	0.02	1.08	0.06	0.30
1981	0.02	0.76	0.02	0.66	0.11	0.65	0.00	
1982	0.03	0.78	0.02	0.84	0.02	0.91	0.00	
Atlantic croaker								
1978	0.06	0.25	<.01	0.13	0.01	0.22	0.00	
1979	0.03	0.16	0.01	0.25	0.02	0.27	0.00	
1980	0.03	0.13	0.06	0.33	0.32	0.29	0.00	
1981	0.03	0.18	<.01	0.41	0.04		0.00	
1982	0.03	0.22	0.02	0.27	0.02	0.37	0.00	
Sand seatrout								
1978	0.20	0.22	<.01	0.45	0.55	0.25	0.00	
1979	0.10	0.26	0.19	0.29	0.04	0.14	0.00	
1980	0.07	0.24	0.06	0.34	0.32	0.22	0.00	
1981	0.20	0.28	0.05	0.42	0.08	0.29	0.00	
1982	0.26	0.25	0.09	0.27	0.60	0.26	0.50	0.27
Gafftopsail catfish								
1978	<.01	1.64	0.02	0.90	0.00		0.00	
1979	<.01	0.91	0.00		0.00		0.00	
1980	0.01	1.20	0.01	0.93	0.00		0.00	
1981	<.01	1.30	0.01	1.10	<.01	1.30	0.00	
1982	0.00	0.97	0.01	0.79	0.01	0.83	0.00	

Table 17. (Cont'd)

Species Year	Pass and jetty area							
	Galveston		Matagorda		Corpus Christi		Lower Laguna Madre	
	No./man-h	Kg	No./man-h	Kg	No./man-h	Kg	No./man-h	Kg
Other								
1978	0.03	0.47	0.03	10.79	0.01	0.22	0.00	
1979	0.09	0.57	0.04	1.24	0.07	0.45	0.00	
1980	0.07	0.39	0.04	1.09	0.07	1.76	0.49	0.69
1981	0.07	0.41	0.03	1.56	0.17	1.59	0.00	
1982	0.06	0.37	0.07	0.96	0.30	0.31	0.15	1.57
All species combined[a]								
1978	0.48		0.23		1.19		0.00	
1979	0.53		0.60		0.67		0.00	
1980	0.41		0.48		0.93		0.58	
1981	0.51		0.48		0.59		0.00	
1982	0.63		0.45		1.14		0.79	

[a]Due to rounding of numbers, these totals may not exactly equal individual species totals.

Table 18. Mean catch rates (No./man-h) and mean weights of fishes (kg) caught by sport-boat fishermen during the low use season (21 Nov-14 May) by species in the pass and jetty areas in Texas marine waters. Blank = no fish weighed.

Species / Year	Pass and jetty area						
	Galveston		Matagorda		Corpus Christi		Lower Laguna Madre
	No./man-h	Kg	No./man-h	Kg	No./man-h	Kg	No./man-h Kg
Spotted seatrout							
1978	0.00		0.01	1.52	0.00		0.00
1979	0.01	0.60	0.02	1.15	0.00		0.00
1980	0.00		0.13	0.55	0.06	0.97	0.00
1981	0.01	0.90	0.03	0.47	0.01	1.05	0.00
1982	0.00		0.10	0.85	0.01		0.00
1983	0.00		0.06	1.02	0.05	0.91	0.00
Red drum							
1978	<.01	4.26	0.02	2.44	0.00		0.00
1979	0.01	3.17	0.04	2.01	0.01	0.96	0.00
1980	0.01	3.44	0.03	1.01	0.02	1.83	0.00
1981	0.00		0.00		0.30	2.06	0.00
1982	0.00		0.02	2.50	0.09		0.00
1983	0.00		0.02	2.23	0.02	3.79	0.00
Black drum							
1978	0.05	12.45	0.01	8.38	0.00		0.00
1979	<.01	5.28	0.00		0.00		0.00
1980	<.01	1.82	0.00		0.00		0.00
1981	0.02	2.25	0.28	4.95	0.00		0.00
1982	0.15	4.86	0.02	13.66	0.01		0.00
1983	0.03	10.02	0.07	9.08	0.02	1.06	0.00
Southern flounder							
1978	0.01	0.49	0.00		0.00		0.00
1979	0.01	0.47	0.00		0.00		0.00
1980	0.01	0.82	0.00		0.00		0.00
1981	0.00		0.00		0.00		0.00
1982	0.00		0.01		<.01		0.00
1983	0.03		<.01		<.01		0.00

Table 18. (Cont'd)

Species Year	Pass and jetty area						
	Galveston		Matagorda		Corpus Christi		Lower Laguna Madre
	No./man-h	Kg	No./man-h	Kg	No./man-h	Kg	No./man-h Kg
Sheepshead							
1978	<.01	0.84	0.19	0.48	0.00		0.00
1979	<.01	1.81	0.09	0.80	0.47	0.54	0.00
1980	<.01	1.55	0.18	0.84	0.46	0.66	0.00
1981	0.02	0.85	0.59	0.84	1.11	0.60	0.00
1982	0.02	0.95	0.16	0.78	0.01		0.00
1983	0.31		0.33	0.89	1.58	1.03	0.00
Atlantic croaker							
1978	<.01		0.01		0.00		0.00
1979	0.02	0.21	0.00		0.00		0.00
1980	0.02	0.11	0.00		0.00		0.00
1981	0.00		0.00		0.00		0.00
1982	0.17	0.12	0.00		0.00		0.00
1983	0.00		<.01	0.50	0.05	0.29	0.00
Sand seatrout							
1978	<.01	0.31	0.00		0.00		0.00
1979	0.48	0.26	0.00		0.00		0.00
1980	0.14	0.23	0.01	0.27	0.05	0.41	0.00
1981	0.16		0.00		0.00		0.00
1982	0.00		0.16	0.40	0.07	0.22	0.00
1983	0.00		0.03	0.23	0.19	0.28	0.00
Gafftopsail catfish							
1978	0.05	1.59	0.01	1.64	0.00		0.00
1979	0.01	1.87	0.04	1.48	0.05	0.70	0.00
1980	0.00		0.02	1.07	0.00		0.00
1981	0.01	0.40	0.00		0.00		0.00
1982	0.00		0.02	1.75	0.01	1.63	0.00
1983	0.00		0.02	1.20	<.01	0.48	0.00

Table 18. (Cont'd)

Species / Year	Pass and jetty area							
	Galveston		Matagorda		Corpus Christi		Lower Laguna Madre	
	No./man-h	Kg	No./man-h	Kg	No./man-h	Kg	No./man-h	Kg
Other								
1978	0.01		0.01	0.45	0.00		0.00	
1979	0.02	0.32	<.01		0.09	6.24	0.00	
1980	0.02	0.28	0.13	0.31	0.04	0.38	0.00	
1981	0.01	9.80	0.00		0.00		0.00	
1982	0.00		0.05	0.35	0.05	0.32	0.00	
1983	0.00		0.08	0.35	0.04	0.29	0.00	
All species combined[a]								
1978	0.12		0.24		0.00		0.00	
1979	0.54		0.20		0.59		0.00	
1980	0.20		0.51		0.63		0.00	
1981	0.24		0.90		1.42		0.00	
1982	0.34		0.53		0.25		0.00	
1983	0.36		0.60		1.96		0.00	

[a]Due to rounding of numbers, these totals may not exactly equal individual species totals.

Table 19. Estimated annual harvest (No. X 1000) of fishes by species and area caught by sport-boat fishermen in the Gulf of Mexico off Texas.

Species	Year	Galveston	Matagorda	Corpus Christi	Lower Laguna Madre	Coastwide Total
Spotted seatrout						
	1982-83	1.4	0.8	0.1	0.2	2.5
Red drum						
	1982-83	0.0	0.1	<.1	0.0	0.2
King mackerel						
	1982-83	13.4	4.2	4.5	1.2	23.3
Spanish mackerel						
	1982-83	2.5	0.8	0.3	<.1	3.7
Red snapper						
	1982-83	12.1	15.5	2.2	11.3	41.1
Atlantic croaker						
	1982-83	0.5	0.2	0.2	0.6	1.5
Sand seatrout						
	1982-83	34.0	33.3	3.2	1.0	71.5
Cobia						
	1982-83	0.6	0.5	0.1	0.1	1.3
Other						
	1982-83	5.8	3.4	3.7	1.2	14.1
All species combined[a]						
	1982-83	70.3	58.7	14.4	15.6	159.0

[a]Due to rounding of numbers, totals may not exactly equal individual species totals.

Table 20. Estimated harvest (No. X 1000) of fishes for the high use season (15 May-20 Nov) by species and area caught by sport boat fishermen in the Gulf of Mexico off Texas.

Species	Year	Galveston	Matagorda	Corpus Christi	Lower Laguna Madre	Coastwide Total
Spotted seatrout						
	1982	1.4	0.8	0.1	0.2	2.5
Red drum						
	1982	0.0	0.1	<.1	0.0	0.2
King mackerel						
	1982	13.4	4.2	4.5	1.2	23.3
Spanish mackerel						
	1982	2.5	0.8	0.3	<.1	3.7
Red snapper						
	1982	9.5	10.3	1.9	11.2	32.9
Atlantic croaker						
	1982	0.3	0.1	0.2	0.6	1.2
Sand seatrout						
	1982	0.2	28.7	3.2	1.0	33.1
Cobia						
	1982	0.6	0.5	0.1	0.1	1.3
Other						
	1982	5.6	2.9	3.5	1.2	13.2
All species combined[a]						
	1982	33.5	48.3	13.8	15.4	111.0

[a]Due to rounding of numbers, totals may not exactly equal individual species totals.

Table 21. Estimated harvest (No. X 1000) of fishes for the low use season (21 Nov-14 May) by species and area caught by sport boat fishermen in the Gulf of Mexico off Texas.

Species	Year	Galveston	Matagorda	Corpus Christi	Lower Laguna Madre	Coastwide Total
Spotted seatrout						
	1983	0.0	0.1	0.0	0.0	0.1
Red drum						
	1983	0.0	<.1	0.0	0.0	< .1
King mackerel						
	1983	0.0	0.0	0.0	0.0	0.0
Spanish mackerel						
	1983	0.0	<.1	0.0	0.0	<.1
Red snapper						
	1983	2.6	5.1	0.3	0.1	8.1
Atlantic croaker						
	1983	0.1	0.1	0.0	0.0	0.2
Sand seatrout						
	1983	33.8	4.6	0.0	0.	38.4
Cobia						
	1983	0.0	0.0	0.0	0.0	0.0
Other						
	1983	0.1	0.5	0.3	0.0	0.9
All species combined[a]						
	1983	36.7	10.4	0.6	0.1	47.8

[a]Due to rounding of numbers, totals may not exactly equal individual species totals.

Table 22. Mean catch rates (No./man-h) and mean weights (kg) of fishes caught by sport-boat fishermen during the high use season (15 May-20 Nov) by species in the Gulf of Mexico. Blank = no fish weighed.

	Gulf of Mexico							
	Galveston		Matagorda		Corpus Christi		Lower Laguna Madre	
Species Year	No./man-h	Kg	No./man-h	Kg	No./man-h	Kg	No./man-h	Kg
Spotted seatrout								
1978	0.00		<.01	0.62	0.00		0.00	
1979	0.00		0.00		0.02	0.40	0.00	
1980	<.01	0.60	0.03	0.67	<.01	0.49	0.00	
1981	<.01	0.40	0.01	0.71	<.00		0.01	
1982	0.02	0.77	0.03	0.63	<.01	0.69	0.01	0.59
Red drum								
1978	<.01	2.98	0.00		<.01	8.97	0.00	
1979	0.00		<.01	10.21	<.01	10.91	0.00	
1980	<.01		0.01	1.11	<.01	11.25	0.00	
1981	0.00		0.00	5.17	<.01	5.36	<.01	11.46
1982	0.00		<.01	1.34	<.01	1.20	0.00	
King mackerel								
1978	0.02	6.86	0.09	5.78	0.05	6.37	0.08	4.18
1979	0.01	3.65	0.10	4.56	0.08	5.86	0.09	4.00
1980	0.08	4.57	0.10	4.06	0.10	4.17	0.14	2.50
1981	0.01	5.44	0.10	4.88	0.11	5.07	0.13	3.65
1982	0.05	5.87	0.09	6.05	0.06	5.98	0.03	4.01
Spanish mackerel								
1978	<.01	1.34	0.01	0.85	0.10	0.68	0.00	
1979	0.10	0.43	0.01	1.11	0.02	1.42	0.07	0.46
1980	0.03	1.17	0.01	0.77	0.02	0.45	0.00	
1981	0.02	0.84	0.02	1.40	0.01	0.82	0.02	0.85
1982	0.01	0.95	<.01	1.13	<.01	0.54	<.01	

Table 22. (Cont'd)

Species Year	Gulf of Mexico							
	Galveston		Matagorda		Corpus Christi		Lower Laguna Madre	
	No./man-h	Kg	No./man-h	Kg	No./man-h	Kg	No./man-h	Kg
Red snapper								
1978	0.10	0.38	0.01	0.52	<.01	0.05	0.25	0.51
1979	0.17	0.43	0.08	0.88	<.01	0.85	0.00	
1980	0.14	0.45	0.18	1.06	0.01	1.73	0.33	
1981	0.15	0.21	0.16	0.41	0.03	0.38	0.14	
1982	0.11	0.44	0.10	0.47	0.02	0.54	0.59	0.86
Atlantic croaker								
1978	0.00		0.00		0.02	0.22	0.00	
1979	0.02	0.13	<.01	0.36	<.01	0.19	0.00	
1980	<.01	0.50	<.01	0.32	<.01	0.31	0.00	
1981	0.00		0.01	0.13	0.00		0.00	
1982	0.01		<.01	0.54	<.01	0.21	0.02	
Sand seatrout								
1978	0.02	0.34	0.01	0.42	0.02	0.24	0.00	
1979	0.03	0.31	0.04	0.40	0.05	0.29	0.00	
1980	0.02	0.26	0.14	0.37	0.01	0.23	0.01	0.22
1981	0.00		0.06	0.43	<.01	0.24	0.01	
1982	<.01	0.45	0.11	0.34	0.04	0.25	0.05	0.40
Cobia (ling)								
1978	0.02	2.49	0.01	2.84	0.01	11.36	0.00	
1979	0.01	10.93	<.01	9.51	<.01	9.18	0.00	
1980	0.01	7.26	<.01	7.58	<.01	4.05	0.00	
1981	0.01	4.58	0.01	10.44	<.01	5.19	0.00	
1982	<.01	10.67	0.01	6.72	<.01	9.38	<.01	5.10

Table 22. (Cont'd)

Species / Year	Gulf of Mexico							
	Galveston		Matagorda		Corpus Christi		Lower Laguna Madre	
	No./man-h	Kg	No./man-h	Kg	No./man-h	Kg	No./man-h	Kg
Other								
1978	0.06	1.09	0.06	2.72	0.03	2.90	0.06	2.74
1979	0.12	0.97	0.07	1.77	0.03	3.26	0.15	6.81
1980	0.07	2.22	0.04	3.84	0.05	3.26	0.06	68.25
1981	0.19	0.58	0.07	6.45	0.04	3.92	0.05	2.82
1982	0.07	1.19	0.06	1.63	0.05	2.17	0.04	2.86
All species combined[a]								
1978	0.22		0.18		0.13		0.39	
1979	0.45		0.31		0.21		0.31	
1980	0.35		0.51		0.20		0.54	
1981	0.38		0.44		0.20		0.35	
1982	0.27		0.39		0.18		0.75	

[a]Due to rounding of numbers, these totals may not exactly equal individual species totals.

Table 23. Mean catch rates (No./man-h) and mean weights (kg) of fishes caught by sport boat fishermen during the low use season by species in the Gulf of Mexico. Blank = no fish weighed.

Species / Year	Gulf of Mexico							
	Galveston		Matagorda		Corpus Christi		Lower Laguna Madre	
	No./man-h	Kg	No./man-h	Kg	No./man-h	Kg	No./man-h	Kg
Spotted seatrout								
1978	0.00		0.00		0.00		0.35	0.45
1979	0.00		0.01	0.79	0.00		0.00	
1980	0.00		0.00		0.00		0.00	
1981	0.00		0.00		0.00		0.00	
1982	0.00		0.00		0.00		0.00	
1983	0.00		0.02	0.84	0.00		0.00	
Red drum								
1978	0.00		<.01	12.84	0.00		0.00	
1979	0.02	11.36	<.01	4.31	0.00		0.00	
1980	0.01	1.82	0.00		0.00		0.00	
1981	0.00		0.00		0.06	3.70	0.00	
1982	0.00		0.01		0.00		0.00	
1983	0.00		0.01	2.02	0.00		0.00	
King mackerel								
1978	0.00		0.00		0.00		0.01	5.91
1979	0.00		0.00		0.00		0.00	
1980	0.05	5.18	0.01	5.95	0.00		0.00	
1981	0.00		0.00		0.00		0.00	
1982	0.00		0.00		0.01	9.37	0.00	
1983	0.00		0.00		0.00		0.00	
Spanish mackerel								
1978	0.00		0.00		0.00		0.00	
1979	0.00		0.00		0.47	0.42	0.00	
1980	0.00		0.00		0.00		0.00	
1981	0.00		0.00		0.00		0.00	
1982	0.00		0.00		0.01	0.25	0.00	
1983	0.00		<.01	0.30	0.00		0.00	

Table 23. (Cont'd)

Species Year	Gulf of Mexico							
	Galveston		Matagorda		Corpus Christi		Lower Laguna Madre	
	No./man-h	Kg	No./man-h	Kg	No./man-h	Kg	No./man-h	Kg
Red snapper								
1978	0.00		0.02	0.77	0.00		0.00	
1979	1.08	0.32	0.11	0.82	0.00		0.00	
1980	0.00		0.37	0.91	0.00		2.14	0.92
1981	0.00		0.03		0.00		0.00	
1982	0.00		0.42	0.28	0.00		0.03	
1983	0.49		0.79	0.46	0.14		0.28	
Atlantic croaker								
1978	0.00		0.00		0.00		0.00	
1979	0.00		0.00		0.00		0.00	
1980	0.00		0.00		0.00		0.00	
1981	0.14	0.40	0.00		0.00		0.00	
1982	0.00		0.00		0.00		0.00	
1983	0.03	0.35	0.02	0.39	0.00		0.00	
Sand seatrout								
1978	0.00		0.00		0.00		0.00	
1979	0.10	0.21	0.41		0.00		0.00	
1980	0.03	0.24	0.17	0.42	0.00		0.00	
1981	0.00		2.47	0.30	0.00		0.00	
1982	0.00		1.84	0.38	0.00		0.00	
1983	6.24		1.82	0.40	0.00		0.00	
Cobia (ling)								
1978	0.00		<.01		0.00		0.00	
1979	0.00		0.00		0.00		0.00	
1980	0.02	6.80	0.00		0.00		0.00	
1981	0.00		0.00		0.00		0.00	
1982	0.00		0.00		<.01	10.66	0.00	
1983	0.00		0.00		0.00		0.00	

Table 23. (Cont'd)

Species / Year	Gulf of Mexico							
	Galveston		Matagorda		Corpus Christi		Lower Laguna Madre	
	No./man-h	Kg	No./man-h	Kg	No./man-h	Kg	No./man-h	Kg
Other								
1978	0.03	1.59	0.08	13.31	0.23	0.95	0.13	31.87
1979	0.06	0.63	0.10	0.30	0.01	14.55	0.00	
1980	0.01		0.02	3.78	0.01		0.00	
1981	1.29	0.47	0.00		0.00		0.00	
1982	0.00		0.15	5.56	0.05	8.85	0.00	
1983	0.03		0.12	0.67	0.06	2.77	0.00	
All species combined[a]								
1978	0.03		0.10		0.23		0.50	
1979	1.25		0.63		0.49		0.00	
1980	0.11		0.57		0.01		2.14	
1981	1.43		2.50		0.06		0.00	
1982	0.00		2.41		0.08		0.03	
1983	6.78		2.78		0.20		0.28	

[a]Due to rounding of numbers, these totals may not exactly equal individual species totals.

Appendix A: Boat ramp access points

Boat ramp access points in Texas bay systems.

Table 1. ~~Gill net station locations in each bay system. May 1974-May 1983.~~

Bay system	Station number In use	Station number Deleted	Latitude	Longitude	Station identification
Galveston		(1)			(Cedar Bayou Outflow - Deleted 12/1/77)
	79		29°48'17"	94°48'35"	Cotton Lake Ramp
		(2)			(Woodall's - Deleted 7/26/81)
	3		29°41'00"	94°52'00"	Crawleys Ramp
		(77)			(Will's - Deleted 11/21/82)
	4		29°40'56"	94°56'09"	Thompson's Ramp
	5		29°43'20"	94°56'35"	Roseland Park Ramp
	6		29°42'38"	95°00'24"	Tabb's Bay Ramp
		(90)			(San Jacinto Bay Bridge - Deleted 10/3/81)
	7		29°41'09"	94°59'03"	Morgan's Point Ramp
	8		29°38'55"	95°00'42"	Sylvan Beach Ramp
	85		29°33'51"	95°04'03"	Clear Lake Ramp
	91		29°37'25"	95°00'34"	Shoreacres Ramp
		(9)			(Oddo's - Deleted 9/1/80)
	10		29°32'54"	95°01'26"	State Boat Ramp (Clear Creek Channel)
	11		29°30'44"	94°58'39"	Galveston County Park Ramp (Bacliff)
	12		29°30'23"	94°57'26"	HL&P Galveston County Park Ramp
	13		29°29'47"	94°54'58"	San Leon Marina Ramp
	14		29°29'46"	94°54'36"	Eagle Point Camp Ramp
	15		29°28'19"	94°55'32"	April Fool Point Ramp (includes 35 wet slips)
	87		29°29'08"	94°55'58"	Cotton's Bait Camp Ramp
	16		29°28'51"	94°56'10"	Marge's Bait Camp Ramp
		(17)			(Fiesta Marina-Deleted 11/20/82)
	78		29°28'24"	94°57'17"	Dickinson Bayou Public Ramp
	18		29°25'13"	94°55'39"	Lakeway Ramp
					Simpson's Ramp
		(19)			(White Heron Resorts - Deleted 8/31/75)
		(20)			(Moses Lake Bait Camp - Deleted 11/21/82)
	84		29°25'08"	94°55'34"	The Fish Spot Ramp
	21		29°25'23"	94°55'34"	Mowles Camp Ramp
	86		29°25'19"	94°53'29"	Dollar Bay Ramp
	22		29°23'28"	94°53'12"	C.C. Camp Ramp
		(23)			(Dollar Pt. Public Ramp - Deleted 8/31/75)
	24		29°23'20"	94°53'03"	Rilat's Ramp
					Dub's Ramp

Table 1. (cont'd.)

Bay system	Station number In use	Station number Deleted	Latitude	Longitude	Station identification
Galveston	25		29°23'20"	94°53'01"	Curl's Ramp
	26		29°23'09"	94°52'21"	Public Ramp (Texas City Dike)
	27		29°23'00"	94°51'56"	Public Ramp (Texas City Dike)
	28		29°22'40"	94°50'51"	Public Ramp (Texas City Dike)
	29		29°22'00"	94°48'59"	Texas City Dike Marina Ramps (including boat lifts)
	30		29°18'23"	94°54'22"	Jones Lake State Boat Ramp
	96		29°19'49"	94°56'12"	Omega Bay Ramp - Opened 7/26/81
		(31)			(Intracoastal Inn - Deleted 9/1/78)
		(32)			(Terry's Lucky 7 - Deleted 10/1/79)
	33		29°19'50"	94°56'39"	Kelly's Ramp (includes rent boats)
	34		29°19'54"	94°56'47"	Louis' Ramp (includes rent boats)
	35		29°17'06"	95°07'41"	Hall's Bayou Camp Ramp
	93		29°17'14"	95°08'01"	Hall's Bayou Bridge Ramp
		(36)			(Snug Harbor Marina - Deleted 12/1/78)
	38		29°13'43"	95°12'31"	Chocolate Bay State Boat Ramp
	94		29°14'38"	95°13'59"	Horseshoe Bend Marina Ramp
	37		29°15'11"	95°13'58"	Lute's Marina Boat Lift
		(92)			(Tiger Marina - Deleted 10/3/81)
	39		29°05'24"	95°16'39"	Marlin Marina Ramp
	40		29°05'37"	95°17'00"	State Ramp - Bastrop Bayou
	41		29°04'53"	95°17'13"	Jack Booth's Ramp Bastrop Marina (includes boats in wet slips)
	97		29°04'56"	95°17'11"	Bastrop Bayou Private Ramp - Opened 7/26/81
	88		28°59'53"	95°13'57"	Brazoria County Ramp 57 A (Third Street)
		(42)			(Shell Ramp (Christmas Bay) - Deleted 12/1/78)
	43		29°02'52"	95°09'56"	Sy's Bait Camp Ramp
	44		29°04'42"	95°07'50"	Galveston-Freeport Campground Ramp
		(45)			(Public Launching - Shoreline - Deleted 9/1/80)
		(46)			(San Luis Pass Bait Camp - Deleted 5/15/82)
	47		29°07'45"	95°04'22"	Bay Harbor Ramp (includes 15 wet slips)
	48		29°07'55"	95°03'49"	Terramar Beach Ramp
	49		29°08'42"	95°02'48"	Sea Isle Ramp (includes boat basin slips)
	50		29°12'00"	94°59'16"	Jamaica Beach Marina Ramp
	51		29°11'37"	94°58'56"	Jamaica Beach Boat Ramp
	52				**Boat Trailers at non-designated ramps**

Table 1. (cont'd.)

Bay system	Station number In use	Station number Deleted	Latitude	Longitude	Station identification
Galveston	53		29°12'31"	94°56'57"	Pirate's Beach Marina Ramp
	54		29°13'04"	94°56'34"	Pirate's Beach Boat Ramp
	55		29°15'38"	94°54'20"	Andy's Bait Camp Ramp
		(56)			Public Ramp (73rd Street County Park - Deleted 7/28/81)
	57		29°17'03"	94°50'09"	61st Street County Park Ramp
		(58)			(Bayou Bay Marina - Deleted 9/1/79)
	59		29°16'49"	94°52'07"	Newell Marina Ramp
		(60)			(M&M Camp - Deleted 9/1/79)
	61		29°17'14"	94°52'19"	Payco Marina Ramp (includes closest dock of wet slips, Dock A)
	62		29°17'18"	94°52'23"	Pleasure Island Ramp
	83		29°19'02"	94°46'32"	Galveston Yacht Basin Ramp
	80		29°20'06"	94°45'07"	South Jetty Ramp - Deleted 4/11/80; Reopened 10/3/81) Wilson's Ramp
	81		29°20'02"	94°41'52"	Waddell's Ramp
	82		29°22'06"	94°45'04"	North Galveston Jetty Ramp
	63		29°23'03"	94°46'05"	Jim Reid's Ramp
	64		29°23'04"	94°46'05"	Shirley's Cafeteria Ramp
		(65)			(Johnson Road - Deleted 3/20/78)
	66		29°25'48"	94°42'37"	Robin's Seafood Bait Camp Ramp (includes boats in 2 boat houses)
	67		29°05'10"	95°16'44"	2-J's Harbor (Demi-John) - Deleted 8/31/75; reopened 5/15/83
		(68)			(B&P Camp - Deleted 7/15/81)
		(69)			(Bob's Camp - Deleted 9/6/79)
	70		29°28'50"	94°36'16"	Stingaree Marina Ramp
		(71)			(Chocolate Bayou Marina - Deleted 8/31/75)
	95		29°28'45"	94°36'16"	Charpiot Ramp - Opened 7/15/81
	72		29°30'51"	94°30'45"	Rollover Pass Public Ramp
	89		29°35'41"	94°23'24"	High Island State Boat Ramp
	73		29°32'09"	94°46'54"	Smith Point Ramp (Van-to-Un and Robbin's Park)
	74		29°39'11"	94°41'35"	Oak Island County Ramp
	75		29°45'19"	94°41'29"	Fort Anahuac Park Ramp
		(76)			(Anahuac State Ramp - Deleted 12/1/78)

Table 1. (cont'd.)

Bay system	Station number In use	Station number Deleted	Latitude	Longitude	Station identification
Galveston	98		28°53'57"	95°29'33"	Ernie's Acres Ramp (Freeport)
	99		28°57'22"	95°17'12"	Dolphin Street Ramp (Freeport)
	100		28°58'47"	95°16'05"	Brazoria County Ramp 57A (Bay Street, Freeport)
	101		28°57'46"	95°17'34"	Bridge Harbor Marina Ramp (Freeport)
	102		28°57'22"	95°17'32"	State Ramp (Freeport)
	103		28°52'30"	95°27'19"	The Point Ramp (Freeport)
	104		29°00'36"	95°19'34"	Oyster Creek Ramp (Freeport)
	105		28°57'42"	95°22'13"	City Ramp (Freeport)
	106		28°57'21"	95°21'41"	City Ramp (Freeport)
	107		29°00'07"	95°18'26"	Turtle Cove Ramp (Freeport)
	108		28°52'35"	95°27'34"	Mike's Rivers End Fishing Camp Ramp (Freeport)
	109		28°52'11"	95°26'46"	Public Ramp (Freeport)
	110		29°20'02"	94°41'47"	Tugboat Eddies Ramp (Freeport)
	111		28°53'59"	95°23'03"	Brazos River Ramp (Freeport)
	112		29°18'09"	94°53'58"	Harbor Cove Ramp
	113		29°25'15"	94°55'34"	Ray Marine and Bait Camp Ramp
	114		29°33'00"	95°01'45"	Clear Lake Shores Ramp
	115		29°25'43"	94°42'07"	Boyt Road Boat Ramp
	116		29°19'02"	94°46'32"	Galveston Yacht Basin Boat Barn (party boats)
	117		29°19'02"	94°46'32"	Galveston Yacht Basin Dock A (46 slips; party boats)
	118		29°19'02"	94°46'32"	Galveston Yacht Basin Dock B (116 slips; party boats)
	119		29°19'02"	94°46'32"	Galveston Yacht Basin Dock C (116 slips; party boats)
	120		29°19'02"	94°46'32"	Galveston Yacht Basin Dock D (116 slips; party boats)
	121		29°16'38"	94°50'48"	Pirates Cove Apts. Ramp
	122		29°15'47"	94°50'29"	Havre Lafitte Ramp
	123		29°04'33"	95°07'50"	Treasure Island Ramp
	124		29°00'07"	95°18'26"	Turtle Cove North Shore Boat Shed
	125				Turtle Cove South Shore Boat Shed
	126		29°00'08"	95°18'06"	Hide-A-Way on the Gulf Ramp (includes 12 wet slips)
	127		29°00'28"	95°18'57"	Kirby Marine (30 wet slips)
	128		29°05'48"	95°16'59"	B&H Bait Camp Ramp
	129		29°05'24"	95°16'39"	Marlin Marina Boat Shed (30 wet slips)
	130		29°14'38"	95°13'59"	Horseshoe Bend Camp Boat Shed (22 wet slips)
	131		29°34'27"	95°03'05"	Timber Cove Subdivision Ramp (Taylor Lake)
	132		28°57'46"	95°17'34"	Bridge Harbor Canal Front Slips (30 slips; party boats)

Table 1. (cont'd.)

Bay system	Station number In use	Station number Deleted	Latitude	Longitude	Station identification
Galveston	133		28°57'46"	95°17'34"	Bridge Harbor Canal Dock A (32 slips; party boats)
	134		28°57'46"	95°17'34"	Bridge Harbor Canal Dock B (32 slips; party boats)
	135		28°57'46"	95°17'34"	Bridge Harbor Canal Dock C (32 slips; party boats)
	136		28°57'46"	95°17'34"	Bridge Harbor Canal Dock D (36 slips; party boats)
	137		28°57'46"	95°17'34"	Bridge Harbor Canal Dock E (40 slips; party boats)
	138		29°18'09"	94°53'58"	Harbor Cove Wet Slips (50 wet slips)
	139		29°17'14"	94°52'19"	Payco Marina Boat Shed and Second Dock of Wet Slips (Dock B, party boats)
	140		29°15'11"	95°13'58"	Lutes Marina Ramp and Boat House (40 wet slips; party boats)
	141		28°57'31"	95°18'16"	Beach, Bait and Tackle Ramp
	142		29°29'47"	94°54'58"	San Leon Marina Boat Sheds (2 boat sheds; party boats)
	143		29°17'39"	94°51'23"	Bonno's Bait Camp Ramp
	144		29°35'51"	94°59'10"	El Jardin Ramp
Matagorda	1		28°25'55"	96°26'04"	Doc's Dock Ramp
	2		28°26'23"	96°24'52"	Fishing Center Ramp
	3		28°26'12"	96°25'26"	Bobbie's Ramp (includes boats in wet slips and La Pesca party boats)
	4		28°30'41"	96°29'20"	Indianola Fishing Center Ramp (includes boats in wetslips)
	5		28°33'40"	96°32'21"	Magnolia Ramp
	6		28°34'41"	96°39'00"	Chocolate Bayou Ramp
	7		28°35'43"	96°37'09"	Harbor Refuge Ramp
	31		28°41'38"	96°39'50"	Six Mile Ramp
	8		28°38'20"	96°36'44"	Lavaca Causeway Ramp (includes boats in wet slips)
	9		28°40'53"	96°33'45"	Point Comfort Ramp
	10		28°38'24"	96°27'30"	Olivia Ramp (includes boats in wet slips)
	11		28°44'17"	96°24'05"	Crescent V Ramp
	12		28°38'08"	96°21'22"	Last Chance Ramp
	29		28°38'16"	96°21'20"	The Wharf Ramp
	13		28°43'13"	96°16'24"	Turtle Bridge Ramp
	14		28°41'50"	96°13'43"	Hill Ramp (includes boats docked or in wet slips at trailer park camps)
		(15)	28°41'49"	96°13'12"	(Palacios Bait Camp - Deleted 5/15/80)
	16		28°42'20"	96°12'32"	East Bay Ramp

Table 1. (cont'd.)

Bay system	Station number In use	Station number Deleted	Latitude	Longitude	Station identification
Matagorda		(17)	28°42'52"	96°12'00"	(Grassy Point - Deleted 3/13/78)
	18		28°40'10"	96°11'00"	Palacios River Ramp
	19		28°40'14"	95°57'52"	River Bend Ramp
		(27)	28°39'26"	95°57'40"	(Bulkhead Marina - Deleted 5/15/80)
	30		28°38'37"	95°57'52"	St. Mary's Bayou Ramp
	20		28°38'22"	95°58'02"	Al's Ramp
		(21)	28°37'13"	95°58'22"	(Gilmer's - Closed 8/17/79 - Reopened 5/15/81; Closed 6/15/82)
	22		28°37'04"	95°58'24"	Rawlings Ramp
	26		28°36'03"	95°58'40"	Cherry's Ramp
	23		28°42'37"	95°54'50"	UFO Ramp
	24		28°46'20"	95°38'04"	Plunks Bait Camp (includes boats in wet slips)
	25		28°46'16"	95°37'03"	Totsies' Marina Ramp (includes boats in wet slips)
	28		28°45'28"	95°46'23"	Chinquapin Ramp
	52				**Boat trailers at non-designated ramps**
	32		28°46'21"	95°36'55"	Don Juan Marina
	33		28°42'33"	96°12'35"	Brookings Boat Shed (34 wet slips)
	34		28°43'46"	96°11'10"	Collegeport Ramp
	35		28°41'15"	96°16'27"	Jensen's Point Ramp
	36		28°39'30"	96°24'54"	Port Alto Boat Shed (107 wet slips; 2 sheds, 54 and 53)
	37		28°39'38"	96°35'03"	East End of Port Lavaca Causeway (launching from shore)
	38		28°28'47"	96°33'05"	Powerhorn Bayou (launching from shore)
	39		28°26'17"	96°24'55"	Fishing Center Boat Sheds (2 boat sheds with 26 wet slips; party boats included)
		(40)			
	41		28°26'16"	96°24'57"	McKinney Boat Sheds (12 wet sips)
	42		28°26'17"	96°25'00"	Power's Boat Sheds (35 set slips)
	43		28°26'12"	96°25'17"	Alligator Head East Boat Sheds (19 wet slips)
	44		28°26'11"	96°25'18"	Alligator Head West Boat Sheds (49 wet slips)
	45		28°26'00"	96°25'48"	Weathersby's Boat Sheds (40 wet slips; 1 party boat)

Table 1. (cont'd.)

Bay system	Station number In use	Station number Deleted	Latitude	Longitude	Station identification
San Antonio	1		28°26'23"	96°24'52"	Fishing Center Ramp
	2		28°25'55"	96°26'04"	Doc's Dock Ramp
	3		28°26'12"	96°25'26"	Bobbie's Ramp (includes boats in wet slips and La Pesca party boats)
	4		28°21'55"	96°34'38"	Fulghum's Ramp (includes boats in wet slips)
	5		28°23'24"	96°42'32"	Swan Point Ramp
	6		28°24'27"	96°42'38"	Seadrift Ramp
		(7)	28°23'20"	96°50'13"	(Austwell - Deleted 8/17/79)
	8		28°20'48"	96°47'38"	Hopper's Landing Ramp (includes boats in wet slips)
		(9)	28°18'50"	96°47'28"	(Pete's Bait Camp - Deleted 8/17/79)
		(10)	28°21'50"	96°34'44"	(Morgan's Bait Camp - Deleted 8/17/79)
	52				**Boat trailers at non-designated ramps**
	11		28°26'17"	96°24'55"	Fishing Center Boat Sheds (2 boat sheds with 26 wet slips; party boats included)
		(12)			
	13		28°26'16"	96°24'57"	McKinney Boat Sheds (12 wet slips)
	14		28°26'17"	96°25'00"	Power's Boat Sheds (35 wet slips; 1 party boat)
	15		28°26'12"	96°25'17"	Alligator Head East Boat Sheds (19 wet slips)
	16		28°26'11"	96°25'18"	Alligator Head West Boat Sheds (49 wet slips)
	17		28°26'00"	96°25'48"	Weathersby's Boat Sheds (40 wet slips; 1 party boat)
Aransas	11		28°04'14"	97°13'08"	Glenn's Marina-Bayside Ramp
	22		28°04'34"	97°13'10"	Bayside Public Ramp - Deleted 12/1/80; Reopened 11/20/82)
	10		27°59'35"	97°09'07"	Redfish Camp Ramp
		(18)	28°01'39"	97°08'11"	(Port Bay - Deleted 11/20/82)
	9		28°03'36"	97°07'37"	Klein's Rattlesnake Point Ramp
	21		28°03'48"	97°06'40"	Pouzee's Ramp
	8		28°05'07"	97°04'11"	Joe's Ramp (includes boats in wet slips)
	7		28°09'48"	97°00'35"	Holiday Beach Ramp
	6		28°08'24"	96°58'39"	St. Charles Marina Ramp (includes boats in wet slips)
	5		28°07'43"	96°59'07"	Goose Island State Park Ramp
	4		28°08'13"	97°00'22"	Sea Gun Marina Ramp (includes boats in wet slips; party boats)
	3		28°06'49"	97°01'32"	S. Copano Causeway Ramp
		(27)	28°05'53"	96°59'46"	(Racquet Club - Deleted 5/15/82)
	24		28°04'23"	97°02'07"	Sand Dollar Ramp

Table 1. (cont'd.)

Bay system	Station number In use	Station number Deleted	Latitude	Longitude	Station identification
Aransas	2		28°03'36"	97°02'00"	Fulton Harbor Ramp (includes boats in Fulton Boat House)
		(25)	28°02'30"	97°01'50"	(Key Allegro Marina - Deleted 5/15/82)
		(26)	28°02'00"	97°01'52"	(Key Allegro North Ramp - Deleted 12/1/80)
	1		28°01'50"	97°02'19"	Little Bay Ramp
	19		28°01'28"	97°02'57"	Rockport Turning Basin Ramp (includes boats in boat basin wet slips)
	17		27°59'23"	97°04'42"	Cove Harbor Ramp
	16		27°58'04"	97°05'21"	Palm Harbor Ramp (includes boats in wet slips)
	12		27°54'47"	97°08'00"	Aransas Pass Boat Basin Ramp
	13		27°53'58"	97°08'14"	Louie's Bait Hut Ramp
	28		27°53'22"	97°08'53"	Aransas Airport Ramp
	14		27°53'18"	97°06'42"	Fin & Feather Ramp (includes boats in wet slips)
	15		27°52'55"	97°05'57"	Redfish Bay Marina Ramp (includes rent boats and boats in wet slips)
	23		27°52'28"	97°05'33"	Hogan's Ramp
	20		27°52'09"	97°05'51"	Bait Hut Ramp
	29		27°50'19"	97°04'00"	Port Aransas Public Ramp
	30		27°50'18"	97°03'44"	Woody's Ramp
	31		28°03'07"	97°02'07"	Harbor Oaks Ramp
	52				**Boat trailers at non-designated ramps**
	32		28°02'30"	97°01'50"	Key Allegro Boat Shed (includes party boats)
	33		28°02'30"	97°01'50"	Key Allegro Boat Shed and T-Head (includes party boats)
	34		28°03'31"	97°02'00"	Sea Foam Motel Ramp (includes 6 wet slips)
	35		27°53'22"	97°08"48"	Harbor East with Marnot and Mac
	36		27°53'22"	97°08'59"	Harbor West
	37		27°50'18"	97°03'42"	Woody's West Docks ;(3 docks with 48 wet slips; party boats)
	38		27°50'18"	97°03'40"	Woody's East Dock (3 docks with 57 wet slips; party boats)
	39		27°50'19"	97°03'37"	Sportsman Center South (1 dock with 40 wet slips; party boats)
	40		27°50'21"	97°03'37"	Sportsman Center North (1 dock with 26 wet slips; party boats)
	41		28°04'34"	97°06'00"	Kellers Marina Boat Ramp

Table 1. (cont'd.)

Bay system	Station number In use	Station number Deleted	Latitude	Longitude	Station identification
Corpus Christi	1		27°50'16"	97°22'52"	South Nueces Causeway Ramp
		(2)	27°51'05"	97°21'32"	(North Nueces Causeway - Deleted 10/27/80)
	3		27°50'16"	97°13'15"	Ingleside Cove State Ramp
	4		27°49'52"	97°13'29"	Bahia Mar Ramp (includes wet slips)
	5		27°49'21"	97°12'58"	Channel View Ramp
		(6)	27°51'29"	97°10'06"	(Warrens - Deleted 5/15/79)
	15		27°51'26"	97°10'07"	Sun Oil Co. - Deleted 11/20/81; Reopened 11/20/82)
	7		27°53'22"	97°08'53"	Aransas Airport Ramp
	14		27°53'19"	97°08'44"	Causeway Ramp (includes 6 wet slips)
	8		27°53'18"	97°06'42"	Fin & Feather Ramp (includes boats in wet slips)
	9		27°44'14"	97°08'13"	Wilsons Cut Ramp
	16		27°38'03"	97°14'08"	Billing's Ramp
	17		27°41'18"	97°15'34"	Naval Ramp (includes boats in boat houses and in wet slips)
	10		27°42'39"	97°18'35"	Oso Bridge Ramp - Deleted 10/27/80; Reopened 6/1/82)
	11		27°47'24"	97°23'22"	L-Head Ramp
	18		27°52'55"	97°05'57"	Redfish Bay Marina Ramp (includes rent boat and boats in wet slips)
	12		27°50'19"	97°04'00"	Port Aransas Public Ramp
	13		27°50'18"	97°03'44"	Woody's Ramp
	19		27°51'14"	97°21'30"	Gunderland Marina Ramp
	20		27°51'31"	97°21'04"	Portland Shell Bank Ramp
	21		27°53'58"	97°08'14"	Louie's Bait Stand Ramp
	52				**Boat trailers at non-designated ramps**
	22		27°53'22"	97°08'48"	Harbor East with Marnot and Mac
	23		27°53'22"	97°08'59"	Harbor West
	24		27°50'21"	97°03'53"	West City Docks (2 docks with 53 net slips; party boats)
	25		27°50'22"	97°03'50"	East City Docks (2 docks and bulkhead with 88 wet slips; party boats)
	26		27°50'15"	97°03'59"	Deep Sea Headquarters (11 party boat wet slips)
	27		27°50'17"	97°03'54"	Dolphin Docks (6 party boat wet slips)
	28		27°50'18"	97°03'42"	Woody's West Docks (3 docks with 48 wet slips; party boats)

Table 1. (cont'd.)

Bay system	Station number In use	Station number Deleted	Latitude	Longitude	Station identification
Corpus Christi	29		27°50'18"	97°03'40"	Woody's East Docks (3 docks with 57 wet slips; party boats)
	30		27°50'19"	97°03'37"	Sportsmen Center South (1 dock with 40 wet slips; party boats)
	31		27°50'21"	97°03'37"	Sportsmen Center North (1 dock with 26 wet slips; party boats)
	32		27°50'22"	97°03'33"	Fisherman's Wharf (5 party boat wet slips)
	33		27°50'15"	97°03'11"	U.T. Boat Basin (42 wet slips)
Upper Laguna Madre	1		27°36'42"	97°17'40"	Bluff Landing Ramp (includes boats in wet slips)
	2		27°36'57"	97°17'40"	Jerry's Ramp
	3		27°37'44"	97°17'21"	Tropic Isles Ramp
	4		27°37'53"	97°17'21"	Coburn's Ramp
	14		27°40'20"	97°16'09"	Laguna Marine Ramp
	15		27°41'16"	97°15'18"	Boat Hole Ramp
	5		27°39'44"	97°16'12"	Naval Ramp
		(6)	27°39'25"	97°15'38"	Toll Gate Ramp
		(7)	27°39'27"	97°15'35"	(Whitt's - Deleted 5/15/82)
	8		27°38'03"	97°14'21"	(Fisherman's Folly - Deleted 5/15/81)
	9		27°38'06"	97°14'21"	Water Works Ramp
	12		27°38'04"	97°14'13"	B.G.'s Ramp
	10		27°38'02"	97°14'16"	Billing's Ramp
	11		27°38'04"	97°14'16"	Rainbow Ramp
	13		27°37'25"	97°13'31"	Clem's Ramp
	19		27°28'22"	97°18'31"	P.I.V. Ramp I
	16		27°19'08"	97°40'56"	Bird Island Basin Ramp
	17		27°17'18"	97°39'41"	Kaufer Ramp
	18		27°16'38"	97°42'29"	Kratz's Ramp
	20		27°36'51"	97°18'04"	Williamson's Ramp
	21		27°36'08"	97°14'28"	Whiteleys Basin Ramp
	22		27°36'42"	97°14'22"	P.I.V. Ramp II (White Cap and Caravel)
	23		27°35'57"	97°13'50"	P.I.V. Ramp III (End of Cobo de Caba)
	24		27°35'43"	97°13'51"	P.I.V. Ramp IV (Gypsy and Bounty Avenue)
	25		27°35'21"	97°13'35"	P.I.V. Ramp V (Fortuna Bay and Monte Pelle)
	52				P.I.V. Ramp VI (Encatada and Cruiser) Boat trailers at non-designated ramps

Table 1. (cont'd.)

Bay system	Station number In use	Station number Deleted	Latitude	Longitude	Station identification
Lower Laguna Madre		(16)			(South Padre Marina - Deleted 3/27/82)
	1		26°06'09"	97°10'08"	Fisherman' Wharf (includes boats in wet slips; includes party boats)
	2		26°06'06"	97°10'08"	Jim's Ramp (includes boats in wet slips)
	3		26°05'05"	97°09'54"	Sea Ranch Ramp (includes party boats between boat ramp and headboat)
		(4)	26°04'16"	97°09'50"	(Jetties - Deleted 5/15/80)
		(5)			(Marchan's - Deleted 9/1/78)
		(6)			(Port Isabel - Deleted 9/1/76)
	7		26°05'03"	97°12'07"	White Sands Ramp (includes boats in wet slips)
	8		26°00'07"	97°17'55"	San Martin Ramp
	9		26°06'12"	97°17'25"	Laguna Vista Ramp (includes boats in wet slips)
	10		26°19'35"	97°27'15"	Arroyo Colorado Ramp
	11		26°20'10"	97°26'35"	Sanchez Ramp
		(12)			(Al's Place - Deleted 3/27/82)
	13		26°33'10"	97°25'40"	Willacy Navigation District Ramp
	14		26°33'20"	97°25'41"	Port Mansfield State Ramp
	15		26°33'26"	97°25'35"	Redfish Motel Ramp (includes boats in wet slips)
	52				**Boat trailers at non-designated ramps**
	17		26°33'05"	97°25'40"	Port Mansfield Boat Basin (includes boats in wet slips; party boats)
	18		26°04'42"	97°12'12"	Port Isabel Channel East Side (includes 45 wet slips in boat shed)
	19		26°04'36"	97°09'56"	Sea Ranch Motel (includes boat shed and wet slips)
	20		26°05'55"	97°10'04"	Palm Bay Pier Ramp (includes 15 wet slips)

BOLD numbers indicate non-boat ramp areas are to be surveyed.

Appendix B: Area maps of boat ramp access points

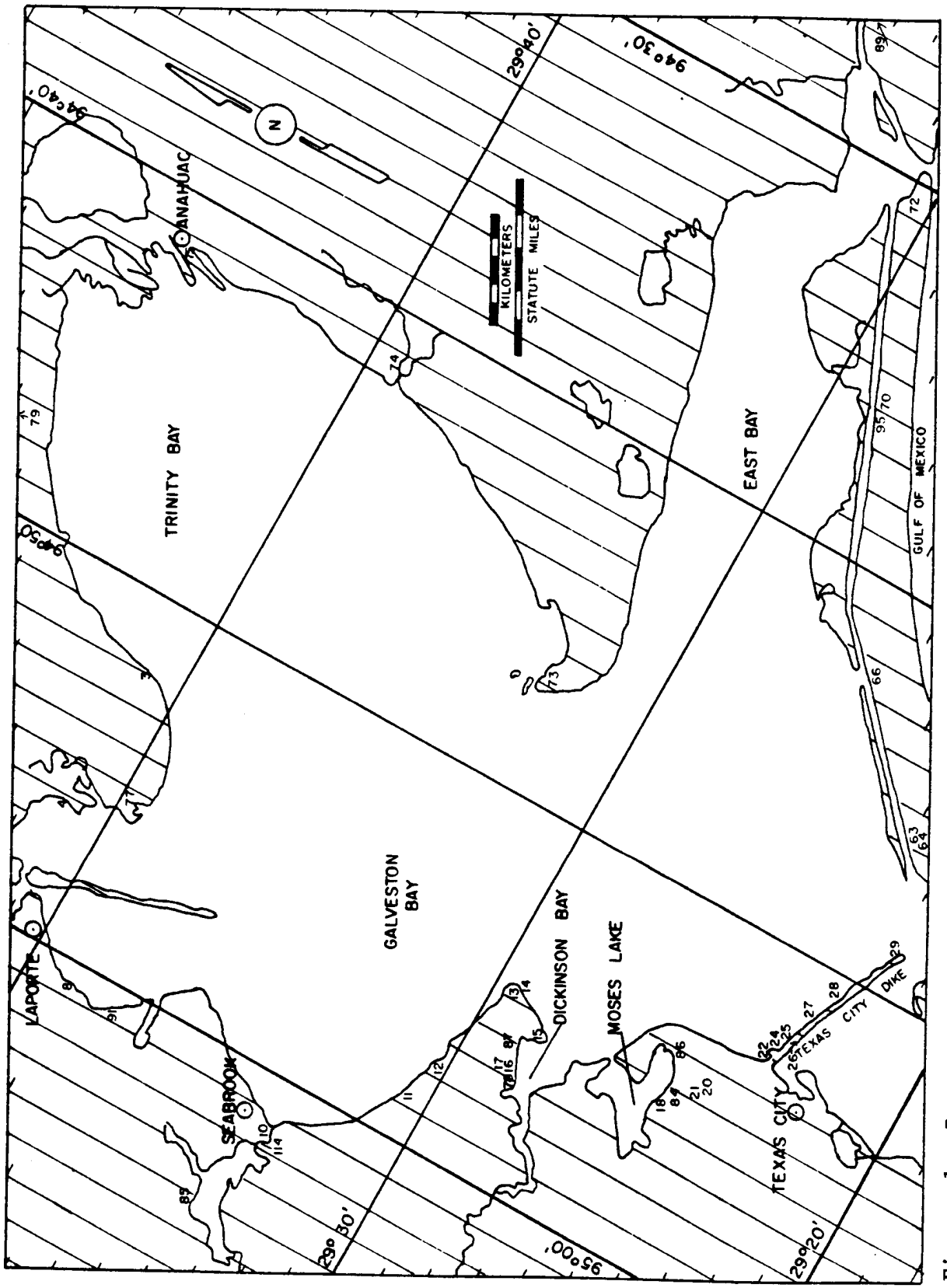

Figure 1. Boat ramp access points in the Galveston Bay system (May 1974-May 1983).

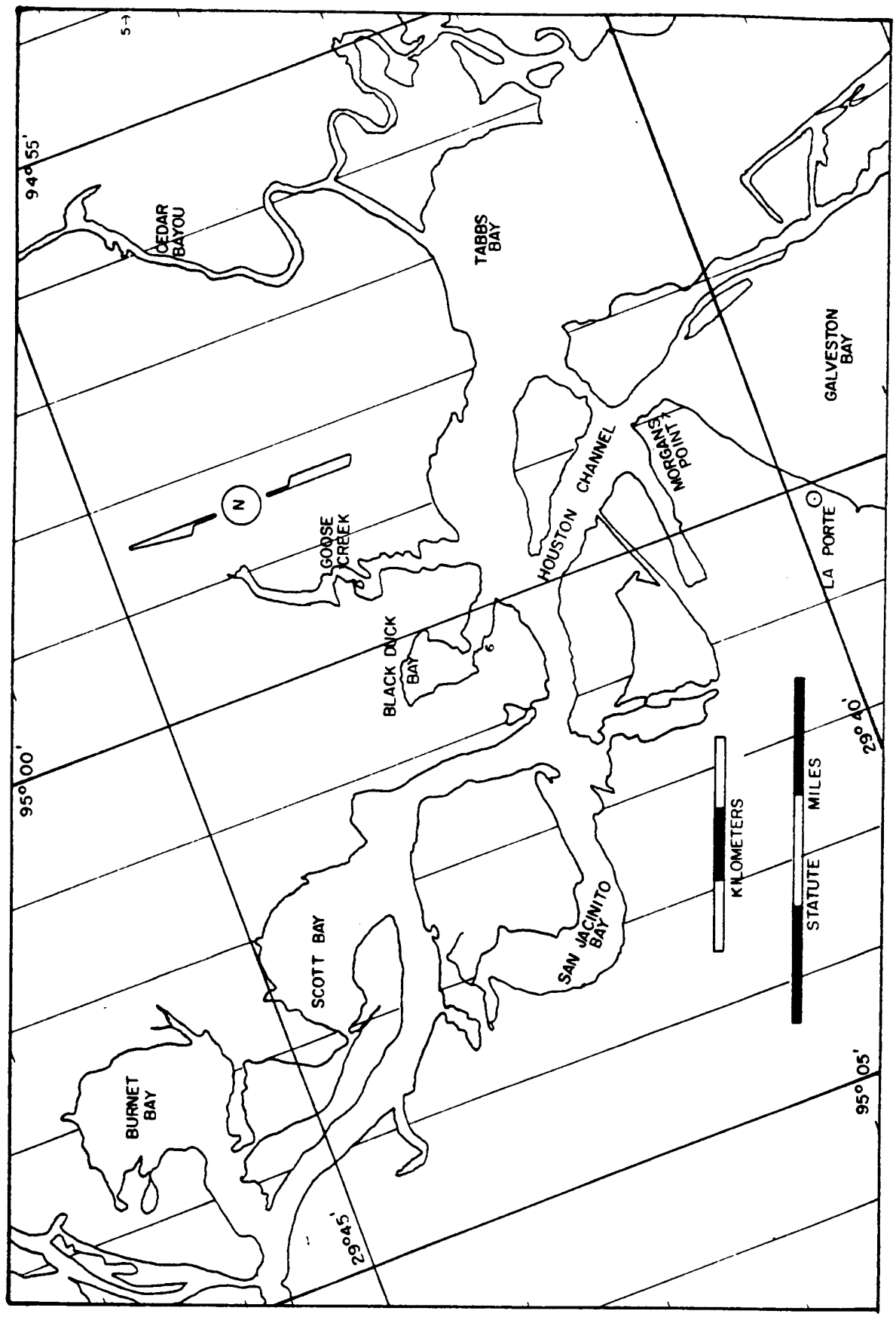

Figure 2. Boat ramp access points in the Galveston Bay system (May 1974-May 1983).

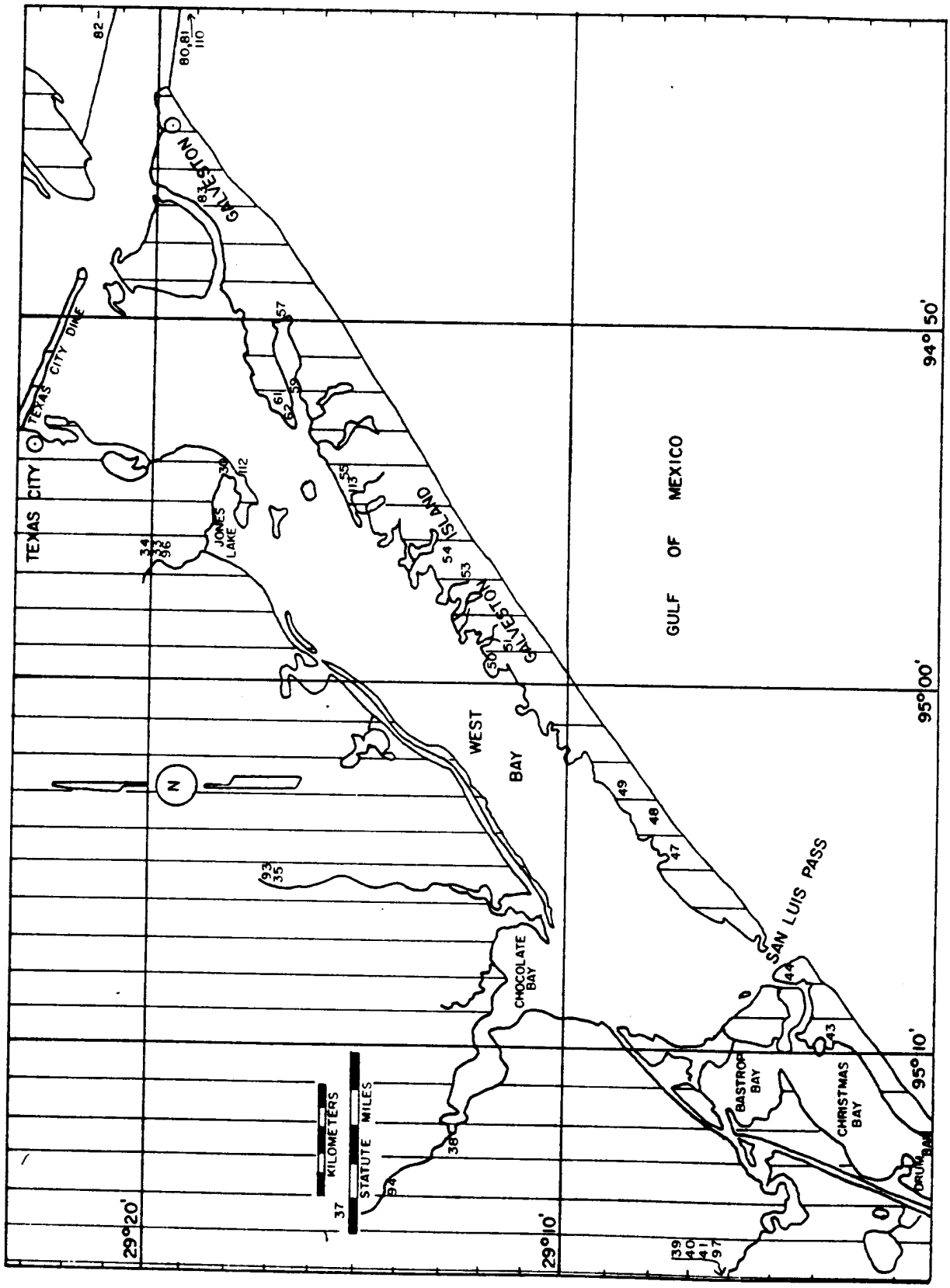

Figure 3. Boat ramp access points in the Galveston Bay system (May 1974-May 1983).

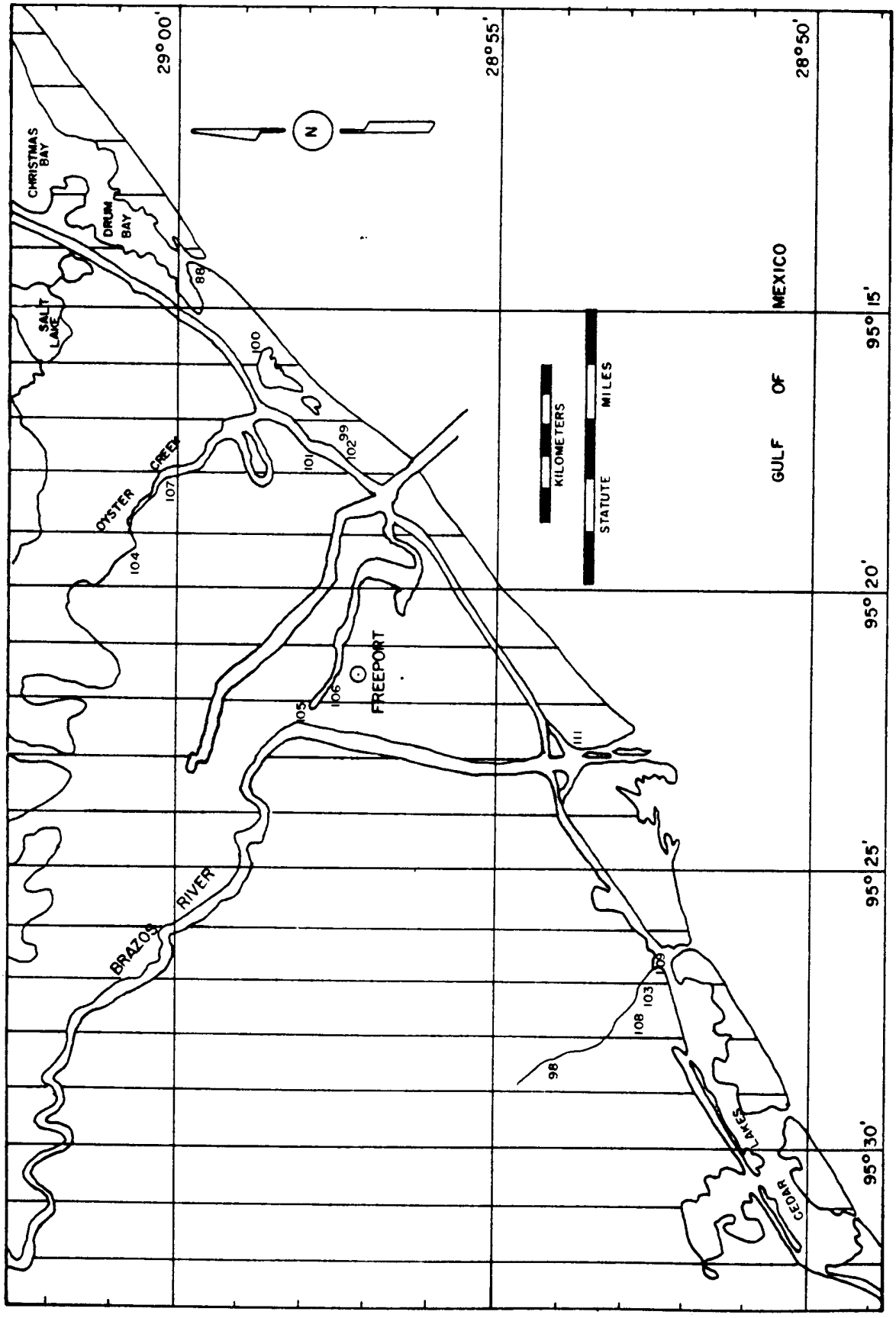

Figure 4. Boat ramp access points in the Galveston Bay system (May 1974-May 1983).

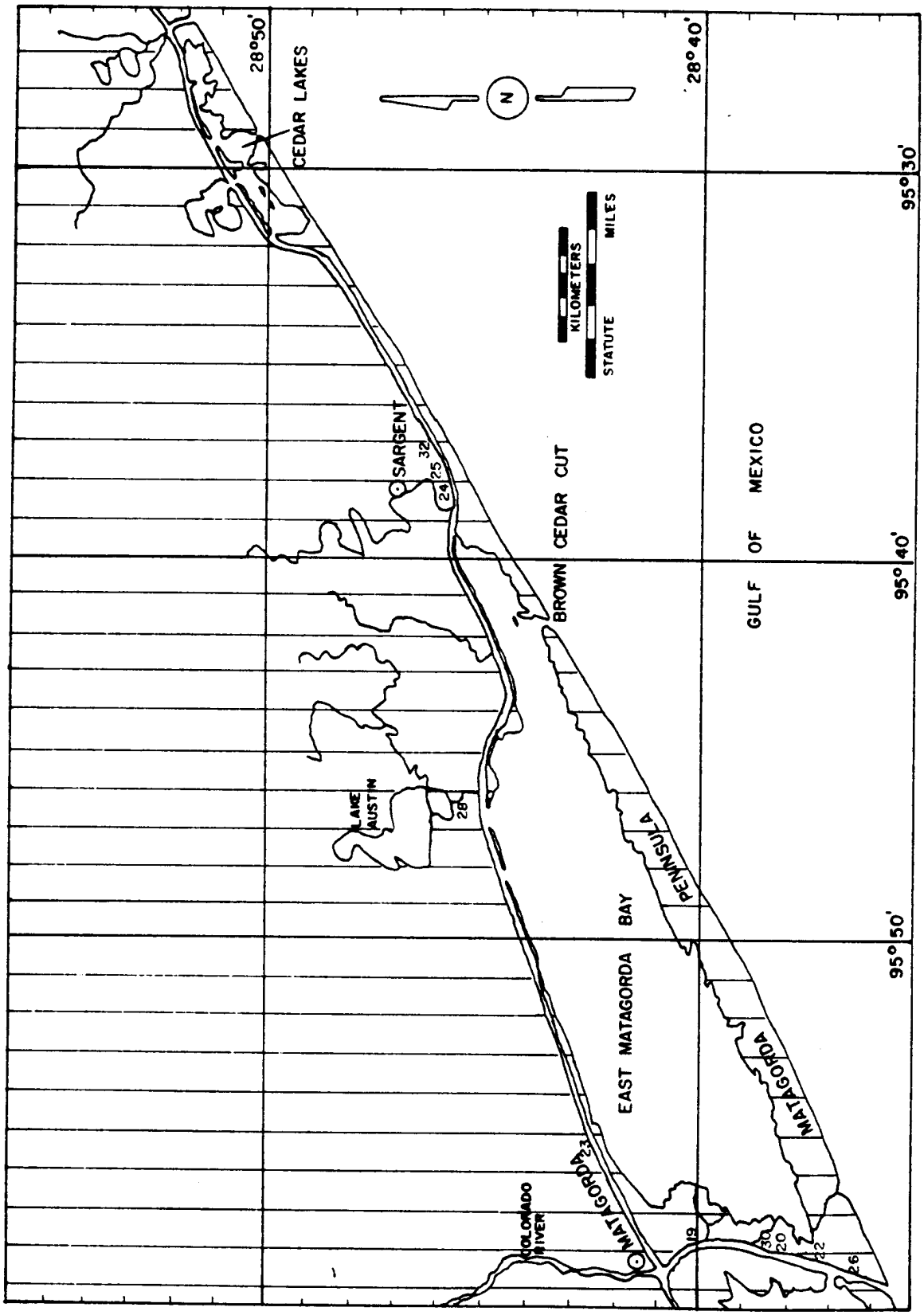

Figure 5. Boat ramp access points in the Matagorda Bay system (May 1974-May 1983).

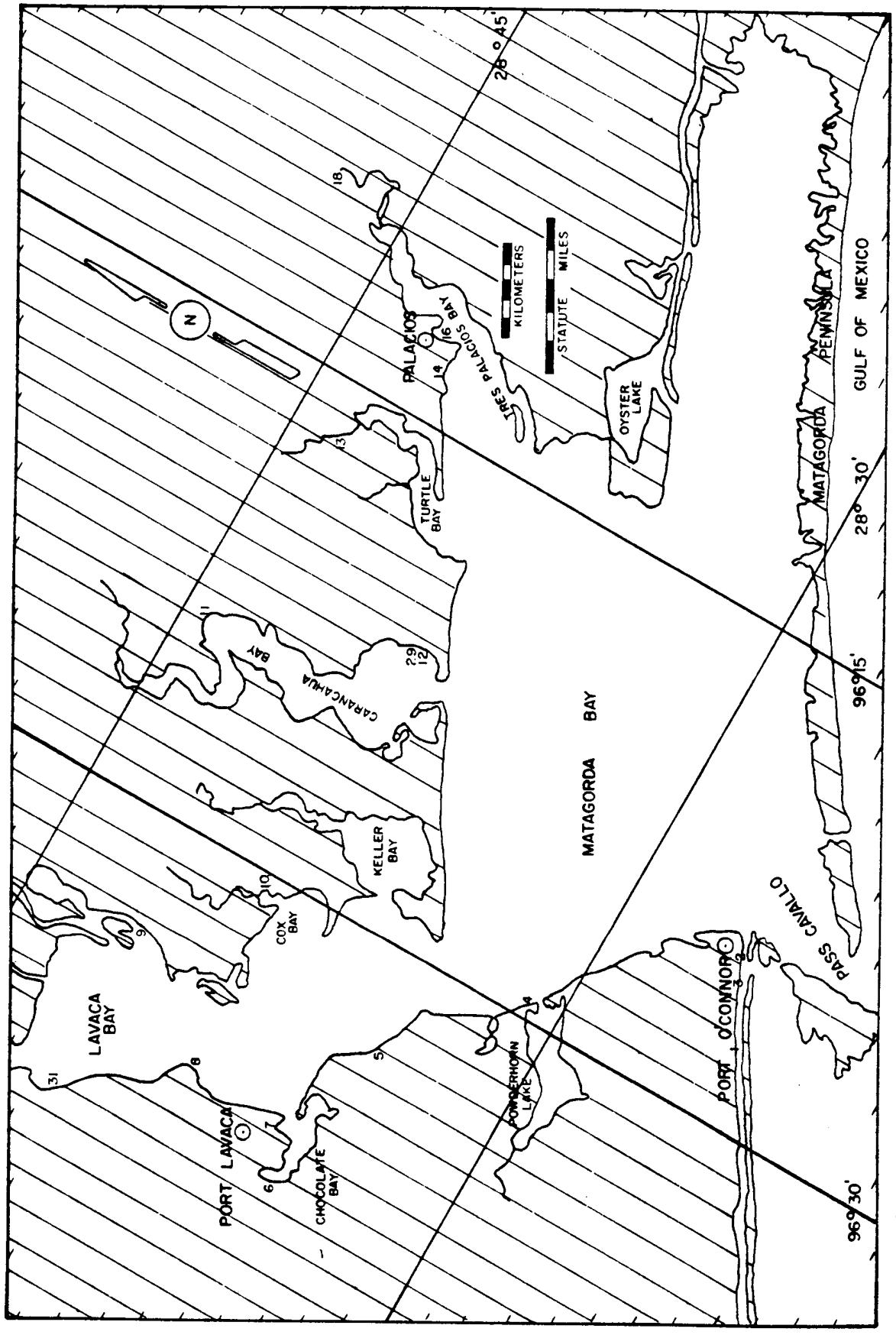

Figure 6. Boat ramp access points in the Matagorda Bay system (May 1974-May 1983).

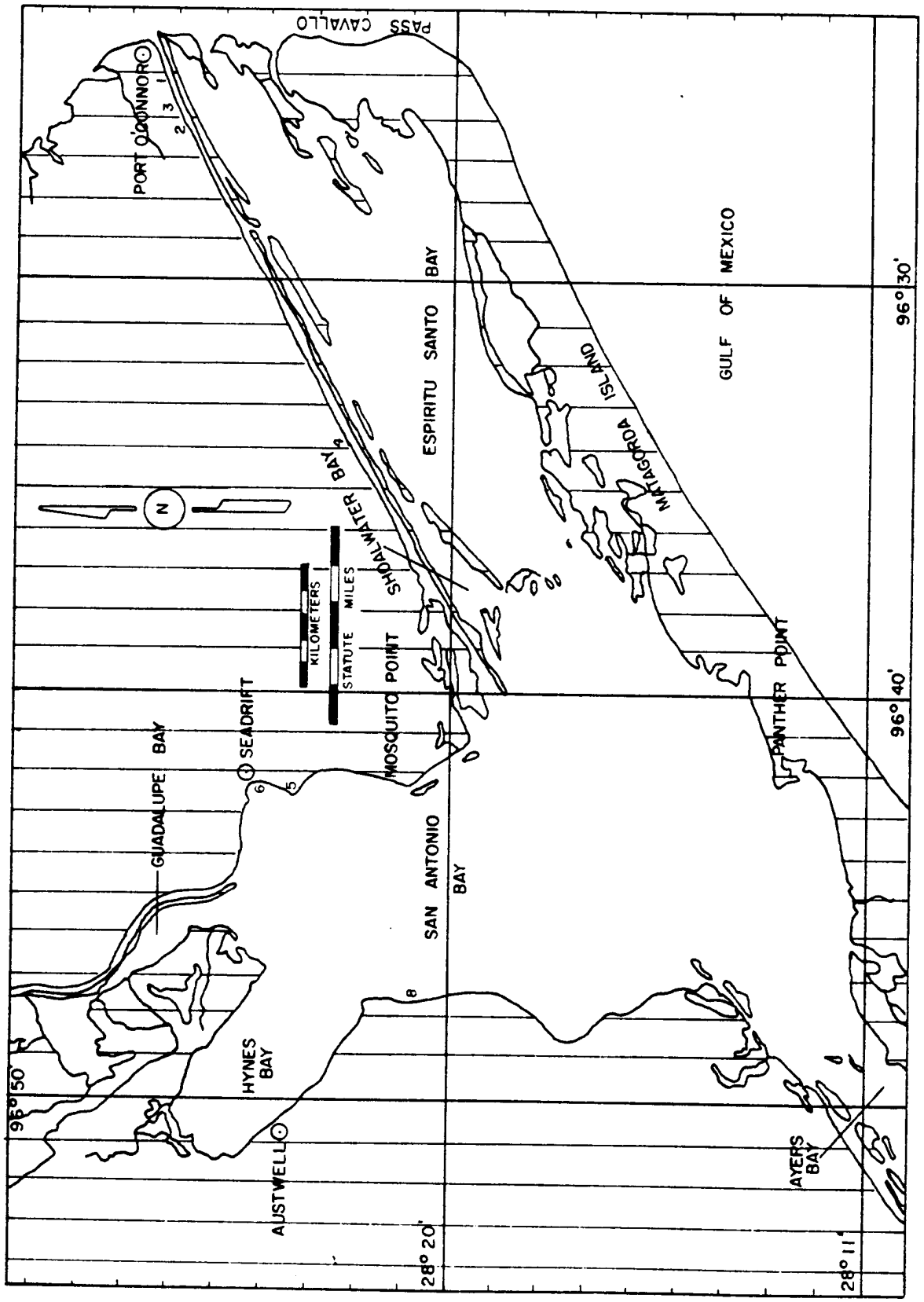

Figure 7. Boat ramp access points in the San Antonio Bay system (May 1974-May 1983).

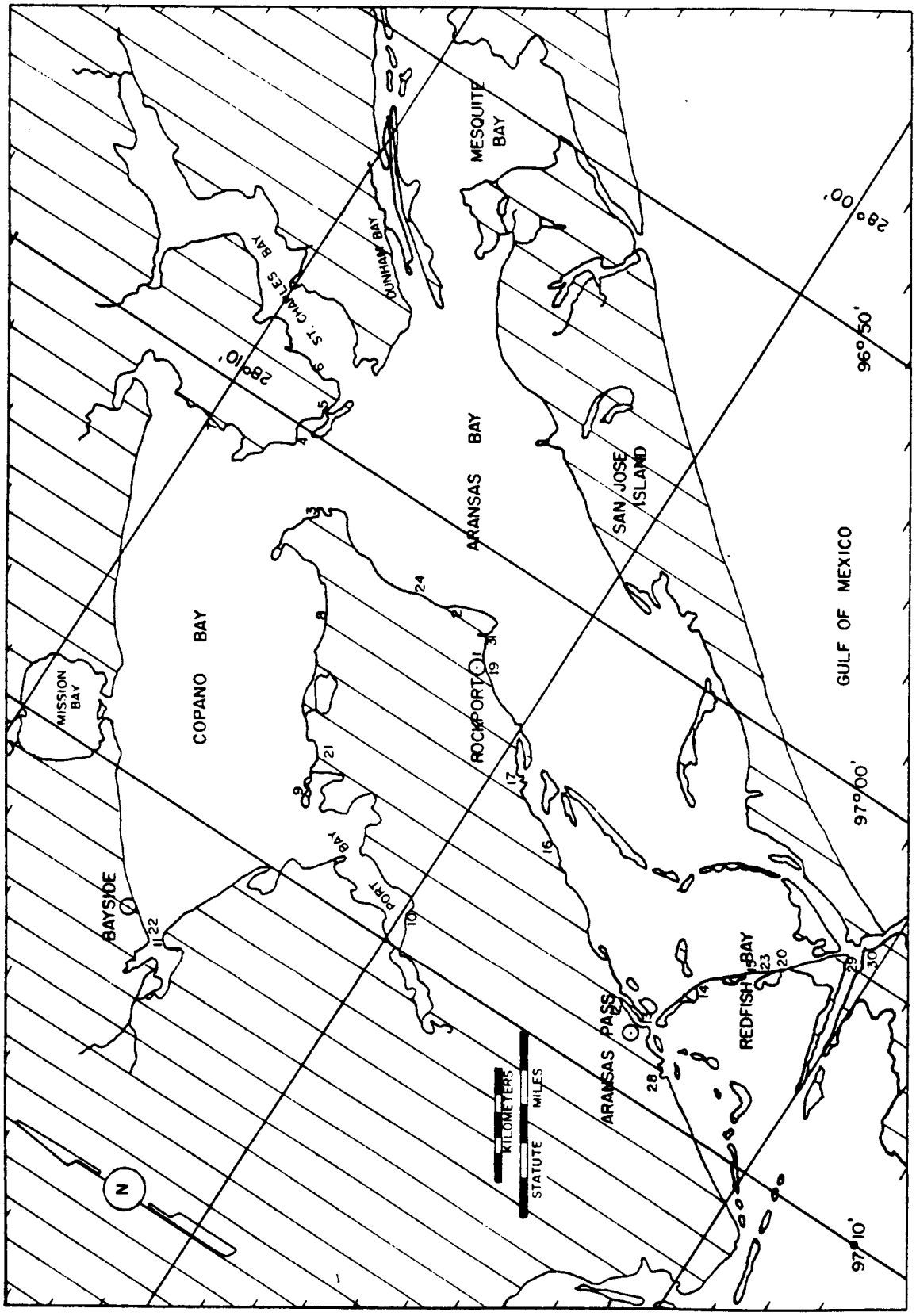

Figure 8. Boat ramp access points in the Aransas Bay system (May 1974–May 1983).

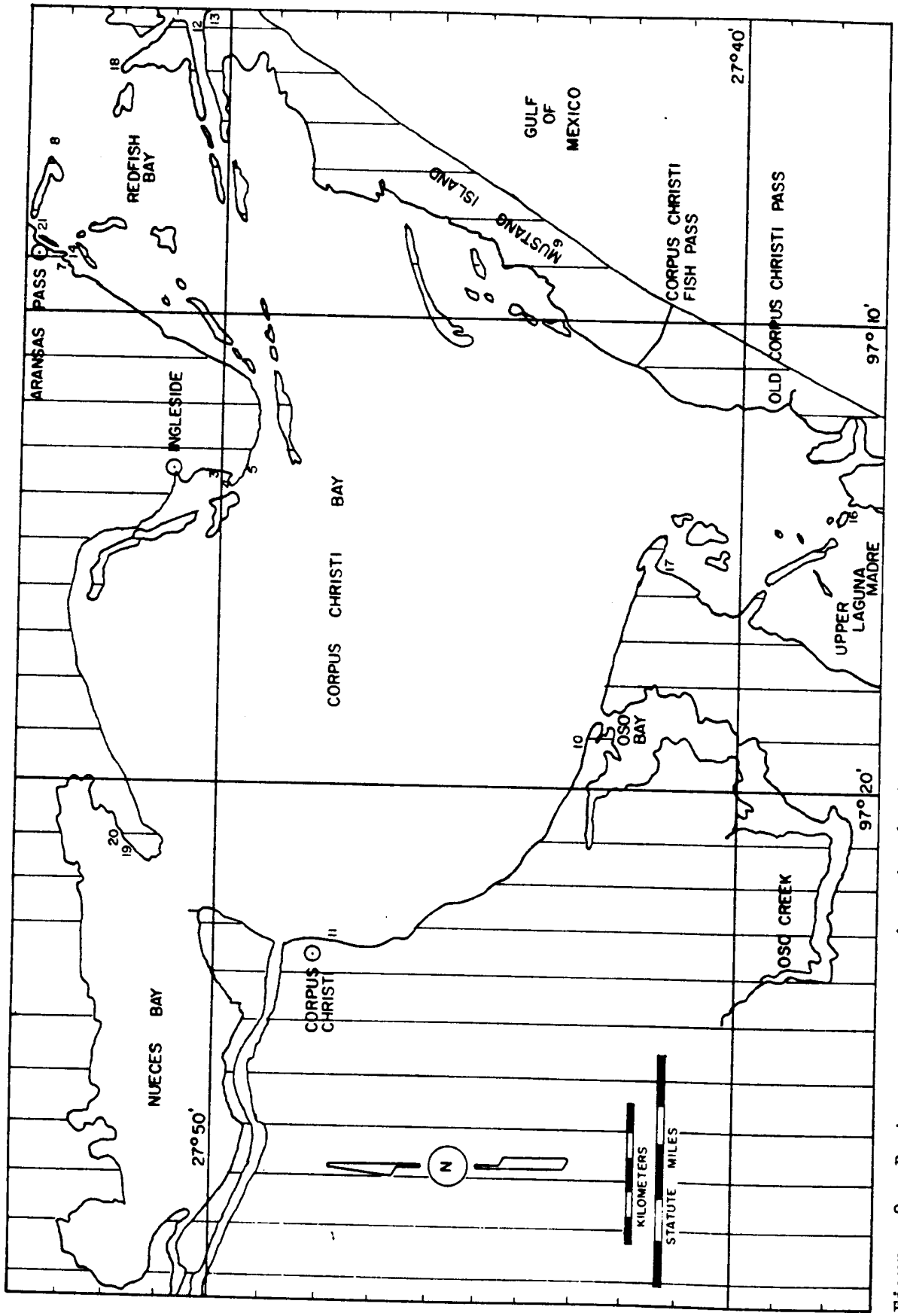

Figure 9. Boat ramp access points in the Corpus Christi Bay system (May 1974-May 1983).

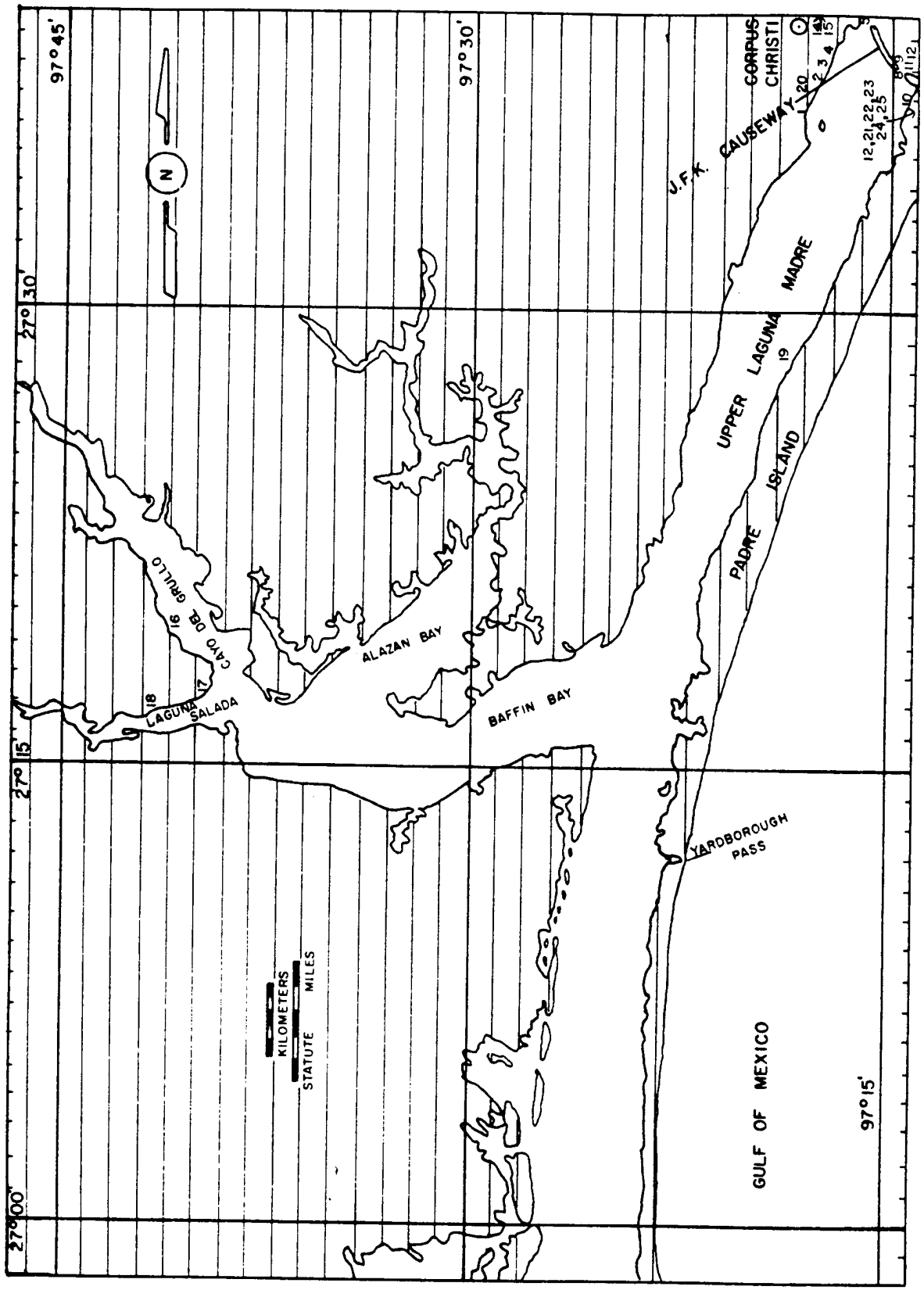

Figure 10. Boat ramp access points in the upper Laguna Madre Bay system (May 1974-May 1983).

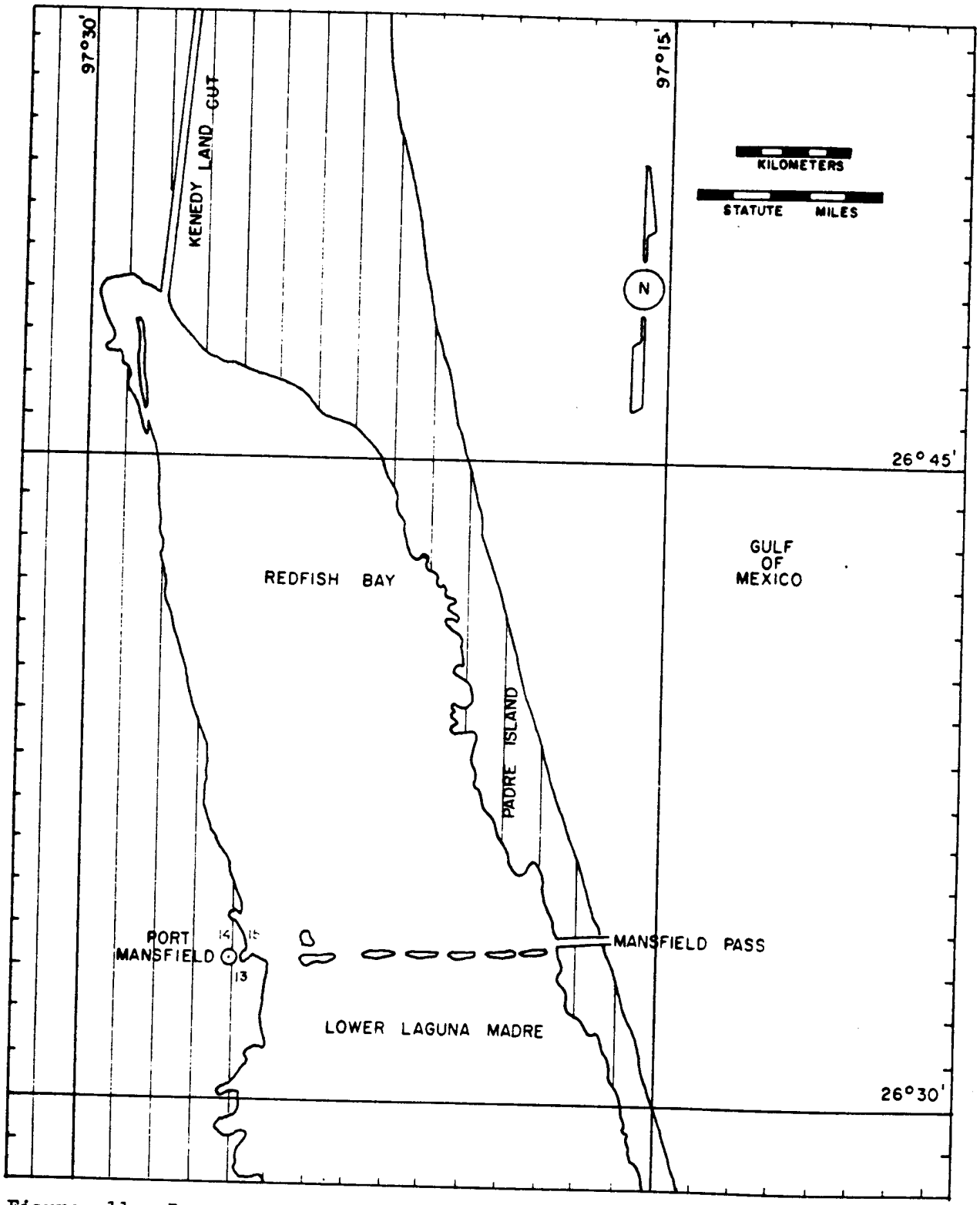

Figure 11. Boat ramp access points in the lower Laguna Madre Bay system (May 1974-May 1983).

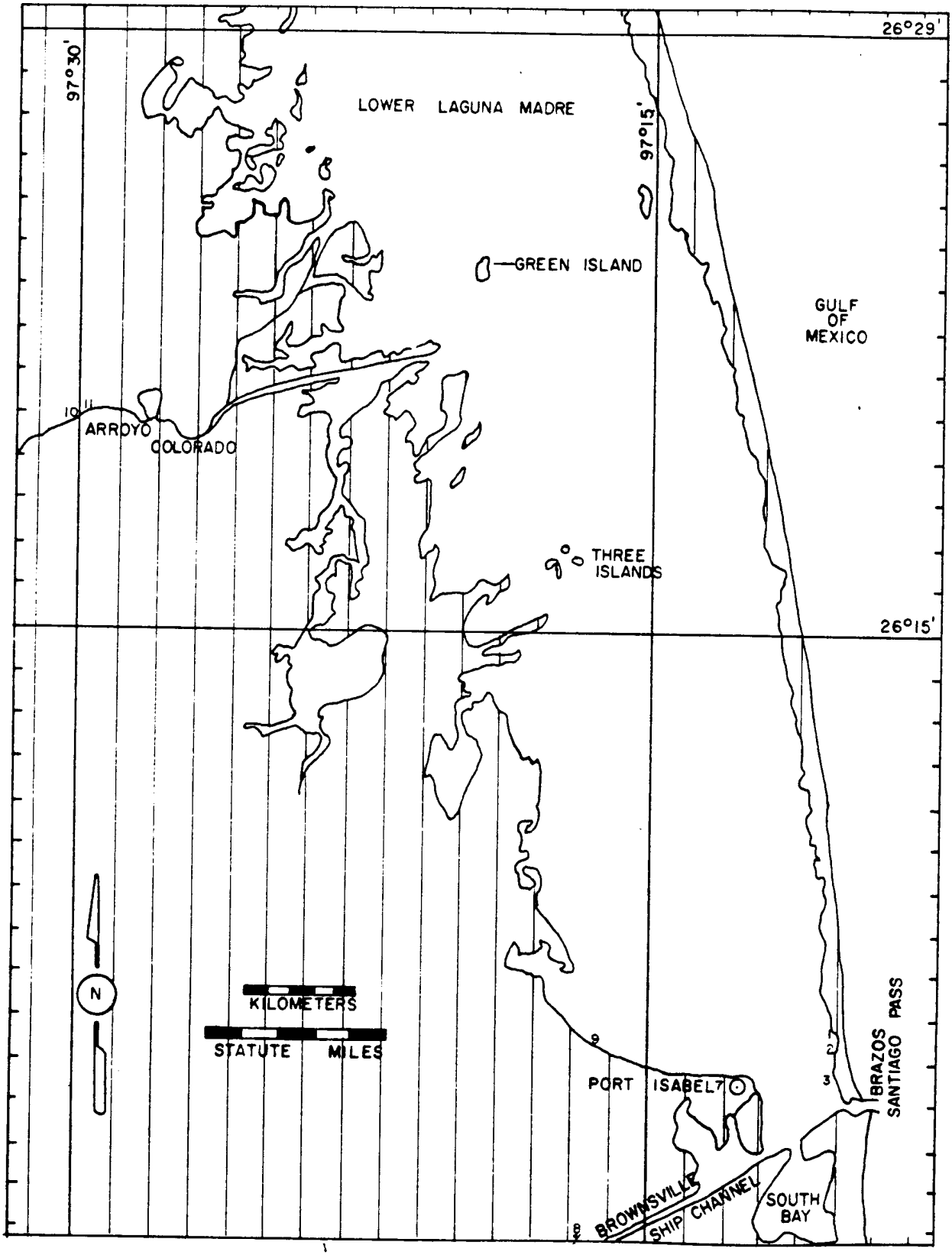

Figure 12. Boat ramp access points in the lower Laguna Madre Bay system (May 1974-May 1983).

Appendix C: Area descriptions.

AREA DESCRIPTIONS

Descriptions of each bay system except the East Matagorda Bay system were reproduced from Matlock and Weaver (1979).

Galveston Bay

The Galveston Bay system, which includes 353,768 acres, is the largest estuary on the Texas coast (Fisher et al. 1972) and consists of Galveston, Trinity, East, West, Dickinson, Chocolate, Christmas, Bastrop, Dollar, Drum and Tabbs Bays and Clear, Moses and Jones Lakes (Figure 1a-b).

The estuary is separated from the Gulf of Mexico by Bolivar Peninsula, Galveston Island and Follets Island. Two natural passes, Bolivar Roads and San Luis Pass, and one man-made pass, Rollover Pass, connect the estuary with the Gulf.

Bay depths average 6.9 ft or less except in dredged channels. Bolivar Roads, Houston, Texas City, Galveston and Bayport Ship Channels are dredged to 40 ft. The Intracoastal Waterway is dredged to 12.1 ft through East, lower Galveston, and West Bays (Diener 1975).

Bay substrates include mud, shell and clay; barrier island shorelines are predominantly sand. Approximately 7,527 acres of oyster reefs lie in Galveston, Trinity, East, West and Dickinson Bays (Benefield and Hofstetter 1976). Numerous spoil "islands" occur along most dredged channels.

Shoreline marshes are present along portions of East, West, Trinity, Christmas, Bastrop, Drum and Chocolate Bays. Diener (1975) listed 231,342 acres of emergent vegetation--smooth cordgrass (Spartina alterniflora), salt meadow cordgrass (S. patens), bulrush (Scirpus olney), shoregrass (Monothochloe littoralis), rush (Juncus romerianus), seashore saltgrass (Distichlis spicata) and saltwort (Batis maritima)--and 18,095 acres of submergent seagrasses--widgeon grass (Ruppia maritima) and Halodule beaudettei--in Galveston Bay. McEachron, Shaw and Moffett (1977) reported Halophilia engelmanni and turtle grass (Thallasia testudinum) in Christmas and Bastrop bays.

The bay receives an average of 2642 billion gal of fresh water annually, 90% of which comes form the Trinity and San Jacinto Rivers (Environmental Protection Agency 1971). Diener (1975) reported salinities ranging from 5-15 o/oo in Trinity and upper Galveston Bays to 20-30 o/oo in the lower portions of Galveston Bay near the Gulf. From November 1975 through March 1976 bay salinities at gill net stations ranged from 2.2 to 28.9 o/oo, dissolved oxygen varied from 5 to 18 ppm and water temperatures ranged from 40.1 to 76.1 F (Texas Parks & Wildlife Dept., Seabrook, Texas).

The Galveston Bay complex is adjacent to the most populated and industrialized area of Texas. A population of 2,424,800 people reside

in the eight counties bordering the bay (1974 Census Data, Houston-Galveston Area Council, personal communication). The highest concentrations of people and industrial complexes are on the western shores of Galveston Bay and the eastern shores of West Bay. From 1967 to 1969 the daily average flow of domestic wastewater into the Galveston Bay complex was at least 16.7 million gal and the industrial wastewater inflow at least 300 million gal (Diener 1975).

Sport fishermen caught an estimated 2,774,297 lb of fish in the bay from September 1974 through August 1975 (Heffernan et al. 1977). The commercial fishing industry harvested over 45.1 million lb of shrimp worth $38,000,000, 15.4 million lb of blue crabs worth $1,700,000, 6.6 million lb of finfish worth $1,200,000, 21.4 million lb of shelled oysters worth $11,700,000 and 9.3 million lb of small bait shrimp worth $11,100,000 (O. B. Lynam, Texas Parks & Wildlife Dept., Seabrook, Texas, Unpublished data).

East Matagorda Bay

East Matagorda Bay (Figure 2) is a relatively shallow (3.4 ft average depth), medium to high salinity (15-30 o/oo), turbid bay with a surface area of 37,810 acres at mean low water (MLW) (Diener 1975).

The bay's only connection with the Gulf of Mexico has historically been Brown Cedar Cut at the east end. Caney Creek and the Colorado River delta mark the northeast and southwest boundaries, respectively. The Matagorda Peninsula forms the southern boundary while the Intracoastal Waterway borders the northern shoreline of East Matagorda Bay.

Extensive stands of emergent cordgrass (Spartina sp.) occur along both the southern and northern boundaries with rush found on the northern shoreline. Submergent grasses include widgeon grass and Halodule beaudettei.

Oyster reefs are located throughout the system but no estimate of the acreage was available.

East Matagorda Bay receives fresh water from rainfall and runoff entering the Intracoastal Waterway from Caney Creek, the Colorado River and Peyton Creek (via Lake Austin and Live Oak Bayou). No estimates of the amount of annual fresh water inflow were available.

Population centers are located at each end of the bay in Matagorda (population 700) and in Sargent (population unknown). Fishing constitutes the major activity of residents in both towns; however, information concerning commercial and recreational landings has been combined with data from the Matagorda Bay system.

Matagorda Bay

The Matagorda Bay system (Figure 3) encompasses an area of 244,430 acres and has an average depth of about 6.9 ft at MLW (Diener 1975). It includes Tres Palacios, Turtle, Carancahua, Lavaca, Cox, Keller and Chocolate Bays and Oyster, Redfish, Salt and Powerhorn Lakes.

Matagorda Bay is a large primary bay of 167,529 acres and 7.9 ft mean depth (Diener 1975). The southern boundary is the long, narrow Matagorda Peninsula with sand shoreline and extensive areas of submergent and emergent grasses; the eastern confine is the Colorado River delta and the western boundary is a shallow sand shoreline with limited submergent and emergent vegetation. The community of Port O'Connor (population 1,400) is in the southwest corner. Several secondary and tertiary bays associated with major and minor drainages into Matagorda Bay indent the northern perimeter.

Oyster Lake is a shallow muddy tertiary system of 2335 acres and 2.6-ft mean depth (Diener 1975) located along the northwestern shoreline of Matagorda Bay. Numerous oyster reefs are located throughout the system and the periphery is surrounded by emergent vegetation. Tres Palacios Bay is a secondary system of 9436 acres and 3.9-ft mean depth (Diener 1975) with oyster reefs and scattered shell throughout. The community of Palacios (3500 people) is located on the northern shoreline. Turtle Bay, with 1280 acres and 2.5-ft mean depth (Diener 1975), is a muddy system with a moderate number of oyster reefs. The shoreline is primarily clay bluffs with scattered emergent vegetation communities.

Carancahua Bay, along the north central shoreline of Matagorda Bay, covers 13,076 acres and has a 3.9-ft mean depth (Diener 1975). Several resort communities (Port Alto, Schicke Point and Cape Carancahua) are located along the bay. This bay has little marsh except in the southern portion where the tertiary systems of Redfish and Salt Lakes are located. Steep banks and sandy clay constitute the majority of the shore areas.

Lavaca Bay is a large secondary bay in the northwest corner of Matagorda Bay with 44,729 acres and 4.3-ft mean depth (Diener 1975). The shoreline is primarily clay bluffs. On the southeastern shoreline of Lavaca Bay are two smaller secondary areas: Cox Bay and Keller Bay. Cox Bay is a shallow muddy system with a clay bluff periphery and scattered oyster reefs throughout. Keller Bay is a deeper system and the southern perimeter has the largest submerged grass beds found in the Lavaca Bay complex. The community of Olivia (240 people) is located at the head of Keller Bay. On the western shoreline of Lavaca Bay is Chocolate Bay, a small, muddy bay of 699 acres and 2.6-ft mean depth with clay bank shoreline (Diener 1975). North of Chocolate Bay is the city of Port Lavaca (12,000 people). The area of central Lavaca Bay is the most heavily industrialized in the Matagorda Bay system.

South of Lavaca Bay, on the western shoreline of Matagorda Bay, is Powderhorn Lake. This is a moderately saline, shallow body of water of 2889 acres and 2.3-ft mean depth (Diener 1975). This "lake" connects with Matagorda Bay through Powderhorn Bayou on which the community of Indianola (200 people) is located. The periphery of this bay is surrounded by large emergent grass communities.

There are two direct exchanges with the Gulf of Mexico, Pass Cavallo and the Matagorda Ship Channel, both located in the southwest corner of Matagorda Bay, and one indirect connection, the Colorado River, on the eastern boundary. The western portion of Matagorda Bay and the southern two-thirds of Lavaca Bay are transected by the Matagorda Ship

Channel, 35.4 ft deep (Diener 1975), with associated spoil banks. The channel originates at the ALCOA (Aluminum Company of America) plant on the eastern shoreline of Lavaca Bay and terminates at the Gulf of Mexico through the Matagorda jetties. Small channels branch off in Lavaca Bay to the Refuge Harbor at Port Lavaca and to the Lavaca River. The Intracoastal Waterway, dredged to 12.1 ft (Diener 1975), intersects the Matagorda Ship Channel near Port O'Connor. The Palacios Ship Channel branches from the Intra-coastal Waterway in south central Matagorda Bay.

Diener (1975) listed 119,970 acres of emergent vegetation--smooth cordgrass, salt meadow cordgrass, saltwort, shoregrass and coastal dropseed (Sporobolus virginicus)--and 7037 acres of submergent vegetation (widgeon grass and Halodule beaudettei) in the Matagorda Bay system.

Between 1957 and 1968 Matagorda Bay received an average 713 billion gal of freshwater discharge annually (Diener 1975), mainly through the Tres Palacios, Carancahua, Lavaca and Navidad Rivers with partial flow entering the bay from the Colorado River. From November 1974 through March 1976, bay water salinities at gill net stations ranged from 10.0 to 28.0 o/oo, dissolved oxygen varied from 6.0 to 13.0 ppm and water temperatures ranged from 44.6 to 78.8 F (Texas Parks & Wildlife Dept., Palacios).

Sport fishermen caught an estimated 844,600 fish weighing 968,832 lb in Matagorda Bay from September 1974 through August 1976; during the same period commercial fishermen landed 176,370 lb of fish (Breuer et al. 1977).

San Antonio Bay

The San Antonio Bay system consists of the primary bays San Antonio and Espirtu Santo and the secondary bays Hynes, Guadalupe and Shoalwater (Figure 4). Several large natural saltwater lakes occur along Matagorda Island and connect with the primary bays via sloughs and small passes. Two major passes, Cedar Bayou Pass to the west and Pass Cavallo to the east, provide circulation routes between the Gulf of Mexico and the bay system.

San Antonio, Hynes and Guadalupe Bays cover approximately 84,012 acres and Espiritu Santo Bay covers 34,099 acres for a total bay system area of 118,111 acres (Collier and Hedgpeth 1950). The average depths of the unaltered bay system are 3.9 ft in San Antonio Bay (maximum of 7.6 ft) and 4.9 ft in Espiritu Santo Bay (maximum of 7.9 ft) (Collier and Hedgpeth 1950).

Bottom substrates are generally silty clay and sand in the upper bay region which gradually change to sand-clay and sand in the lower bay and Espiritu Santo Bay regions (Texas Parks & Wildlife 1975). Approximately 3015 acres of spoil islands and 2001 acres of oyster reefs occur in the bay system (Burg 1974). One of the major oyster reefs is Panther Reef which extends from Panther Point north toward Mosquito Point.

The Guadalupe and San Antonio Rivers are the major sources of fresh water for the San Antonio Bay system, providing an average annual inflow of 449 billion gal from a drainage area of 6,559,920 acres (Childress et al. 1975). The amount of fresh water entering the system generally depends upon rainfall in the upland drainage rather than on local drainage. Local rainy periods usually occur during early summer and fall. The average annual rainfall for the area is 33.9 inches (Texas Parks & Wildlife 1975).

Salinity values for the bay system generally increase as the distance from the rivers increases. Out-flowing fresh water moves along the west shore of San Antonio Bay while incoming Gulf water moves along the east shore (Childress et al. 1975). Average surface salinities range from 0.0 o/oo in Guadalupe Bay to about 8.0 o/oo in lower San Antonio Bay and from 14.0 to 21.0 o/oo in Espiritu Santo Bay (Childress et al. 1975). No seasonal turbidity patterns are noted within the bay system; however, turbidities tend to increase toward the upper bay and river-influenced areas, as well as in areas disturbed by mudshell and channel dredging operations (Childress et al. 1975). Dissolved oxygen concentrations increase during cold months and decrease during warm months. Between May 1972 and August 1973, average dissolved oxygen concentrations ranged from 7.0 to 12.4 ppm (Childress et al. 1975).

About 24,993 acres of emergent and 16,345 acres of submergent vegetation are found in the San Antonio Bay system (Diener 1975). Smooth cordgrass is the dominant emergent plant in all areas of the bay system except in upper San Antonio Bay where common reed, Phragmites communis, is dominant (Childress et al. 1975). Other species of emergent vegetation include saltwort, saltgrass, shoregrass and salt meadow cordgrass (Diener 1975). The dominant submergent vegetation of the San Antonio Bay system is shoal grass, Diplanthera wrightii. This plant is located primarily in the low turbidity areas of lower San Antonio Bay and Espiritu Santo Bay and in the shallow lakes and sloughs found along the northern margin of Matagorda Island. Other species of submergent vegetation found in the bay system include widgeon grass, and the algae Polysiphona gorgoniae, Spyridia filimentosa, Gracilaria folifera, Ulva lactuca and U. fasciata (Childress et al. 1975). The algae are usually found attached to submerged solid objects such as oyster shells or pilings. However, some algae can be found in calm areas attached to mud or sand substrates.

Four small towns occur on the shoreline of the San Antonio Bay system: Austwell, Long Mott, Seadrift and Port O'Connor. Less than 4000 inhabitants live in these four communities combined (1970 census). The primary businesses found in this area are farming, ranching and fishing, including shrimping and oystering. The majority of the bay shoreline as well as the San Antonio-Guadalupe River drainage occurs on or near ranchland and farmland. Two major industries exist on the San Antonio Bay system; Union Carbide Corporation at Long Mott and DuPont de Nemours E.I. & Company at Bloomington, a town on the Guadalupe River approximately 20 miles from the bay.

The tourist industry is not very extensive, but a few fishing centers at Seadrift and Port O'Connor furnish tackle, guides and access to the bay system. Most of the sport fishing occurs in Espiritu Santo Bay.

Between September 1974 and August 1975, sport fishermen harvested an estimated 416,453 lb of fish from the entire bay system; commercial fishermen harvested an estimated 482,592 lb of fish (Heffernan et al. 1977). In addition, approximately 883,172 lb of shrimp, 1,125,239 lb of blue crabs and 196,873 lb of oysters were harvested commercially during the 1974 calendar year (O. B. Lynam, Texas Parks & Wildlife Dept., Seabrook Field Station, personal communication).

Aransas Bay

The Aransas Bay complex consists of primary, secondary and tertiary bays. The system extends from Aransas Pass, Texas, northeastward to Mesquite Bay, and from its eastern boundary of San Jose Island, westward across Copano Bay to the small community of Bayside, Texas (Figure 5).

Aransas Bay is the primary bay with a surface area at MLW of 56,207 acres and an average depth of 7.9 ft (Diener 1975). A direct water circulation and marine life migration route from the Gulf of Mexico to the bay is provided by a deep water (45.0-46.9 ft) pass, 600 to 712 ft in width, between San Jose Island and Mustang Island at Port Aransas, Texas (Anonymous 1971). This accounts for the higher than average salinities in the southern region of the bay (approximately 30 o/oo). The middle of the bay is the deepest part with a maximum value of 13.1 ft at MLW (U. S. Dept. Commerce 1976a). Six major oyster (Crassostrea virginica) reefs ranging in area from 25 to 257 acres are concentrated in the northern portion of Aransas Bay, along with scattered smaller reefs (Heffernan 1961). There are no private oyster leases in the Aransas Bay system (Diener 1975).

Copano, St. Charles, Redfish and Dunham Bays are considerably shallower, secondary areas, supporting extensive growths of algae and "grasses," which provide valuable nursery grounds for juvenile fish and crustaceans (Heffernan 1972a). Nutrient circulation in these bays is generally affected by freshwater runoff as well as by tidal fluctuations.

Copano Bay is the largest secondary bay with 41,730 acres of surface water and an average depth of 3.6 ft with a maximum depth of 8.9 ft (Diener 1975). The Mission and Aransas Rivers flow into the bay with respective discharges of 733.3 and 65.0 gal/s (Diener 1975).

Copano Bay has five large oyster reefs, ranging in size from 22 to 42 acres, plus a complement of smaller reefs (Heffernan 1961). The transverse position of a few of the reefs near the mouth of Copano Bay dampen tidal action in much of the bay (Collier and Hedgpeth (1950).

The narrow St. Charles Bay, extending between Lamar Peninsula and the Aransas National Wildlife Refuge, has a surface area of 8408 acres with a 3.6-ft average depth (Diener 1975). Freshwater flow from five creeks enters the bay along its northern reaches. Nearly the entire bay is considered prime nursery ground (Heffernan 1972a).

Redfish and Dunham Bays, at the southern and northern ends, respectively, of Aransas Bay, are also very shallow nursery areas but these bays do not

receive direct freshwater flow. Redfish Bay is densely vegetated while Dunham Bay is a muddy, sparsely vegetated area.

Tertiary nursery grounds are located principally in the lower regions of creeks and streams which enter the secondary bays. Port Bay with 1651 acres extends southward from Copano Bay and receives freshwater from creek drainage at its southern tip (Diener 1975).

Mission Bay and lower Mission River with nearly 3939 acres and located off the northwest shore of Copano Bay are the most valuable nursery grounds of the tertiary areas (Heffernan 1972b).

Copano Creek harbors a small portion of nursery grounds in the northwest corner of Copano Bay (Heffernan 1972a).

Tertiary regions of Chiltipin Creek and the Aransas River system are located along the western shore of Copano Bay (Heffernan 1972a).

The Aransas Bay system contains 137,514 acres of water (Heffernan 1972a) of which 44,989 acres are occupied by eight major species of emergent vegetation--saltwort, shoregrass, glassworts (Salicornia sp.), smooth cordgrass, salt meadow cordgrass, coastal dropseed, sea purselane (Sesurium portulacastrum) and seashore saltgrass--and 4124 acres by three major species of submerged vegetation--(Halodule beaudettei), widgeon grass and turtle grass (Diener 1975; W. E. Mercer, TPWD, Personal Communication).

The climate of this area varies from semi-arid to dry sub-humid. Southeast winds are dominant most of the year but from December through February northerly winds associated with advancing cold fronts are common (Whitehouse and Williams 1953). Winters in the Aransas Bay system produce the lowest average monthly water temperatures (59.2 F) and rainfall (0.8 inch). Water temperatures increase through the spring (70.9 F), reach the highest values in the summer (83.7 F) and decline through the fall (73.6 F). Rainfall is greatest in the fall (6.4 inches). The amounts of rainfall in spring and summer average about 2.6 inches. Salinity values are inversely related to rainfall with the lowest salinity (14.1 o/oo) occurring in the fall. The highest salinity occurs in spring (26.8 o/oo). Dissolved oxygen, pH and turbidity remain relatively constant through the year with average values of about 7.0 ppm, 8 and 50 Jackson Turbidity Units (JTU), respectively (Martinez 1970, 1971).

Water movement in the bay system is strongly influenced by wind action. Generally, however, the surface waters take a serpentine course, flowing during a falling tide from Copano Strait south toward Mud Island where there is a clockwise eddy which tends to return the bay water northward along the face of the more saline water from below Mud Island. On a strong rising tide this water is pushed east so that the eddy constricts into an ellipse (Collier and Hedgpeth 1950). The average tidal range from Aransas Bay is 0.49 ft (Diener 1975).

Mud is the predominant bottom sediment of the Aransas Bay system except along the sandy western shore of San Jose Island (Diener 1975).

The average total weight of finfish caught per year by commercial fishermen in the Aransas Bay system during the period 1969-1971 was 573,612 lb (Martinez 1970, 1971). The annual average harvest of commercially caught shrimp and crabs during the same period was 816,991 lb and 420,827 lb, respectively.

Along the 230 miles of shoreline of the Aransas Bay system, the only communities of notable size are Lamar, Bayside, Fulton, Rockport and, the largest, Aransas Pass which has a population of about 6000.

There are three domestic but no industrial waste outfalls in the bay system. Previous high discharges of toxic oilfield brine into Chiltipin Creek and the Mission River were ordered ceased in 1973 by the Texas Railroad Commission (Heffernan 1972b). A total of 14,796 acres in the Aransas Bay system are now closed to shellfishing by the Texas Board of Health (Diener 1975) because of domestic sewage problems.

Corpus Christi Bay

The Corpus Christi Bay system, composed of Corpus Christi, Nueces, lower Redfish and Oso Bays, is located on the lower third of the Texas Gulf coast between longitude 97° 02' and 97° 32' W and latitude 27° 41' and 27° 55' N (Figure 6). It is bordered on the northeast by upper Redfish Bay, on the east by Mustang Island on the south by the upper Laguna Madre. The city of Corpus Christi forms the western boundary of Corpus Christi Bay. Nueces Bay, the former coastal lagoon for the Nueces River basin, is positioned on an east-west axis, entering Corpus Christi Bay at the northwest corner, just north of Corpus Christi. The southern half of Redfish Bay separates Aransas from Corpus Christi Bay and enters Corpus Christi Bay in the northeast quadrant. Oso Bay, the semi-enclosed drainage area for Oso Creek, joins Corpus Christi Bay in the southwest quadrant.

The entire Corpus Christi Bay system has an area of 124,796 acres with 127 miles of shoreline. Corpus Christi Bay is the largest of the four bays in the system, having a total surface area of 95,997 acres. Nueces Bay has an area of 19,518 acres, Oso Bay covers approximately 17,095 acres and lower Redfish Bay covers approximately 5258 acres. The average depth of Corpus Christi Bay is 11.2 ft; Nueces, Oso and lower Redfish Bays average 2.0 ft in depth (Collier and Hedgpeth 1950, Hood 1953, Stevens 1959).

Sediment composition in Corpus Christi Bay ranges from fine sand to black mud. A mixture of gray clay and black mud is the dominant bottom type for the area. Brown silt occurs in areas of channelization while hard sand and fine shell can be found adjacent to Mustang Island.

Submergent vegetation is sparse in Corpus Christi, except along its eastern shore where shoal grass and widgeon grass dominate. Emergent vegetation, found throughout the bay complex, consists primarily of saltwort, glassworts, shoregrass, smooth cordgrass, coastal dropseed, seablite, Suaeda linearis, sea oats, Uniola paniculata and saltmarsh bullrush, Scirpus maritimus. In Corpus Christi Bay, 19 oyster reefs

total 563 acres and are confined primarily to the western and northern portions. Oysters occur throughout Nueces Bay (Stevens 1959, 1960; Diener 1975). The primary sources of freshwater inflow into the Corpus Christi Bay system are Oso Creek and the Nueces River. Prior to the construction of Wesley Seale Dam at Mathis, Texas in 1958 the Nueces River averaged 200 billion gal of discharge per year. The reservoir furnishes the industrial and municipal freshwater needs for the city of Corpus Christi and surrounding towns. Freshwater inflow to Nueces and Corpus Christi Bays is now limited to periods of dam overflow and heavy land runoffs (Stevens 1959).

Prior to 1972, the primary source for water exchange between Corpus Christi Bay and the Gulf of Mexico was the Corpus Christi Channel. This ship channel extends approximately 18 miles from the port of Corpus Christi to its intersection with the Aransas Ship Channel, which continues for approximately 1 mile to the Gulf of Mexico. The two channels are maintained at an average depth of 40.0 ft (U. S. Dept. Commerce 1974). Since its completion in 1972, the Corpus Christi Fish Pass has provided intermittent water exchange through the upper Laguna Madre, but in recent years this has only occurred in association with hurricane winds and tides. Water exchange for Corpus Christi Bay with lower Redfish Bay and the upper Laguna Madre takes place primarily through the Intracoastal Waterway and on a limited basis across the shallow flats during high tides.

The climate for the area is intermediate between the semi-arid regions to the west and southwest and the humid subtropical region to the norhteast. For the period 1936-1975 the mean annual air temperature was 71.2 F and the mean annual rainfall was 28.5 inches (NOAA 1975).

The general water circulation pattern for the Corpus Christi Bay system is a counterclockwise movement along the shoreline (Stevens 1959). The predominant winds, generally from the southeast year-round with occasional "northers" in the winter, and the irregular lunar tides, have the greatest overall influence on the bay water movement. For the period 1968-1972, the mean salinity and the mean water temperature for the entire Corpus Christi Bay system was 26.1 o/oo and 73.4 F, respectively (Martinez 1968, 1969, 1970, 1971 and 1972). The mean turbidity for the same period was 43 JTU, although the mean for Nueces Bay during 1971 and 1972 was 107 JTU.

The entire system lies within Nueces County, Texas. The county, with an area of 536,301 acres, had a population of 237,544 persons as of the 1970 census. The city of Corpus Christi had a population estimate of 204,525 (Diener 1975). Extensive oil and gas exploration has resulted in numerous well platforms and submerged pipelines throughout Nueces and lower Redfish Bays and along the western shore of Corpus Christi Bay. Heavy industrialization has occurred along the south shore of Nueces Bay and the north shore of Corpus Christi Bay in the area of La Quinta Channel.

Upper Laguna Madre

Located on the lower Texas coast between latitudes 27° 10' and 27° 41' the upper Laguna Madre system consists of the upper Laguna Madre and the Baffin Bay system (Figure 7). The upper Laguna Madre is a long (approximately 41 miles), narrow (9.8 miles) and shallow (average depth 3.3 ft) lagoon extending from the Kenedy Land Cut to Corpus Christi Bay (Simmons 1957, Diener 1975, U. S. Dept. Commerce 1976b). Bordered on the east by Padre Island and on the west by the city of Corpus Christi and the King and Kenedy Ranches, the upper Laguna Madre covers approximately 47,228 acres at MLW (Diener 1975).

This long, narrow coastal lagoon is bisected imperfectly by the Intracoastal Waterway, which is 124.7 ft wide and 12.1 ft deep. Spoil banks from this canal form a dike 13 miles long effectively dividing the northern part of the bay. Beyond this point, spoil banks are staggered and the division is less effective (Simmons 1957). The northern end of the lagoon is restricted by a land fill causeway which has three openings totaling about 899 ft in width at MLW. The southern end is restricted by a land fill through which the Intracoastal Waterway extends.

The upper Laguna Madre is joined in the southern portion by the equally large Baffin Bay system--consisting of Baffin Bay, Alazan Bay, Laguna Salada, Cayo del Grullo and Cayo del Infernillo--which covers an estimated 54,117 acres. Baffin Bay, the central and largest bay of the group, is a narrow body of water, 19 miles long and 5 miles wide, bisected laterally by the demarcation line of Kleberg-Kenedy Counties (Breuer 1957). The average depth in Baffin Bay is 7.9 ft at MLW, with a maximum depth (MLW) of 12.1 ft near the entrance to the Laguna Madre (Breuer 1957, Diener 1975). There are approximately 31,861 acres of surface area (MLW) in Baffin Bay.

Alazan Bay, entirely within Kleberg County and the King Ranch, extends approximately 15 miles northeasterly to the mouth of Petronilla Creek (Breuer 1957, Diener 1975). The average water depth (MLW) in Alazan Bay is approximately 3.0 ft. The surface area of Alazan Bay is approximately 13,867 acres.

Cayo del Infernillo is a shallow slough (0.7 ft) extending westward from the west shore of Alazan Bay whose water surface at MLW covers 699 acres (Breuer 1957, Diener 1975).

Baffin Bay is joined by two small tertiary bays--Laguna Salada entering from the west and Cayo del Grullo from the northwest. Both bays have an average water depth (MLW) of 3.0 ft. Laguna Salada covers approximately 3227 acres and Cayo del Grullo about 4470 acres.

The upper Laguna Madre, with restricted openings at either end, no constant openings into the Gulf of Mexico and limited freshwater inflow, has been characterized as a hypersaline estuary (Simmons 1957, Bruer 1962a), with salinities of 50-60 o/oo common. The Intracoastal Waterway provides for limited water exchange at both ends of the lagoon. Since the dredging of the Intracoastal Waterway salinity "has neither risen above 80 o/oo in the lagoon nor in Baffin Bay (where 100 o/oo

was formerly not uncommon), nor have waters of very low salinity remained in the area any length of time" (Simmons 1957). The only substantial source of freshwater is runoff from the Kenedy, Kleberg, Jim Wells and Nueces County watersheds into the Baffin Bay system (Bruer 1957). The dry sand on Padre Island absorbs rain very rapidly and the very gradual slope of the lagoon's western shores make these areas poor watersheds (Simmons 1957).

The upper Laguna Madre system lies in two climatic zones--north of Baffin Bay is sub-humid; south of that point is semi-arid (Simmons 1957). Rainfall in the area is highly variable but averages 27.0-29.1 inches annually (NOAA, Env. Data Sys., Natl. Climatological Center, Ashville, N. C. 1976). Annual average surface water temperatures for the period 1969-1972 ranged from 73.6 to 76.3 F in the upper lagoon (Martinez 1969, 1970, 1971, 1972). No data concerning water temperature from Baffin Bay is available. Southeast or south-southeast winds are prevalent during most of the year and are directly responsible for the water circulation in the system (Simmons 1957). Water in the upper lagoon is generally clear (annual average turbidity during 1969-1972 ranged from 36.8 to 45.6 JTU) (Martinez 1969, 1970, 1971, 1972); while water in Baffin Bay is often turbid and at times becomes a dark brown (Bruer 1957).

The bottom in the upper lagoon consists primarily of quartzose sand, silt and shell with some calcareous sand or mud in isolated areas (Simmons 1957). In the Baffin Bay system bottom types of soft mud, soft and hard clay, sand and concentrated shell (mostly Mulinia lateralis) can be found. Also, in Baffin Bay and near the junction of Baffin Bay and the upper Laguna Madre are extensive rock formations consisting of serpulid worm tubes, calcareous and quartzose material.

Simmons (1957) and Breuer (1957) reported dense vegetation--shoalgrass and widgeon grass--restricted to the northern one-third of the lagoon. They indicated that the remainder of the system has only sparse to moderate vegetation, with the exception of the area near the entrance to Baffin Bay and areas around spoil islands.

The only substantially populated center adjacent to the upper Laguna Madre is Corpus Christi, Texas with a population of 204,525 (U. S. Dept. Commerce 1970a). An additional 33,166 people in Kleberg County (U. S. Dept. Commerce 1970b) are located near the Baffin Bay system.

Industrialization in the area has been held to a minimum because of limited access to the surrounding land. The only major industry in the system is a public utility (Central Power and Light Co.) which displaces approximately 3.3 million gal of water/min from the upper Laguna to Oso Bay (Mr. M. L. Sheperd, Central Power and Light Co., June 1976, Personal Communication). Most of the area surrounding Baffin Bay is private ranchland and consequently there is little urban development. There is considerable oil and gas development on these ranches, resulting in large quantities of oilfield brine production. In most cases the brine has been discharged into the bay or a creek which leads to the bay. Mackin (1971) reported that approximately 2,728,897 gal of oilfield brine is discharged each day into Petronilla Creek and thence into Alazan and Baffin Bays.

Lower Laguna Madre

The lower Laguna Madre is a long shallow bay that extends 55 miles northward from Port Isabel to the Kenedy Land Cut (Figure 8). It varies from 3 miles to 7.8 miles wide and is imperfectly bisected by the Intracoastal Waterway. The bay is bounded on the west by the Texas mainland and on the east by Padre Island and contains approximately 182,809 acres (Stokes 1974). Passes to the Gulf of Mexico are located near Port Isabel and east of Port Mansfield. Limited amounts of fresh water (average of 818.9 gal/s) enter lower Laguna Madre from the Arroyo Colorado and North Floodway (Bryan 1971).

Except for the Intracoastal Waterway with an average depth of 12.0 ft, the deepest areas are found in the northern and southern portions of the bay (Breuer 1962a). In the northern section, which extends from Port Mansfield to the Kenedy Land Cut, water depth is as much as 7.9 ft. From Port Mansfield south to Three Islands the water is shallow with most locations being 3.0 ft deep. South of Three Islands the maximum water depth is 5.9 ft and water depths of 3.9-4.9 ft are prevalent.

Bottom types consist of sand, silty sand or a combination of sand, silt and clay (Shepard and Rusnak 1957). Shell is not commonly found in lower Laguna Madre. In general, sediments are coarser along the eastern or Padre Island side of the bay than along the western or mainland side of the bay.

Shoalgrass is the most common type of vegetation found in lower Laguna Madre (Stokes 1974). Dense stands of shoalgrass can be found in shallow water along most of the shoreline as well as in the entire middle portion (Port Mansfield to Three Islands) of the bay. Light to dense stands of manatee grass (Cymodocea filiforme), turtle grass, widgeon grass, Halophila engelmannii and Acetabularia crenulata can be found scattered throughout the bay.

Hydrological parameters have been described by Stokes (1974). Average monthly salinities range from 16.0 to 41.0 o/oo. Excluding the Arroyo Colorado and North Floodway, salinities as low as 10.5 o/oo and as high as 44.9 o/oo are sometimes encountered. Average monthly bottom water temperatures range from 62.6 F during some winter months to 81.5 F in August. Turbidity values are generally highest from Port Mansfield to Three Islands (the shallowest portion of the bay). The average annual turbidity value in this region is 45 JTU. North of Port Mansfield the average turbidity is 28 JTU and south of Three Islands the average is 32 JTU.

The total population for the counties bordering lower Laguna Madre is 162,608 (Harlingen Chamber of Commerce). In 1973, 1,278,000 out-of-state residents visited the lower Rio Grande Valley. Although there are no figures available, it is probable that many of these people visited this area because of water related activities in lower Laguna Madre. Farming and ranching are the main industries along the bay. The only area of heavy industry is the Brownsville Ship Channel where several

shrimp processing plants, a Union Carbide plant, a grain elevator, three ship dismanteling plants, two oil loading docks and an oil rig construction company are located.

Appendix D: Proportional probability estimates

Data collected during September 1974 through August 1976 were used to compare estimates made using weightings with estimates using techniques described by Heffernan et al. (1976).

The proportional probability estimates were consistently greater than the previously made estimates indicating a positive bias (Table 1). The source of this bias could be caused by two different phenomena. The proportion of fishing pressure that occurs at each ramp could be wrong or the number of samples selected at each site was not in proportion to the actual pressure at that site. Both of these occurred to some extent during the earlier phases of the first two years because there was no historical data with which to estimate fishing activity by site and equal probabilities were used to select sites during the first 90 days. This situation was improved later with the collection of pressure data and the bias that was introduced from these two sources was reduced in later years.

Table 1. A comparison of pressure (man-hours), harvest (No.) and catch rates (No./man-hour) estimates made using methods based on random sampling and methods based on proportional sampling. ND = no data.

Bay system	Strata[a]	Pressure		Harvest		Catch rates	
		Random	Proportional	Random	Proportional	Random	Proportional
Galveston[b]	Br	2306	3279	2483	3550	1.08	1.08
	Wb	1576	3183	601	1069	0.38	0.33
	Pr	344	787	195	456	0.57	0.58
	Total	4226	7249	3279	5075	0.77	0.70
Matagorda[c]	Br	668	614	531	358	0.79	0.58
	Wb	818	582	305	194	0.37	0.33
	Pr	48	151	23	64	0.47	0.42
	Total	1534	1347	859	616	0.56	0.46
San Antonio[b]	Br	368	395	373	324	1.01	0.82
	Wb	17	62	15	23	0.88	0.37
	Pr	ND	ND	ND	ND	ND	ND
	Total	385	457	388	347	1.01	0.76
Aransas[c]	Br	462	556	481	494	1.04	0.89
	Wb	299	319	92	198	0.31	0.62
	Pr	236	327	162	165	0.69	0.50
	Total	997	1202	735	857	0.74	0.71
Corpus Christi[c]	Br	346	285	368	267	1.06	0.94
	Wb	629	539	160	160	0.25	0.30
	Pr	138	538	32	150	0.23	0.28
	Total	1113	1362	560	577	0.50	0.42
Upper Laguna Madre[b]	Br	805	882	792	819	0.98	0.92
	Wb	433	304	69	119	0.16	0.39
	Pr	335	295	40	76	0.12	0.26
	Total	1573	1481	901	1014	0.57	0.68

Table 1. (Cont'd.).

Bay System	Strata[a]	Pressure		Harvest		Catch rates	
		Random	Proportional	Random	Proportional	Random	Proportional
Lower Laguna Madre[c]	Br	627	884	328	461	0.52	0.52
	Wb	448	326	48	81	0.11	0.25
	Pr	664	665	516	705	0.78	1.06
	Total	1739	1875	892	1247	0.51	0.66
Coastwide	Br	5582	6895	5356	6273	0.96	0.91
	Wb	4220	5315	1290	1844	0.31	0.35
	Pr	1765	2763	968	1616	0.55	0.58
	Total	11567	14973	7614	9733	0.66	0.65

[a]Br = boat ramps; Wb = wade/bank; Pr = pier.

[b]1974-75

[c]1975-76

Appendix E: Total number of weekend days surveyed.

Table 1. Total number of weekend days surveyed and the total number of fishermen interviewed ( ) in each bay system by season (1974-83). ND = no data collected.

Season	Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre	Total
1974-75								
High use	7 (865)	ND	13 (1259)	7 (238)	ND	9 (459)	ND	36 (2821)
Low use	11 (312)	ND	19 (471)	12 (199)	ND	12 (346)	ND	54 (1328)
Total	18 (1177)	ND	32 (1730)	19 (437)	ND	21 (805)	ND	90 (4149)
1975-76								
High use	ND	5 (99)	ND	ND	5 (121)	ND	5 (181)	15 (401)
Low use	ND	9 (130)	ND	ND	11 (202)	ND	10 (253)	30 (585)
Total	ND	14 (229)	ND	ND	16 (323)	ND	15 (434)	45 (986)
1976-77								
High use	15 (541)	17 (264)	8 (344)	8 (306)	15 (492)	8 (290)	17 (732)	88 (2969)
Low use	29 (235)	17 (109)	13 (184)	14 (168)	16 (305)	15 (147)	15 (373)	119 (1521)
Total	44 (776)	34 (373)	21 (528)	22 (474)	31 (797)	23 (437)	32 (1105)	207 (4490)
1977-78								
High use	34 (1285)	16 (471)	18 (826)	17 (481)	16 (429)	16 (299)	16 (706)	132 (4497)
Low use	31 (486)	15 (231)	14 (435)	16 (178)	15 (223)	15 (323)	16 (601)	122 (2477)
Total	65 (1771)	30 (702)	32 (1261)	33 (659)	31 (652)	31 (622)	32 (1307)	254 (6974)
1978-79								
High use	32 (1817)	17 (596)	18 (962)	16 (380)	18 (500)	17 (596)	17 (700)	135 (5551)
Low use	32 (532)	15 (106)	15 (448)	16 (164)	14 (183)	16 (338)	15 (311)	123 (2082)
Total	64 (2349)	32 (702)	33 (1410)	32 (544)	32 (683)	33 (934)	33 (1011)	259 (7633)

Table 1. (Cont'd)

Season	Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre	Total
1979-80								
High use	27 (913)	18 (433)	21 (1010)	17 (308)	18 (475)	15 (474)	17 (666)	133 (4279)
Low use	15 (173)	12 (286)	21 (650)	14 (107)	15 (545)	16 (463)	15 (485)	108 (2709)
Total	42 (1086)	30 (719)	42 (1660)	31 (415)	33 (1020)	31 (937)	32 (1151)	241 (6988)
1980-81								
High use	17 (870)	17 (535)	22 (1099)	17 (322)	17 (583)	18 (1076)	17 (690)	125 (5175)
Low use	8 (96)	8 (71)	9 (231)	9 (91)	8 (302)	7 (256)	8 (342)	57 (1389)
Total	25 (966)	25 (606)	31 (1330)	26 (413)	25 (885)	25 (1332)	25 (1032)	182 (6564)
1981-82								
High use	27 (775)	27 (546)	21 (693)	27 (614)	27 (1276)	27 (1280)	23 (1239)	179 (6423)
Low use	12 (178)	12 (115)	12 (311)	12 (58)	12 (259)	12 (325)	12 (377)	84 (1623)
Total	39 (953)	39 (661)	33 (1004)	39 (672)	39 (1535)	39 (1605)	35 (1616)	263 (8046)
1982-83								
High Use	31 (1669)	27 (650)	27 (1031)	27 (422)	27 (1104)	27 (1903)	23 (1593)	185 (8372)
Low Use	12 (64)	12 (66)	12 (251)	12 (71)	12 (453)	12 (342)	12 (581)	84 (1828)
Total	43 (1733)	39 (716)	35 (1282)	79 (493)	39 (1557)	39 (2245)	35 (2174)	269 (10,200)

Appendix F. Estimated harvest of fishes in Texas' territorial water

Table 1. Estimated annual harvest (No. X 1000) of fishes by species and area caught by sport-boat fishermen in the Texas territorial water of the Gulf.

Species	Year	Galveston	Matagorda	Corpus Christi	Lower Laguna Madre	Coastwide Total
Spotted seatrout						
	1982-83	1.3	0.8	0.1	0.2	2.4
Red drum						
	1982-83	0.0	0.1	<.1	0.0	0.2
King mackerel						
	1982-83	8.2	1.3	2.6	0.4	12.5
Spanish mackerel						
	1982-83	1.2	0.6	0.3	0.0	2.1
Red snapper						
	1982-83	0.7	7.9	0.6	2.4	11.6
Atlantic croaker						
	1982-83	0.3	0.2	0.1	0.3	0.9
Sand seatrout						
	1982-83	0.2	23.9	2.9	0.7	27.7
Cobia						
	1982-83	0.6	0.1	<.1	<.1	0.8
Other						
	1982-83	2.1	1.1	1.7	0.3	5.2
All species combined[a]						
	1982-83	14.5	35.9	8.3	4.3	63.0

[a]Due to rounding of numbers, totals may not exactly equal individual species totals.

Table 2. Estimated harvest (No. X 1000) of fishes for the high use season (15 May-20 November) by species and area caught by sport-boat fishermen in the Texas Territorial water of the Gulf.

Species	Year	Galveston	Matagorda	Corpus Christi	Lower Laguna Madre	Coastwide Total
Spotted seatrout						
	1982	1.3	0.7	0.1	0.2	2.3
Red drum						
	1982	0.0	0.1	< .1	0.0	0.1
King mackerel						
	1982	8.2	1.3	2.6	0.4	12.5
Spanish mackerel						
	1982	1.2	0.7	0.3	0.0	2.2
Red snapper						
	1982	0.7	7.2	0.6	2.3	10.8
Atlantic croaker						
	1982	0.3	0.1	0.1	0.3	0.8
Sand seatrout						
	1982	0.2	21.1	2.9	0.7	24.9
Cobia						
	1982	0.6	0.1	< .1	< .1	0.8
Other						
	1982	2.1	0.9	1.6	0.3	4.9
All species combined[a]						
	1982	14.5	32.1	8.2	4.2	59.0

[a]Due to rounding of numbers, totals may not exactly equal individual species totals.

Table 3. Estimated harvest (No. X 1000) of fishes for the low use season (21 November-14 May) by species and area caught by sport-boat fishermen in the Texas Territorial water of the Gulf.

Species	Year	Galveston	Matagorda	Corpus Christi	Lower Laguna Madre	Coastwide Total
Spotted seatrout						
	1983	0.0	0.1	0.0	0.0	0.1
Red drum						
	1983	0.0	<.1	0.0	0.0	< .1
King mackerel						
	1983	0.0	0.0	0.0	0.0	0.0
Spanish mackerel						
	1983	0.0	<.1	0.0	0.0	<.1
Red snapper						
	1983	0.0	0.7	0.0	0.1	0.8
Atlantic croaker						
	1983	0.0	<.1	0.0	0.0	<.1
Sand seatrout						
	1983	0.0	2.8	0.0	0.0	2.8
Cobia						
	1983	0.0	0.0	0.0	0.0	0.0
Other						
	1983	0.0	0.2	0.1	0.0	0.3
All species combined[a]						
	1983	0.0	3.8	0.1	0.1	4.0

[a]Due to rounding of numbers, totals may not exactly equal individual species totals.

Appendix G: Estimation of total landings

ESTIMATION OF TOTAL LANDINGS

The Texas Parks and Wildlife Department (TPWD) has conducted extensive recreational surveys for three fishing strata in seven bay systems for two years (Heffernan et al. 1976, Breuer et al. 1977). TPWD has also conducted reduced surveys (weekend boat ramps only) for 5 years (McEachron and Green 1981. Total landings (number of fish harvested) estimates from the 2 years of surveying three fishing strata on weekends and weekdays and data from weekend boat fishing during the same time were used to develop regression models to estimate the total landings from weekend boat fishing statistics. This was done to study the feasibility of estimating the total harvest from the reduced survey which would enable total harvest estimates to be made for years in which only reduced surveys were conducted.

The 2 years of data from each of the bay systems were used to estimate a total harvest for a high use season (15 May-20 November) and a low use season (21 November-14 May). Corresponding weekend boat landings were estimated using weekend boat data only. These estimates (total estimated landings from three strata and total weekend boat landings) along with mean number of fish landed by boat fishermen per weekend day, mean man-h fished by boat fishermen per weekend day and total number of piers and wade-bank areas (access points) available were used to develop regression models. These data were processed using the BMDP2R program from the Biomed statistical package. The general model used was:

$$Y = a+B_1X_1 + B_2X_2 + B_3X_3 + B_4X_4$$

where Y was the total landings from all three strata within a bay system and season, a was the intercept, X_1 was the mean number of fish landed per weekend day, X_2 was the estimated number of fish harvested at boat ramps on the weekend, X_3 was the estimated mean number of man-h fished on a weekend day and X_4 was the total number of pier and wade-bank fishing areas available (Table 1).

The first attempt to develop a model was for the total fish landings (all species combined). Inspection of the residuals from the first attempt to fit data to the model showed two data sets as being atypical (the residuals from these data were greater than three standard deviations). An explanation for these large residuals could not be found on any empirical ground regarding total access points or geographical relationship to a population center. The most likely explanation for the discrepancy was probably an inaccurate catch rate from a small sample size. These two data sets were removed and the analysis was performed again. The fit of the model was greatly improved (i.e. R^2 went from 0.96 to 0.99 and the standard error of the estimate went from 166 to 51). The resultant model for estimating total landings (all species combined) included two variables; the estimated mean number of fish landed per weekend day by boat fishermen and the total number of access points (lighted pier and wade-bank areas) available (Table 2).

Models for estimating the total landings for each of the individual species were attempted using an analysis of covariance. The same general model and the same variables used in developing the total harvest for all species combined was used. An inspection of the residuals showed that the same two data points that had been a problem in the first analysis were also giving problems in this analysis. They were removed and the analysis was attempted again. Significant improvements were made in the fit of all these models and reductions in standard errors were realized. Significant differences were found for the intercepts and coefficients between the species models; however, seven of the models were consistent in that total weekend boat landings and mean man-h of boat fishing per weekend day were selected as significant predictor variables. All of these models had high coefficients of determination (R^2) ranging from 0.81 for gafftopsail catfish to 0.99 for Atlantic croaker (Table 2). Total landings for southern flounder and sheepshead were only correlated with total number of pier and wade-bank access areas available. These models were much less efficient than the other species models, coefficients of determination were 0.45 and 0.44, respectively.

Examination of residuals indicated that the linear models performed well and there was no reason to suspect any of these relationships of being curvilinear.

The regression models were used to estimate total fish landings in each year (15 May of one calendar year through 14 May of the next) starting with 1 June 1974. Annual estimates were made (Table 3) by adding the high use season of one year (i.e. 15 May 1975-20 November 1975) to the low use season of the next year (21 November 1975-14 May 1976). Only one change was made to the estimating procedure after the development of these models: any zero or negative estimate was altered to the total estimated weekend boat landings. This means that the estimates were always greater than or equal to the estimated weekend boat landings (in any case they were never less than 0).

Table 1. Estimated total landings for lighted piers, wade-bank areas and boat ramps and estimated weekend (NC) boat landings, estimated mean man-h fished by sport-boat fishermen per weekend day, estimated mean number of fish landed by sport-boat fishermen per weekend day and total number of lighted piers and wade-bank areas for each bay system by year and season (all variables are expressed in units x 1000 except mean fish landed per day and access points.

Bay system	Year	Season[a]	Estimated total landings	Estimated WE boat landings	Mean man-h per weekend day	Mean fish landed per weekend day	Access point
Galveston	74-75	High	3910	1336	26.1	23,436	74
	74-75	Low	1165	298	9.7	5729	74
	79-80	High	1591	466	1.9	8959	87
	79-80	Low	442	56	4.3	1077	87
Matagorda	75-76	High	444	136	4.0	2390	26
	75-76	Low	172	62	2.4	1187	26
	79-80	High	303	75	3.8	1443	37
	79-80	Low	117	33	1.6	631	37
San Antonio	74-75	High	206	121	3.4	2114	9
	74-75	Low	141	73	1.1	1395	9
	79-80	High	101	39	1.4	756	5
	79-80	Low	25	13	1.0	241	5
Aransas	74-75	High	444	175	4.0	3064	19
	74-75	Low	415	48	1.4	921	19
	79-80	High	175	50	2.4	953	23
	79-80	Low	97	13	0.4	254	23
Corpus Christi	75-76	High	272	94	1.8	1655	47
	75-76	Low	305	42	1.0	802	47
	79-80	High	220	47	1.5	903	54
	79-80	Low	212	35	1.5	675	54
Upper Laguna Madre	74-75	High	633	358	6.4	6283	19
	74-75	Low	381	146	5.7	2808	19
	79-80	High	328	124	6.7	2377	23
	79-80	Low	147	56	2.1	1075	23

Table 1. (Cont'd)

Bay system	Year	Season[a]	Estimated total landings	Estimated WE boat landings	Mean man-h per weekend day	Mean fish landed per weekend day	Access point
Lower Laguna Madre	75-76	High	1281	185	6.6	3251	49
	75-76	Low	212	56	3.5	1085	49
	79-80	High	376	70	2.5	1352	64
	79-80	Low	303	62	2.1	1189	64

[a]The high use season was the fall of one year combined with the summer of the next year (i.e. 1 Sep 1974-20 Nov 1974 and 15 May 1975-31 Aug 1975) and the low use season was the winter and spring (i.e., 21 Nov 1974-14 May 1975).

Table 2. Regression coefficients used to estimate total landings (number of fish) for each species and all species combined from weekend sport-boat fishing (Y and all variables except total access points are expressed in 1000s).

Species	Intercept(a)	Variables				Coefficient of determination(R^2)	se(Y)
		Fish/day(X_1)	Weekend boat landings(X_2)	Man-h fishing day(X_3)	Total access points(X_4)		
Spotted seatrout	-16.14	-	1.28	25.75	-	0.90	67
Red drum	- 5.31	-	0.69	1.92	-	0.85	5
Black drum	- 6.35	-	1.62	4.62	-	0.84	15
Southern flounder	-27.11	-	-	-	1.60	0.45	45
Sheepshead	- 4.30	-	-	-	0.54	0.44	15
Atlantic Croaker	- 5.61	-	1.62	9.56	-	0.99	24
Sand seatrout	- 5.80	-	1.48	10.68	-	0.91	48
Gafftopsail catfish	- 3.15	-	1.60	11.27	-	0.81	5
Others	-20.19	-	1.71	11.71	-	0.93	26
Total	-90.9	0.16	-	-	3.74	0.99	51

[a]Coefficients are shown only for variables that were significant in predicing the harvest for that species in the model:

$Y=a+B_1X_1+B_2X_2+B_3X_3+B_4X_4$.

Table 3. Regression estimates[a] of total recreational saltwater fish landings (number of fish x 1000). ND = no data collected.

Year	Bay system							
	Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre	Coastwide total
Spotted seatrout								
1974-75	972	ND	304	312	ND	356	ND	1944
1975-76	1195	415	281	330	94	825	345	3486
1976-77	291	71	111	188	63	332	317	1374
1977-78	631	188	87	131	74	125	246	1483
1978-79	605	191	58	111	89	98	198	1350
1979-80	500	118	76	127	85	193	179	1278
1980-81	391	182	100	82	80	478	165	1477
1981-82	567	196	57	133	110	352	167	1582
1982-83	469	95	66	78	158	355	248	1469
Red drum								
1974-75	76	ND	36	28	ND	37	ND	178
1975-76	93	48	29	37	22	39	40	309
1976-77	37	22	29	26	17	22	28	181
1977-78	72	25	24	27	16	19	27	210
1978-79	57	32	27	18	18	18	23	194
1979-80	49	33	23	19	21	24	24	192
1980-81	46	38	23	19	20	43	23	211
1981-82	56	28	21	23	18	34	20	200
1982-83	48	23	19	23	24	34	27	198
Black drum								
1974-75	140	ND	9	10	ND	38	ND	196
1975-76	228	42	18	44	10	43	36	422
1976-77	79	11	28	11	2	18	20	170
1977-78	160	28	7	7	3	10	23	238
1978-79	141	29	7	5	4	8	16	211
1979-80	117	21	2	20	7	10	11	189
1980-81	128	66	6	4	8	41	13	266
1981-82	86	33	2	10	6	39	8	185
1982-83	109	20	3	5	23	40	17	216

Table 3. (Cont'd)

Year	Bay system							
	Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre	Coastwide total
Southern flounder								
1974-75	182	ND	7	18	ND	37	ND	245
1975-76	183	29	4	12	96	15	103	441
1976-77	192	35	4	7	103	10	115	467
1977-78	205	45	5	10	109	13	125	512
1978-79	215	55	2	16	115	16	138	557
1979-80	224	64	2	19	119	19	151	599
1980-81	224	64	6	19	119	19	151	602
1981-82	224	64	1	19	119	19	151	543
1982-83	224	64	3	19	119	20	151	600
Sheepshead								
1974-75	71	ND	2	13	ND	12	ND	98
1975-76	71	19	4	11	42	12	44	204
1975-77	74	22	1	12	44	13	49	215
1977-78	113	25	3	13	46	14	52	266
1978-79	82	28	0	15	49	15	56	246
1979-80	85	31	1	16	50	16	60	261
1980-81	85	31	1	16	50	16	60	260
1981-82	85	31	3	18	50	16	60	247
1982-83	85	31	1	16	50	16	60	260
Atlantic croaker								
1974-75	704	ND	30	36	ND	111	ND	882
1975-76	2016	98	42	66	30	162	87	2503
1976-77	519	41	18	32	19	56	55	741
1977-78	897	56	18	23	21	52	53	1120
1978-79	564	65	18	20	32	78	45	821
1979-80	540	42	15	18	31	43	32	720
1980-81	311	74	20	16	40	115	31	607
1981-82	330	44	8	25	58	112	25	602
1982-83	255	30	12	21	45	112	48	523

Table 3. (Cont'd)

Year	Bay system							
	Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre	Coastwide total
Sand seatrout								
1974-75	888	ND	32	45	ND	80	ND	1046
1975-76	631	124	49	155	91	108	111	1270
1976-77	466	42	20	67	63	48	61	767
1977-78	423	63	22	32	40	31	84	695
1978-79	620	67	18	28	44	30	48	854
1979-80	361	49	18	18	44	41	36	565
1980-81	259	62	23	31	70	104	40	590
1981-82	241	72	12	37	62	92	44	559
1982-83	334	39	15	25	100	93	60	666
Gafftopsail catfish								
1974-75	43	ND	4	2	ND	3	ND	53
1975-76	58	17	7	7	3	8	4	104
1976-77	19	19	3	3	2	0	0	46
1977-78	22	25	4	1	1	0	1	53
1978-79	36	24	2	3	4	0	2	71
1979-80	17	2	1	0	2	0	0	22
1980-81	18	4	0	1	1	6	0	31
1981-82	19	6	0	1	1	4	0	32
1982-83	12	4	1	1	5	5	1	29
Other species								
1974-75	343	ND	19	20	ND	53	ND	435
1975-76	604	63	41	54	12	98	70	942
1976-77	102	12	10	18	4	19	44	207
1977-78	254	38	8	9	2	7	31	350
1978-79	238	46	7	9	9	7	31	348
1979-80	236	23	1	7	6	15	10	298
1980-81	214	51	2	8	14	105	12	407
1981-82	278	32	1	18	13	73	13	427
1982-83	188	21	4	9	62	84	32	398

Table 3. (Cont'd)

Year	Bay system							
	Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre	Coastwide total
Total harvest								
1974-75	4102	ND	563	625	ND	701	ND	5992
1975-76	4954	881	411	730	555	1519	707	9757
1976-77	2238	283	209	382	472	653	784	5021
1977-78	2896	504	76	254	430	211	681	5051
1978-79	2646	501	40	180	439	191	558	4555
1979-80	2161	374	64	250	476	308	650	4283
1980-81	1550	469	66	155	571	744	592	4148
1981-82	1349	549	50	261	498	730	633	3811
1982-83	1838	271	48	172	688	512	752	4281

[a]Estimates were made for a 1 year period beginning on May 15 and ending the next year on May 14.

Appendix H. Total number of recreational licenses sold in Texas

Table 1. Total number of recreational fishing licenses sold in Texas by fiscal year (1955-1983).

Fiscal year	Type of License: Fishing[a]	Resident combination hunting and fishing	Three-day saltwater sport fishing	Fishing exempt for blind	Fishing exempt for blind or disabled vet (60%)	Total
1955-56	458,404					458,404
1956-57	465,168					465,168
1957-58	782,402					782,402
1958-59	825,729					825,729
1959-60	846,632					846,632
1960-61	872,236					872,236
1961-62	832,913					832,913
1962-63	882,111					882,111
1963-64	902,671					902,671
1964-65	927,210					927,210
1965-66	1,017,336					1,017,336
1966-67	1,139,969					1,139,969
1967-68	1,231,134					1,231,134
1968-69	1,369,646					1,369,646
1969-70	1,447,167					1,447,167
1970-71	1,494,707					1,494,707
1971-72	1,541,693					1,541,693
1972-73	1,599,905					1,599,905
1973-74	1,195,306	414,850	23,070	52		1,633,278
1974-75	1,142,088	467,342	30,055	67		1,639,552
1975-76	1,088,687	442,197	32,608	106		1,563,598
1976-77	1,090,807	430,186	35,684	152		1,556,829
1977-78	978,976	447,567	55,177		1101	1,482,821
1978-79	1,090,807	518,403	70,024		2087	1,681,368
1979-80	1,100,281	569,165	73,073		2600	1,745,119
1980-81	1,101,346	612,959	81,884		3261	1,799,447
1981-82	1,217,728	671,581	18,268		3329	1,910,906
1982-83	1,271,334	719,630	56		3771	1,994,791

[a]Resident, nonresident and temporary (5 and 14-days) nonresident licenses included in total.

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