

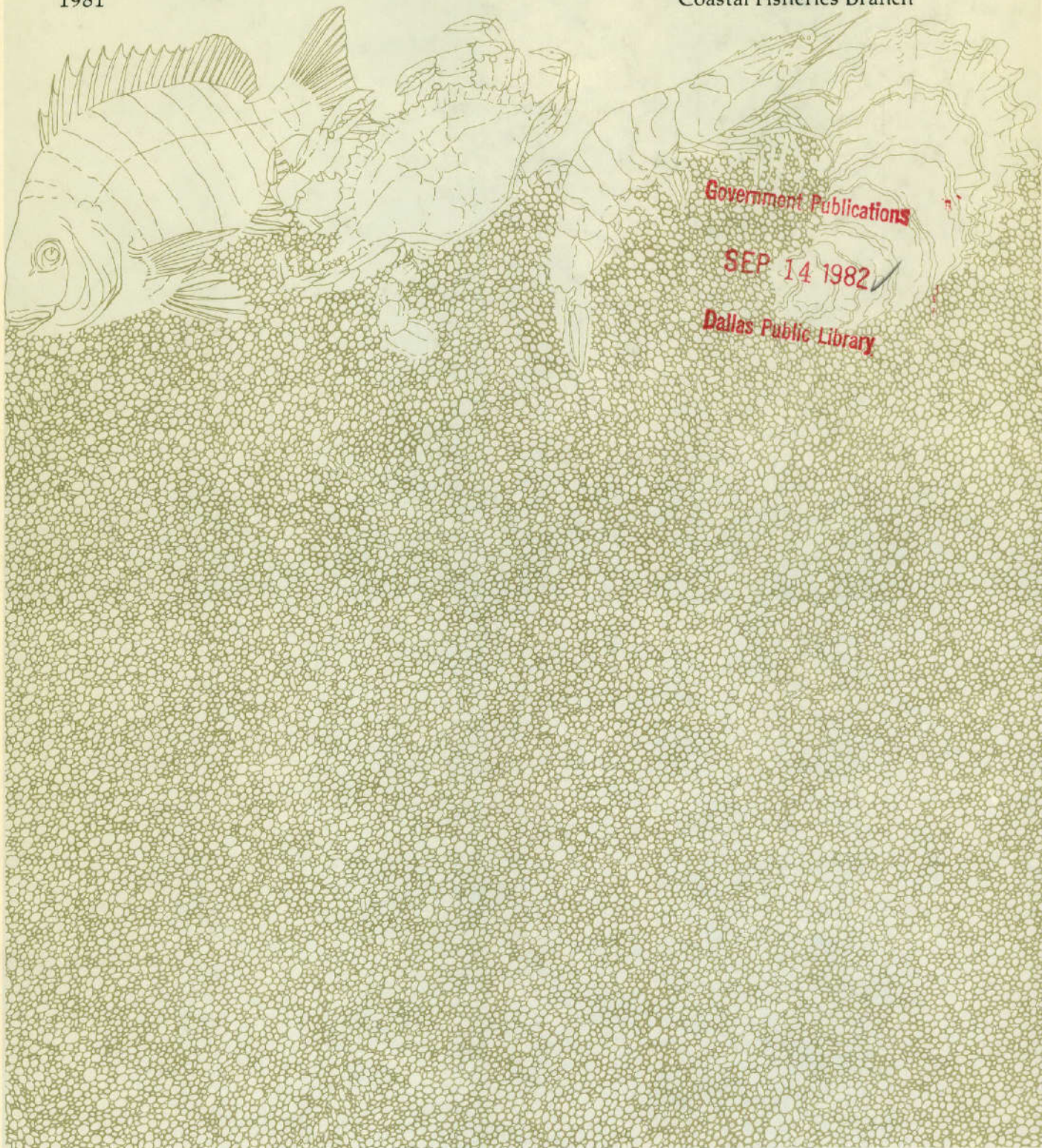
P437.7  
M315d  
no.24

# SURVEY OF FINFISH HARVEST BY SPORT FISHERMEN IN SELECTED TEXAS BAYS, SEPTEMBER—AUGUST 1974-76 AND 1979-80

by L.W. McEachron, A.W. Green, L.Z. Barrington, M.G. Weixelman,  
P. Campbell-Hostettler, R.A. Spaw, K.W. Spiller, and J.P. Breuer

Management Data Series Number 24  
1981

Texas Parks & Wildlife Department  
Coastal Fisheries Branch



Government Publications

SEP 14 1982

Dallas Public Library



SURVEY OF FINFISH HARVEST BY SPORT FISHERMEN  
IN SELECTED TEXAS BAYS, SEPTEMBER-AUGUST 1974-76 and 1979-80

by

L. W. McEachron, A. W. Green

and

L. Z. Barrington	Galveston Bay
M. G. Weixelman	Matagorda Bay
M. G. Weixelman	San Antonio Bay
P. Campbell-Hostettler	Aransas Bay
R. A. Spaw	Corpus Christi Bay
K. W. Spiller	Upper Laguna Madre
J. P. Breuer	Lower Laguna Madre

MANAGEMENT DATA SERIES

NO. 24

1981

Texas Parks and Wildlife Department  
Coastal Fisheries Branch  
4200 Smith School Road  
Austin, Texas 78744



## ACKNOWLEDGEMENTS

We would like to thank each member of the sport creel program who so conscientiously helped in the collection of all scheduled samples. A special thank you is due M. Gazaway, J. Chamberlain, J. Kana, C. Craig, J. Glucksman, K. Thompson, J. Mambretti, M. Smith and J. Miranda--without whose assistance the program would not have been completed successfully. Maury Osborn helped compose the computer programs used to summarize the data and was invaluable in providing assistance in data retrieval. Thanks go to Roy Johnson, Tom Heffernan and Gary Matlock for reviewing the manuscript and to Nancy Ziegler, Dolores Kleypas, Barbara Smith and Debby Bryant for typing it.

This study was jointly funded by the Texas Parks and Wildlife Department and the U.S. Department of Commerce, NOAA, National Marine Fisheries Service under P. L. 88-309 (Project No. 2-310-R-3).

SURVEY OF FINFISH HARVEST BY SPORT FISHERMEN  
IN SELECTED TEXAS BAYS, SEPTEMBER-AUGUST 1974-76 and 1979-80

ABSTRACT

A survey of sport fishermen was conducted during a 3-yr period. The coastal bays were combined into seven primary survey areas of which four (Galveston Bay, San Antonio Bay, Aransas Bay and upper Laguna Madre) were surveyed from September 1974 through August 1975 and the remaining three (Matagorda Bay, Corpus Christi Bay and lower Laguna Madre) were surveyed from September 1975 through August 1976. From 1979 through 1980 all seven bays were surveyed. The 1974-75 and 1975-76 data were combined so that it could be compared to the 1979-80 data. Catch estimates were derived from completed trip interviews at stratified locations within each bay (boat ramp, wade/bank and lighted pier areas). Pressure estimates were obtained by roving counters who drove through each area. The "rover" counted the numbers of fishermen at all shoreline access areas and the numbers of boat trailers at all boat ramps within each respective survey area.

Fishing pressure decreased 31% from 15,061,100 man-h in 1974-76 to 10,362,700 in 1979-80. The number of fishing trips decreased 35% from 4,385,400 to 2,836,600 during the same period. The majority of the pressure (64%-69%) was exerted during the high use season in both years.

Total landings decreased 54% from 9,731,900 fish in 1974-76 to 4,437,200 in 1979-80. Spotted seatrout (Cynoscion nebulosus) accounted for the majority of the total landings in both 1974-75 (39%) and 1979-80 (32%). However, total spotted seatrout landings declined from 3,812,200 fish in 1974-76 to 1,412,900 in 1979-80. Atlantic croaker (Micropogon undulatus) and sand seatrout (C. arenarius) ranked second and third in total landings during 1974-76. Atlantic croaker and southern flounder (Paralichtys lethostigma) ranked second and third in total landings during 1979-80. Galveston Bay accounted for 46-52% of the total annual landings in both years.

Sport boat fishermen accounted for 64-67% of the annual harvest in both years. However, the landings by boat fishermen decreased 53% from 6,273,100 fish in 1974-76 to 2,970,500 in 1979-80.

The annual catch rate for all strata and species combined decreased 34% from 0.65 fish/man-h in 1974-76 to 0.43 in 1979-80. Spotted seatrout constituted ~ 38% and 33% of the catch rate in both 1974-76 and 1979-80, respectively. Sport boat fishermen had the highest annual catch rate for all strata and species combined with 0.91 and 0.56 fish/man-h in 1974-76 and 1979-80, respectively.

Sport boat fishermen had higher catch rates for spotted seatrout (0.40 and 0.18 fish/man-h) than for any other species in both years. Wade/bank fishermen had higher catch rates for Atlantic croaker (0.10 fish/man-h) in 1974-76 and for Atlantic croaker (0.07 fish/man-h) and spotted seatrout (0.07 fish/man-h) in 1979-80. Lighted pier fishermen had higher catch rates for sand seatrout (0.16 and 0.04 fish/man-h), "other" fishes (0.08 and 0.03 fish/man-h), spotted seatrout (0.25 and 0.13 fish/man-h) and Atlantic croaker (0.06 and 0.07 fish/man-h) than any other species in both years.

The smallest fishes landed were Atlantic croaker (0.19 and 0.21 kg) and sand seatrout (0.22 and 0.28 kg) in both years. The heaviest fish was gafftopsail catfish (1.13 and 1.18 kg) in both years.

During both years live and dead shrimp were used by more fishermen (59-92%) than any other bait. Fishermen who used live shrimp for bait generally had the highest success rates (56-70%).

The majority (86-99%) of sport fishermen were from Texas in both years. Most of the Texas fishermen were from counties adjacent to the bay in which they fished.

Although a general decline in fishing pressure and harvest occurred from 1974-76 through 1979-80, the patterns of distribution of pressure and harvest along the coast and in each season during each year (as well as size of fish landed, the origin of fishermen and the types of bait used) were generally consistent between 1974-76 and 1979-80.





## INTRODUCTION

Since September 1974 the Texas Parks and Wildlife Department (TPWD) has conducted surveys of the saltwater sport fishermen in the bays of Texas. These surveys were jointly funded by the TPWD and the National Oceanic and Atmospheric Administration under the "Commercial Fisheries Research and Development Act" (PL 88-309). Surveys in the Texas bays have also been conducted by Belden Associates (1958, 1960), Simmons (1960), Stevens (1962) and More (1964).

From September 1974 through August 1975 boat ramp, wade/bank and lighted pier fishermen were surveyed in Galveston, San Antonio and Aransas Bays and upper Laguna Madre (Heffernan et al. 1976) and from September 1975 through August 1976 in Matagorda Bay, Corpus Christi Bay and lower Laguna Madre (Breuer et al. 1977). It was found that these fishermen exerted 11,570,000 man-h to catch 7,570,000 fish.

Budget restraints required the continued monitoring of catch rates, composition and size of commercially important species to be restricted to surveying weekend sport boat fishermen during 1976-77, 1977-78 and 1978-79 in Galveston, Matagorda, San Antonio, Aransas and Corpus Christi Bays and in upper and lower Laguna Madre. (Green et al. 1978, McEachron 1980a, 1980b).

From September 1979 through August 1980 the boat ramp, wade/bank and lighted pier fishermen were again surveyed using the same techniques as those used in 1974-76 to determine if changes in the bay fishery had occurred.

The objectives of the 1979-80 survey were to:

1. Determine the total daylight harvest, catch per unit effort and size of commercially important finfishes by species and method of capture of sport boat and wade/bank fishermen in Galveston Bay, Matagorda Bay, San Antonio Bay, Aransas Bay, Corpus Christi Bay, upper Laguna Madre and lower Laguna Madre.
2. Determine the total night harvest, catch per unit effort and size of commercially important finfishes by species and method of capture of lighted bay pier fishermen in Galveston Bay, Matagorda Bay, Aransas Bay, Corpus Christi Bay, upper Laguna Madre and lower Laguna Madre.
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 September 1979 through August 1980 inventoried boat ramps, wade/bank areas and bay lighted piers were surveyed in the Galveston, Matagorda (including East Matagorda), San Antonio, Aransas, Corpus Christi, upper Laguna Madre and

lower Laguna Madre Bay systems. Survey sites are presented in Appendices A & B. Area descriptions for each bay (Matlock & Weaver 1979) are presented in Appendix C.

For presentation of the annual harvest, catch per unit effort (no/man-h) and fishing pressure the project year was divided into a low use and high use season with the low use season from 21 November-14 May. The high use season was comprised of the early fall period (1 September-20 November) and the following summer period (15 May-31 August).

For coastwide comparison purposes data from 1974-75 (Galveston Bay, San Antonio Bay, Aransas Bay and upper Laguna Madre) and 1975-76 (Matagorda Bay, Corpus Christi Bay and lower Laguna Madre) were combined. These data were then compared to the 1979-80 harvest. Individual 1979-80 bay systems harvest were compared with either the 1974-75 or 1975-76 harvest depending on which year the bay system was surveyed.

The same sampling design for sport fishermen described by Green in Heffernan et al. (1976) and modified by Green et al. (1978) was used in this study. A roving clerk traveled through each bay system at a constant rate on randomly selected weekend and weekdays and counted boat trailers at boat ramps and persons fishing at wade/bank areas and on lighted piers to obtain fishing pressure estimates. Department personnel were stationed at boat ramps, wade/bank areas or lighted piers on randomly selected weekend and weekdays to collect catch data by interviewing one individual in each fishing party that had completed a trip. Interviewers recorded species (Hoese & Moore 1977, Bailey et al. 1970), number and weight (kg) of all fish brought back by fishing parties as well as number of persons in the party, fishing location, gear and bait used, trip length and residence. The number of interviews is presented in Appendix D. Sport-caught fish were measured (total length) to the nearest mm. All measurements were taken in the field during scheduled sample periods.

Interviews at boat ramps were conducted on 16 randomly selected weekend days and 8 weekdays per season in each bay except in San Antonio Bay where interviews occurred on 24 weekend days and 16 weekdays. In Galveston Bay only, two different boat ramps were surveyed on each day. Both wade/bank and lighted pier interviews were conducted on each of 4 randomly selected weekend and 4 weekdays per season in each bay except for San Antonio Bay where no lighted piers were inventoried.

Boat ramp and wade/bank roving counts were made on 20 randomly selected weekend days and 16 weekdays per season in each bay except Galveston Bay where 28 weekend day and 24 weekday roves were conducted. Boat ramps and wade/bank areas were counted on the same day during the same rove. Lighted pier roving counts were made on 8 randomly selected weekend and 8 weekdays per season in each bay system except for San Antonio Bay where no lighted piers were inventoried.

Boat ramp and wade/bank interview sites were selected at random but were weighted according to mean counts obtained during 1974-79 creel surveys (Texas Parks & Wildlife Department unpublished data). This resulted in

sites with high mean counts being visited more often than sites with low mean counts. Lighted pier interview sites were chosen at random due to the low number of sites in each bay.

At boat ramps, interviews were conducted from 1000 to 1800 CST in both seasons. Evaluation of data obtained during the first 2-yr study (Heffernan et al. 1976 and Breuer et al. 1977) indicated that sampling this period would increase the amount of data collected per unit sampling effort. From September through November 1979) wade/bank interviews were conducted during an early (0600-1300) or late (1300-1930) period. Evaluation of these data indicated that sampling from 1000 to 1800 CST during the December 1979-August 1980 period would also increase the amount of data collected per unit sampling effort. Lighted pier interviews were conducted during an early (1400-2200) or late (2200-0600) period in both seasons.

From September through November, a rover traveled around the bay system counting boat trailers at boat ramps and sport fishermen at wade/bank areas during an early (0600-1300) or late (1300-1930) period; from December through February during an early (0600-1200) or late (1200-1800) period; from March through May during an early (0600-1300) or late (1300-2000) period and from June through August during an early (0600-1400) or late (1400-2100) period. A rover counted lighted pier fishermen during an early (1400-2200) or late (2200-0600) period from September 1979 through August 1980.

In previous studies the sport fish harvest was estimated as the product of the mean catch rate and the fishing pressure in man-hours (Heffernan et al. 1977). 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 random measures of fishing pressure occurring 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 arising in the future is very likely (1979 was the second gas shortage within a 4-yr period). This situation required 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.

TPWD has been actively involved in sport fishing surveys since 1974. All of the data collected during this time have been placed on magnetic tapes and were available for extensive analyses. These data were examined and 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. These analyses resulted in the development of the following formulae for estimating the harvest:

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

where

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

The variable  $\bar{h}_i$  was the mean number of fish landed per day in the  $i$ th strata (weekend, weekdays, high and low use season) and  $D_i$  was the total number of days that occurred in the  $i$ th strata. The number of fish landed

per day in the bay system within a given strata ( $h_{ij}$ ) was estimated by adjusting the total number of fish actually observed at the  $j$ th site by the proportion of parties missed ( $p_j$ ) by the interviewers that day 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 reciprocal of the total number of parties not interviewed divided by total number of parties seen (interviewed and not interviewed). The proportion of total fishing activity occurring at site  $j$  ( $e_j$ ) was estimated as

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

where the total number of trailers or fishermen ( $FH_j$ ) observed at site  $j$  for the most recent 3-yr period ( $FH_j$ ) was divided by the total number of trailers or fishermen observed at all sites ( $j=1,2,3,\dots,k$ ) within the strata during the most recent 3-yr period.

This technique essentially corresponds to procedures described by Kish (1965) for selecting samples from clusters proportional to size. Data collected during the period September 1974 through August 1976 was used to test this procedure by comparing estimates made with this procedure and estimates made using the old procedure. The proportional probability estimates are consistently greater than previously made estimates indicating a positive bias. 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 and/or the number of samples selected at each site was not in proportion to the actual pressure at each site. Both of these occurred to some extent in the earlier phases of the first 2 years of the surveys because there was no historical data to estimate fishing activity by site and equal probabilities were used to select sites. This situation was improved later with the collection of pressure data and the bias that is introduced from these 2 sources has been reduced.

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 done with fewer roves and care does not have to be taken to make sure that counts occur at each site at random times of the day throughout the survey period. This reduces the use of the automobile from 1/3 to 1/6 of the previous requirements depending on the actual rove schedule adopted.

Data collected from this survey, on an annual basis, are comparable to previous survey data. However, two assumptions must be made when comparing catch rate data from year to year. The first is that the mean catch rate and mean fish size for parties returning before or after the interview period are the same as those found for parties returning during the interview period. The second is that neither mean rate nor mean fish size is correlated with the use experienced at the boat ramp.

Any differences in the estimates in this report compared to 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

## Galveston Bay

## Total Pressure

There were 7,198,900 man-h of fishing pressure in 1974-75 but only 3,563,800 man-h in 1979-80, a 50% decline (Table 1). Seventy percent of the effort was during the high use period in 1974-75 but rose to 75% in 1979-80. Boat fishermen contributed 46% of the total pressure in 1974-75 (3,279,600 man-h) and 62% in 1979-80 (2,299,100 man-h) which was approximately a 41% drop in pressure. Total pressure decreased approximately 49% for lighted pier fishermen from 786,900 man-h in 1974-75 to 403,700 man-h in 1979-80. Wade/bank pressure dropped 73% from 3,132,300 to 861,100 man-h in 1974-75 and 1979-80, respectively.

Sport fishermen made 2,050,400 total fishing trips in 1974-75, as compared to 860,900 trips during 1979-80 for a decrease of 50%. During the high use period, 1,367,600 trips (67% of the total) were made in 1974-75, while 616,900 trips (72% of the total) were made in 1979-80. Additionally, boat trips rose from 32% of the total trips taken in 1974-75, to 52% in 1979-80. Wade/bank trips decreased from 58% of the total in 1974-75, to 37% of the total in 1979-80. Lighted pier trips were similar.

## Total Sport Harvest

The total sport harvest, for all strata combined, in 1974-75 was 5,075,500 fish (1,895,200 kg) and in 1979-80 was 2,033,300 fish (740,900 kg) (Tables 2 & 3). Thus, a 60% decline in number and a 61% decline in weight occurred between the two survey years.

During 1979-80, Atlantic croaker (Micropogon undulatus) ranked first in total number with 524,300 fish and third in total weight with 93,800 kg. Southern flounder (Paralichthys lethostigma) ranked second in total number with 454,000 fish and first in total weight with 245,000 kg. Sand seatrout (Cynoscion arenarius) ranked third in total number with 377,600 fish and fifth in total weight with 73,100 kg. These three fishes accounted for 67% of the catch by number, and 56% of the catch by weight. The major change from the 1974-75 survey period was a decline in the number of spotted seatrout (C. nebulosus) caught (from 1,220,900 fish in 1974-75 to 267,600 fish in 1979-80) and an increase in southern flounder caught (from 87,500 fish in 1974-75 to 454,000 in 1979-80). This caused spotted seatrout to drop in ranking from second in total number in 1974-75 to fourth in 1979-80 and southern flounder to rise from eighth in 1974-75 to second in 1979-80. Spotted seatrout also dropped from first to second in total weight landed.

The major species caught during the high use season in 1979-80 were Atlantic croaker (460,700 fish weighing 87,100 kg) and sand seatrout (358,400 fish weighing 68,400 kg). They composed 51% of the high use season catch by

number and 30% by weight. Southern flounder (114,900 kg) and spotted seatrout (123,460 kg) also contributed substantially to the total weight. Spotted seatrout contributed 28% of the total number of fish caught in 1974-75 but only 15% in 1979-80. Southern flounder showed an increase from 1% of the total number of fish caught in 1974-75 to 14% in 1979-80.

In the low use season of 1979-80, southern flounder (231,100 fish weighing 130,100 kg), Atlantic croaker (63,600 fish weighing 6,700 kg), and sheepshead (Archosargus probatocephalus) (56,900 fish weighing 50,800 kg) were the major species caught. They composed 79% by number of the low use season catch and 82% by weight, with spotted seatrout (19,500 kg) also important in the total weight. Southern flounder increased from 4% of the total fish caught in 1974-75 to 52% in 1979-80.

Sport boat fishermen caught 70% (3,550,300 fish) of the estimated landings in 1974-75 compared to 74% (1,510,600 fish) in 1979-80. This is a decline in landings of 57% for the sport boat fishermen. Wade/bank fishermen caught 21% (1,069,600 fish) of the total in 1974-75 and 18% (366,900 fish) in 1979-80 for a decline in landings of 66%. At lighted piers, 455,600 fish were landed in 1974-75 and 155,800 in 1979-80 for a decrease of 66% in total landings.

In 1979-80 Gulf and southern kingfish (Menticirrhus sp.), sea catfish (Arius felis), pigfish (Orthopristis chrysoptera) and silver perch (Bairdiella chrysura) comprised approximately 80% of the "other" fishes caught in all three strata (Table 4). Gulf and southern kingfish were the most common species at boat ramps, while silver perch was the most numerous at wade/bank areas and lighted piers. Fishermen in these three strata caught 20 species of "others" totaling 198,300 fish (38,000 kg).

#### Catch Per Unit Effort

Sport fishermen's catch rate, for all species combined, declined 20% from 0.71 fish/man-h in 1974-75 to 0.57 in 1979-80 (Table 5). This decline was mainly caused by a 53% drop in the catch rate for spotted seatrout (from 0.17 fish/man-h to 0.08 fish/man-h). Atlantic croaker (0.22 fish/man-h), spotted seatrout (0.17 fish/man-h), and sand seatrout (0.14 fish/man-h) comprised 75% of the 1974-75 catch rate. The major species caught in 1979-80 were Atlantic croaker (0.15 fish/man-h), sand seatrout (0.11 fish/man-h), and southern flounder (0.13 fish/man-h) which comprised 68% of the total fish caught per man-h.

In both years, boat fishermen had the highest mean annual catch rates of 1.08 fish/man-h in 1974-75 and 0.66 in 1979-80. Wade/bank fishermen caught 0.34 fish/man-h and 0.43 in 1974-75 and 1979-80, respectively. Lighted pier fishermen caught 0.58 fish/man-h in 1974-75 and 0.39 in 1979-80. The boat ramp annual catch rates dropped 38% due mainly to a decline from 0.34 to 0.09 fish/man-h in spotted seatrout catches. Wade/bank fishermen experienced a 26% increase in catch rate caused mainly by a 500% increase in the southern flounder catch rate (0.01 to 0.06). Lighted pier catch rates dropped 33%

for all species combined due to a decline in black drum (0.07 to 0.01 fish/man-h), sand seatrout (0.20 to 0.05), and "other" fishes (0.16 to 0.11).

#### Mean Weight of Fish

During 1979-80 gafftopsail catfish (Bagre marinus) was the heaviest fish caught averaging 0.91 kg (Table 6). Red drum averaged 0.87 kg; sheepshead, 0.75 kg; southern flounder, 0.57 kg; spotted seatrout, 0.54 kg; black drum, 0.40 kg; sand seatrout, 0.20 kg; and Atlantic croaker, 0.18 kg. "Other" fishes averaged 0.19 kg each. This was the same ranking as was found in the 1974-75 survey except for gafftopsail catfish (ranked second in 1974-75, first in 1979-80) and sheepshead (ranked fourth in 1974-75, third in 1979-80), both of which showed an increase in average weight.

Annual mean weights for all species fluctuated between high and low use seasons for each strata. However, black drum (0.67 and 1.13 kg) and sand seatrout (0.25 and 0.29 kg) were generally heavier during the low use period, and Atlantic croaker (0.18 to 0.19 kg) was heavier during the high use period during both years. Mean weights also varied between strata for both survey years, although Atlantic croaker (0.19 and 0.20 kg) and "other" fishes (0.26 and 0.27 kg) were heaviest at boat ramps; sand seatrout (0.23 and 0.30 kg) were heaviest at wade/bank areas; and red drum (2.37 and 2.92 kg) and gafftopsail catfish (1.14 and 1.30 kg) were heaviest at lighted piers.

#### Mean Length of Fish

The longest species during 1974-75 were southern flounder (379 mm) and in 1979-80 were gafftopsail catfish (496 mm) (Table 7). The smallest species in both years was Atlantic croaker (235 and 237 mm). All the species mean lengths were generally the same except for gafftopsail catfish which increased from 376 mm in 1974-75 to 496 mm in 1979-80.

During both study years, spotted seatrout were longest at boat ramps (376 and 381 mm) while red drum (516 and 920 mm), black drum (298 and 319 mm), and Atlantic croaker (204 and 214 mm) were all longest at lighted piers. All other species varied among strata.

#### Bait Type, Use and Success

Dead and live shrimp were used for bait by 88% of the fishermen in 1979-80, and by 92% of the fishermen in 1974-75 (Table 8). Other natural baits (e.g., fish and squid) and artificial baits were of minor importance.

Success rates in 1979-80 ranged from 41% for "other" natural baits to 56% for anglers who used live shrimp for bait. In 1974-75, dead shrimp had the lowest success rate of 36% and live shrimp had the best success rate of 60%. Artificial baits were used by only 3% of the fishermen in each survey year, but had success rates of 39% in 1974-75 and 46% in 1979-80.

### Angler Origin

In both the 1974-75 and 1979-80 survey years, over 99% of the sport anglers were from Texas (Table 9). Of the out-of-state anglers, those from Louisiana and Oklahoma were more frequently encountered. A greater assortment of other states was seen in 1974-75 (10) than in 1979-80 (4). Of the Texas residents, over 90% of the sport anglers were from the five nearby counties of Harris, Galveston, Brazoria, Jefferson, and Fort Bend. Anglers from an additional 34 counties were intercepted in 1974-75, and from 27 counties in 1979-80. Of these, only 11 counties were represented in both years.



## Matagorda Bay

## Fishing Pressure

Sport fishermen expended 1,346,600 man-h of fishing pressure in 1975-76 compared to 1,459,300 in 1979-80 for an 8% increase (Table 10). The number of fishing trips made by sport fishermen also increased 15% from 352,200 trips in 1975-76 to 405,500 trips in 1979-80.

Pressure by sport boat fishermen increased 48% from 613,800 man-h in 1975-76 to 907,300 in 1979-80. This increase was due mainly to fishing pressure in the high use season increasing 71% from 464,400 man-h in 1975-76 to 795,900 man-h in 1979-80.

Pressure by wade/bank fishermen decreased 21% from 581,800 man-h in 1975-76 to 457,100 in 1979-80. This reduction in fishing pressure occurred in both seasons with the greatest decrease of 34% occurring in the high use season (307,000 to 202,800 man-h).

Lighted pier fishing pressure decreased 37% from 151,100 man-h in 1975-76 to 95,000 man-h in 1979-80. This reduction occurred in both seasons with the greatest decrease of 53% occurring in the low use season (50,000 to 23,400 man-h).

## Total Harvest

From 1975 through 1976 sport fishermen landed 615,900 fish (329,500 kg) compared to 420,800 (176,000 kg) during 1979-80 (Tables 11 & 12). This is a decline of 32% by number and 47% by weight. The sport boat fishermen's catch declined 18% from 357,800 fish in 1975-76 to 293,100 fish in 1979-80. The wade/bank anglers catch declined 47% from 194,200 fish in 1975-76 to 103,900 in 1979-80. The number of fish caught by lighted pier fishermen declined 63% from 63,900 man-h in 1975-76 to 23,700 man-h in 1979-80. There was a decline from 1975-76 to 1979-80 in the annual harvest, for all species and strata combined, in both the high and low use seasons of 32% (444,300 to 303,500 fish) and 32% (171,600 to 117,300 fish), respectively.

Even though spotted seatrout ranked first in total number of fish caught during both years, there was a 53% decline from 212,200 fish in 1975-76 to 100,400 in 1979-80. During the high use season, the number of spotted seatrout decreased 59% from 160,700 fish in 1975-76 to 66,500 in 1979-80 and during the low use season, declined 34% from 1975-76 (51,500 fish) to 1979-80 (33,900 fish). Spotted seatrout constituted 35% of the fish caught in 1975-76 (212,200 fish) and 24% of the fish caught in 1979-80 (100,400 fish). The catch of spotted seatrout by sport boat fishermen decreased from 1975-76 to 1979-80 during both high and low use periods with a 67% annual decrease from 1975-76 (164,500 fish) to 1979-80 (54,200 fish). The harvest of spotted seatrout by wade/bank anglers increased from 1975-76

to 1979-80 during both the high and low use seasons with a 160% annual increase from 1975-76 (12,100 fish) to 1979-80 (31,600 fish). Landings of spotted seatrout by lighted pier anglers decreased 85% (25,600 to 3,900 fish) from 1975-76 to 1979-80 during the high use seasons, but increased 6% (10,100 to 10,700 fish) during the low use season.

Atlantic croaker ranked second in number landed in 1975-76 and in 1979-80. Total landings decreased 2% from 1975-76 (100,400 fish) to 1979-80 (98,300 fish).

Sand seatrout which was the third most common fish landed in 1975-76 (72,000 fish) dropped to sixth in 1979-80 (33,600 fish). Black drum ranked sixth in 1975-76 (37,400 fish) but rose to third in 1979-80 (59,400 fish).

Gafftopsail catfish recorded the largest decline of 98% from 1975-76 (56,500 fish) to 1979-80 (1,000 fish). Red drum increased 10% in annual total landings from 41,200 fish in 1975-76 to 45,600 fish in 1979-80.

Sea catfish was the most common "other" species caught by sport boat fishermen; southern and gulf kingfish by wade/bank and lighted pier anglers (Table 13).

#### Catch Per Unit Effort

The annual catch rate of sport fishermen decreased 37% from 0.46 fish/man-h in 1975-76 to 0.29 in 1979-80 (Table 14). Catch rates in the high use season decreased 45% from 0.51 fish/man-h in 1975-76 to 0.28 in 1979-80.

The catch by sport boat fishermen decreased 45% from 0.58 fish/man-h in 1975-76 to 0.32 in 1979-80. This reduction occurred in both the high and low use season with the largest decrease (47%) occurring in the low use season (0.70 to 0.37 fish/man-h). Wade/bank and lighted pier anglers also caught fewer fish/man-h in 1979-80 than in 1975-76. The wade/bank catch rate dropped 30% from 0.33 fish/man-h in 1975-76 to 0.23 in 1979-80 and lighted pier anglers' catch declined 40% from 0.42 fish/man-h in 1975-76 to 0.25 in 1979-80.

The number of spotted seatrout per man-h of fishing decreased 56% from 0.16 fish/man-h in 1975-76 to 0.07 in 1979-80. The largest decrease occurred in the high use season when the catch rate for spotted seatrout declined 67% from 0.18 fish/man-h in 1975-76 to 0.06 fish in 1979-80. All other species annual catch rates were  $\leq$  0.05 fish/man-h during both years except for Atlantic croaker (0.08 fish/man-h in 1975-76 and 0.07 fish/man-h in 1979-80).

Spotted seatrout had higher annual catch rates for all strata in both years except for wade/bank areas in 1975-76.

#### Mean Weight of Fish

The heaviest fish landed by sport fishermen was black drum (1.40 kg) and gafftopsail catfish (1.33 kg) in 1975-76 and gafftopsail catfish (1.11 kg) in

1979-80 (Table 15). The smallest fish was Atlantic croaker (0.17-0.29 kg) in both years. All species mean weights declined from 1975-76 to 1979-80 except for spotted seatrout which increased from 0.42 to 0.45 kg.

Generally, heavier spotted seatrout (0.45-0.50 kg), red drum (0.61-1.19 kg) and southern flounder (0.37-0.61 kg) were caught by sport boat and wade/bank fishermen and black drum (0.56-2.24 kg) by lighted pier fishermen. All other species mean weights varied between strata, seasons and years.

#### Mean Length of Fish

All species annual mean lengths were similar in both years except for black drum which increased from 279 mm in 1975-76 to 349 mm in 1979-80, sheepshead which increased from 270 to 355 mm and gafftopsail catfish which decreased from 518 to 461 mm (Table 16).

Gafftopsail catfish (461 and 518 mm) was the largest fish and Atlantic croaker (236 and 238 mm) was the smallest in both years. Spotted seatrout mean lengths ranged from 356 to 374 mm in 1979-80 and red drum ranged from 389 to 429 mm.

#### Bait Type, Use and Success

Live shrimp was the most popular bait in 1975-76 with a 34% angler use but its use declined to 19% in 1979-80 (Table 17). The use of dead shrimp increased from 31% in 1975-76 to 53% in 1979-80. Use of artificial baits increased from 10% in 1975-76 to 20% in 1979-80, while "other" baits decreased from 25% in 1975-76 to 8% in 1979-80.

All bait types were less successful in 1979-80 than in 1975-76 except for artificial baits, which increased from a success rate of 37% in 1975-76 to 48% in 1979-80.

The success of fishermen who used live shrimp decreased from 65% in 1975-76 to 59% in 1979-80. Fishermen who used dead shrimp saw their success rate drop from 42% in 1975-76 to 28% in 1979-80 while "other" bait fishermen's success rate dropped from 76% to 39% during the same time.

#### Angler Origin

Most of the anglers interviewed were from Texas; 97% in 1975-76 and approximately 99% in 1979-80 (Table 18).

Six counties (Matagorda, Victoria, Harris, Calhoun, Wharton and Fort Bend) accounted for approximately 72% of the Texas anglers in both years. Of these, only Harris and Fort Bend counties are not nearby to Matagorda Bay.

## San Antonio Bay

## Fishing Pressure

Sport fishermen expended 456,800 man-h of fishing pressure and made 134,100 trips in 1974-75 compared to 233,600 man-h and 50,600 trips in 1979-80 (Table 19). Thus, a decline in pressure of 49% in man-h and 62% in trips occurred.

Sport boat fishing pressure declined 42% from 394,900 man-h in 1974-75 to 229,500 man-h in 1979-80. During the high use season sport boat anglers expended 292,200 man-h in 1974-75 compared to 149,500 man-h in 1979-80, a 49% decline. During the low use season these fishermen expended 102,700 man-h in 1974-75 compared to 80,000 man-h in 1979-80, a 22% decline. Sport boat fishermen made 104,200 trips in 1974-75 compared to 47,900 trips in 1979-80, a 54% decline.

Wade/bank angling pressure dropped 93% from 61,900 man-h in 1974-75 to 4,100 man-h in 1979-80. During the high use season wade/bank anglers expended 12,900 man-h in 1974-75 compared to 2,700 man-h in 1979-80, a 79% decrease. During the low use season these anglers expended 49,000 man-h in 1974-75 compared to 1,500 man-h in 1979-80, a 97% decline. Wade-bank anglers made 29,900 trips in 1974-75 compared to 2,700 trips in 1979-80, a 91% decline.

## Sport Harvest

From 1974 through 1975 sport fishermen landed 347,000 fish (169,800 kg) compared to 125,900 fish (70,800 kg) in 1979-80 (Tables 20 & 21). This is a decline of 64% by number and 56% by weight. The sport boat fishermen's catch declined 61% from 323,600 fish in 1974-75 to 125,600 in 1979-80. Wade/bank anglers' catch declined 98% from 23,400 fish in 1974-75 to 400 in 1979-80. For all strata combined, there was a decline in number of fish landed during both the high use season (205,600 to 101,400 fish) and low use season (141,400 to 24,600 fish) from 1974-75 to 1979-80. The greatest decline occurred in the low use season where there was an 83% decrease.

During the high use season sport boat fishermen landed 56% of the annual harvest in 1974-75 and 81% in 1979-80. Sport boat fishermen caught 93% (323,600 fish) of the harvest in 1974-75 compared to 99% (125,600 fish) in 1979-80. Wade/bank anglers caught 7% in 1974 and < 1% in 1979-80.

Even though spotted seatrout ranked first in total numbers in both years there was a 67% decline from 260,000 fish in 1974-75 to 84,900 in 1979-80. The high use season catch decreased 52% from 156,200 fish in 1974-75 to 74,800 in 1979-80, while the low use season catch decreased 90%

from 103,800 fish to 10,100. Spotted seatrout constituted 75% (260,000 fish) of the total landings in 1974-75 and 67% (84,900 fish) in 1979-80.

Red drum ranked second in the total annual catch during both years. However, there was a 41% decline in landings from 33,800 fish in 1974-75 to 20,100 in 1979-80. The high use season catch decreased 47% from 19,300 fish to 10,300 fish, and the low use period catch decreased 32% from 14,500 fish to 9,800 fish. Red drum constituted 10% of the total annual sport catch in 1974-75 and 16% of the sport catch in 1979-80. All other species individual catches were  $\leq$  14,800 fish during both years.

Southern and gulf kingfish constituted 84% of the "other" fishes landed in 1979-80 (Table 22).

#### Catch Per Unit Effort

On an annual basis, for all strata combined, sport fishermen caught 0.76 fish/man-h in 1974-75 compared to 0.54 in 1979-80, a 29% decline (Table 23). In the high use season the annual catch rate remained at 0.67 fish/man-h from 1974-75 to 1979-80 while in the low use season it declined 68% from 0.93 in 1974-75 to 0.30 in 1979-80.

Annual catches of spotted seatrout decreased 37% from 0.57 fish/man-h in 1974-75 to 0.36 in 1979-80. There was little change in the high use season catch rate, but the low use season declined 82% from 0.68 to 0.12.

The red drum catch rate increased 22% from 0.07 fish/man-h in 1974-75 to 0.09 in 1979-80. Both the high and low use season red drum catch rates increased from 1974-75 to 1979-80. Southern flounder catch rates increased 50% from 0.02 fish/man-h in 1974-75 to 0.04 in 1979-80.

At boat ramps, spotted seatrout was the dominant species accounting for 77 and 67% (0.63 and 0.37 fish/man-h) of the catch rate in 1974-75 and 1979-80, respectively. However, for wade/bank fishermen, no spotted seatrout were caught in 1979-80. The only species caught during 1979-80 were red drum (0.08 fish/man-h) and sheepshead (0.01 fish/man-h).

#### Mean Weight of Fish

The heaviest fishes landed by sport fishermen were gafftopsail catfish (1.16 kg), red drum (1.11 kg) and black drum (0.91 kg) in 1974-75 and black drum (1.77 kg), gafftopsail catfish (1.34 kg) and sheepshead (0.93 kg) in 1979-80 (Table 24). The smallest fish was sand seatrout (0.25 and 0.23 kg) in both years.

#### Mean Length of Fish

The largest fish captured by sport fishermen in 1979-80 were gafftopsail catfish (532 mm) and the smallest was Atlantic croaker (273 mm) (Table 25).

From 1974-75 to 1979-80, spotted seatrout mean annual length increased from 335 mm to 367 mm; red drum decreased from 489 to 405 mm; black drum increased from 258 to 405 mm; southern flounder decreased from 373 to 360 mm; and sheepshead increased from 306 to 369 mm. Spotted seatrout and black drum were the only two species that were larger in the low use season than in the high use season in 1979-80.

#### Bait Type, Use and Success

Live shrimp was the most popular bait used during both years even though its use declined from 45% in 1974-75 to 35% in 1979-80 (Table 26). The use of dead shrimp increased from 17% in 1974-75 to 24% in 1979-80; artificial baits decreased from 33% to 27% while "other" baits increased from 5% to 14%.

All bait types were less successful in 1979-80 than in 1974-75. Live shrimp had a 70% success rate in 1974-75 and 66% in 1979-80. The success of dead shrimp decreased from 61% in 1974-75 to 45% in 1979-80, as did "other" baits, declining from 79% to 56%. Artificial baits success rate decreased from 71% in 1974-75 to 65% in 1979-80.

#### Angler Origin

Most anglers were from Texas during both years; 99.6% in 1974-75 and 99.7% in 1979-80 (Table 27). Six counties (Victoria, Harris, Calhoun, Travis, Bexar and DeWitt) accounted for 72% of the Texas anglers in 1974-75 and 73% in 1979-80. Only Victoria and Calhoun counties are nearby to the San Antonio Bay system.

## Aransas Bay

## Fishing Pressure

Annual sport fishing pressure, for all strata combined, declined 21% from 858,100 man-h in 1974-75 to 682,100 in 1979-80 (Table 28). Fifty-two percent of the total pressure in 1974-75 (443,600 man-h) and 74% in 1979-80 (504,800 man-h) was exerted in the high use season.

Total sport boat fishing pressure declined from 65% (555,700 man-h) in 1974-75 to 37% (250,500 man-h) in 1979-80. Wade/bank pressure decreased from 37% (319,000 man-h) in 1974-75 to 26% (175,700 man-h) in 1979-80. Lighted pier anglers expended 38% of the pressure in both years.

Sport fishermen made an estimated 412,600 trips, for all strata combined, in 1974-75 and 224,900 trips in 1979-80. More trips were made in the high use season during both 1974-75 (218,200 trips) and 1979-80 (154,200 trips) than in the low use season. Distribution of total trips (%) was similar for each strata in both years. Wade/bank anglers constituted 45% (184,700 trips) of the total annual trips in 1974-75 and 46% (102,400 trips) in 1979-80; sport boat anglers constituted 30% of total annual trips (123,700 trips) in 1974-75 and 27% (60,100 trips) in 1979-80; and lighted pier anglers constituted 25% (104,200 trips) in 1974-75 and 28% in 1979-80 (62,400 trips).

## Total Sport Harvest

Total estimated sport harvest, for all species and strata combined, decreased from 858,100 fish (294,500 kg) in 1974-75 to 221,500 fish (113,200 kg) in 1979-80 (Tables 29 & 30). Thus, a decline of 68% by number and 62% by weight occurred. Spotted seatrout accounted for 59% (504,000 fish) of the total harvest in 1974-75 and declined to 52% (141,500 fish) for 1979-80. Declines in the landings (number) of spotted seatrout of 48-85% were evident in each strata from 1974-75 to 1979-80. All other species annual harvests declined 50-82% except for red drum which declined 25%.

Sport boat fishermen harvested 58% (494,400 fish) of the total annual harvest in 1974-75 and 42% (114,800 fish) in 1979-80. Wade/bank anglers harvested an estimated 23% (198,300 fish) and lighted pier anglers 19% (165,400 fish) in 1974-75. In 1979-80 wade/bank anglers harvested 23% (62,200 fish) and lighted pier anglers 35% (94,600 fish).

Fifty-two percent (443,600 fish) of the annual harvest was landed in the high use season in 1974-75 and 64% (174,800 fish) in 1979-80.

Species composition of "other" fishes seen in all strata included Gulf and southern kingfish, pigfish, pinfish (Lagodon rhomboides), silver perch

and hardhead catfish (Table 31).

#### Catch Per Unit Effort

The mean annual catch rate, for all species and species combined, declined from 0.71 in 1974-75 to 0.40 in 1979-80 (Table 32). Seasonal catch rates for all species were greater in the low use season for both 1974-75 (0.79) and 1979-80 (0.55) than in the high use season.

Sport boat fishermen's catch rates for spotted seatrout declined 47% from 0.45 in 1974-75 to 0.24 in 1979-80 and for sand seatrout which decreased 83% from 0.18 in 1974-75 to 0.03 in 1979-80. Catch rates for each of the other species were  $\leq$  0.09 in both years.

Wade/bank anglers' catch rates ranged from 0.45 for spotted seatrout in 1974-75 to 0.13 in 1979-80. Catch rates for each of the other species were  $\leq$  0.08 in both years.

Lighted pier anglers' catch rates were  $\leq$  0.09 for all species except for spotted seatrout which decreased 34% from 0.35 in 1974-75 to 0.23 in 1979-80 and sand seatrout which increased 200% from 0.03 in 1974-75 to 0.09 in 1979-80.

#### Mean Weight of Fish

Mean weights of each species, for all strata combined, ranged from 0.14 kg for "other" species to 1.36 kg for gafftopsail catfish in 1974-75 and 0.15 kg for "other" species to 1.20 kg for gafftopsail catfish in 1979-80 (Table 33). Spotted seatrout mean weight, for all strata combined, increased from 0.30 kg in 1974-75 to 0.38 in 1979-80. Red drum mean weights for all strata combined, decreased from 0.86 kg in 1974-75 to 0.72 in 1979-80.

Smaller spotted seatrout were caught by lighted pier fishermen (0.27-0.32 kg) in 1974-75 and 1979-80 than were caught by sport boat fishermen (0.32-0.40 kg) and wade/bank fishermen (0.34-0.45 kg). All other species mean weights varied between seasons, years and strata.

#### Mean Length of Fish

Annual mean length of sport fish caught ranged from 254 mm for sheepshead to 402 mm for red drum in 1974-75 (Table 34). Mean length for sport fish in 1979-80 ranged from 215 mm for Atlantic croaker to 421 mm for red drum. Increases in annual mean length were noted for all species except Atlantic croaker which decreased from 266 mm in 1974-75 to 215 mm in 1979-80 and sand seatrout which decreased from 291 mm in 1974-75 to 257 mm in 1979-80.

Larger spotted seatrout were caught by wade/bank fishermen (372 mm) than by either sport boat fishermen (353 mm) or lighted pier fishermen (323 mm) in



1979-80. Larger red drum were caught by sport boat fishermen (426 mm) than by either wade/bank fishermen (392 mm) or lighted pier fishermen (358 mm) for the same year.

#### Bait Type, Use and Success

The highest percentage of sport fishermen used dead shrimp for bait in both 1974-75 (44%) and 1979-80 (41%) (Table 35). Success rates for this bait were 24% in 1974-75 and 26% in 1979-80. Artificial bait was the second most popular bait used in 1974-75 (24%) and 1979-80 (23%) with a 45% and 58% success rate, respectively. Live shrimp ranked third in use in 1974-75 (22%) and in 1979-80 (19%) with a 61% and 49% success rate, respectively. "Other" baits used increased from 10% in 1974-75 to 16% in 1979-80 with a success rate of 35% and 32%, respectively.

#### Angler Origin

During 1974-75, 86% of the sport fishermen were from Texas counties as compared to 93% in 1979-80 (Table 36). Bexar County recorded the greatest number of fishermen with 36% in 1974-75 and 38% in 1979-80. Aransas, Travis, San Patricio, Harris, Nueces and Victoria counties accounted for 35% of the total in 1974-75 and 33% in 1979-80. Oklahoma, Kansas, Illinois, Minnesota, Colorado and Nebraska accounted for 62% of the out-of-state fishermen in 1974-75 and 57% in 1979-80.

## Corpus Christi Bay

## Total Pressure

Total annual pressure, for all strata combined, decreased 22% from 1,361,600 man-h (518,700 trips) in 1975-76 to 1,059,300 man-h (349,200 trips) in 1979-80 (Table 37). Forty percent (539,100 man-h) of the annual pressure in 1975-76 was exerted by wade/bank fishermen followed by lighted pier fishermen with 39% (537,700 man-h) and sport boat fishermen with 21% (284,700 man-h). In 1979-80, 48% (513,700 man-h) of the pressure was exerted by wade/bank fishermen, 27% (282,900 man-h) by sport boat fishermen and 25% (262,700 man-h) by lighted pier fishermen. This resulted in a decrease in fishing pressure at boat ramps, wade/banks and lighted piers of 1%, 5% and 51%, respectively.

The high use season accounted for at least 51% of the pressure in each strata for both years except for lighted piers in 1979-80 where the high use season accounted for  $\leq$  32% of the pressure in both years.

## Total Sport Harvest

The annual sport harvest, for all species and strata combined, decreased 25% from 576,500 fish (266,700 kg) in 1975-76 to 432,200 fish (208,100 kg) in 1979-80 (Tables 38 & 39). During 1975-76 the majority of the fish landed were spotted seatrout with 39% (224,100 fish) of the total, sand seatrout with 27% (155,900 fish) and Atlantic croaker with 12% (69,700 fish). In 1979-80, spotted seatrout accounted for 30% (128,500 fish), "other" species for 22% (95,700 fish), sand seatrout with 16% (68,100 fish) and Atlantic croaker with 12% (53,100 fish). Each of the other species contributed  $\leq$  6% in both years.

In 1975-76 spotted seatrout constituted 36% (96,000 kg) of the total landings by weight, black drum 19% (48,200 kg) and sand seatrout 18% (49,600 kg). In 1979-80 spotted seatrout constituted 34% (70,100 kg) of the total weight and black drum 17% (35,200 kg). Each of the other species contributed  $\leq$  10% in both years.

The sport boat fishermen's harvest, for all species combined, was 44 to 46% (266,700 and 191,500 fish) of the total landings during both years. In 1975-76, 41% (109,200 fish) of the fish landed were spotted seatrout and 34% (89,700 fish) were sand seatrout. In 1979-80, 33% (62,500 fish) were "other" species, 23% (44,400 fish) were spotted seatrout and 17% (32,400 fish) were sand seatrout. All the other species each contributed  $\leq$  7% in both years.

The wade/bank fishermen's harvest, for all species combined, was 28% (160,300 fish) of the total landing in 1975-76 and 41% (178,100 fish) in 1979-80.

In 1975-76, 36% (56,200 fish) of the fish landed were sand seatrout, 21% (34,300 fish) were Atlantic croaker and 19% (30,200 fish) were black drum. In 1979-80, 28% (65,500 fish) were spotted seatrout, 20% (29,100 fish) were "other" species and 16% (24,800 fish) were Atlantic croaker. All the other species each contributed  $\leq 11\%$  in both years. The majority of the fish landed by wade/bank fishermen occurred during the low use season (74%) in 1975-76 and during the low use season (51%) in 1979-80.

The lighted pier fishermen's harvest, for all species combined, decreased from 26% (149,500 fish) of the total harvest in 1975-76 to 14% (62,600 fish) in 1979-80. Spotted seatrout landings decreased from 71% (106,400 fish) of the total landings in 1975-76 to 30% (18,600 fish) of the total landings in 1979-80. All other species each contributed  $\leq 25\%$  of the total landings during both years. The majority of the fish landed by lighted pier fishermen occurred during low use season (72%) in 1975-76 and during the high use season (64%) in 1979-80.

In 1979-80, "other" species landed were whiting, pinfish and silver perch (Table 40).

#### Catch Per Unit Effort

The mean annual catch rate (no/man-h), for all species and strata combined, decreased from 0.42 fish/man-h in 1975-76 to 0.41 in 1979-80 (Table 41). Highest annual catch rates were for spotted seatrout (0.17 fish/man-h), sand seatrout (0.11) and Atlantic croaker (0.05) in 1975-76 and for spotted seatrout (0.12), "other" species (0.09), sand seatrout (0.06) and Atlantic croaker (0.05) in 1979-80; catch rates for each of the other species were  $\leq 0.03$  in both years.

The annual boat angler catch rate, for all species combined, decreased from 0.94 fish/man-h in 1975-76 to 0.68 in 1979-80. Highest annual catch rates were for spotted seatrout (0.38 fish/man-h), sand seatrout (0.32) and Atlantic croaker (0.06) in 1975-76 and for "other" species (0.22), spotted seatrout (0.16) and sand seatrout (0.11) in 1979-80; catch rates for each of the other species were  $\leq 0.06$  in both years.

The annual wade/bank angler catch rate for all species combined increased from 0.30 fish/man-h in 1975-76 to 0.35 in 1979-80. Highest annual catch rates were for sand seatrout (0.11 fish/man-h), black drum (0.06) and Atlantic croaker (0.06) in 1975-76 and for spotted seatrout (0.13), "other" species (0.06) and Atlantic croaker (0.05) in 1979-80; catch rates for each of the other species were  $\leq 0.04$  in both years.

The mean annual lighted pier fishermen's catch rate, for all species combined, decreased from 0.28 fish/man-h in 1975-76 to 0.24 in 1979-80. Highest annual catch rates were for spotted seatrout (0.20 fish/man-h) in 1975-76 and for spotted seatrout (0.07), Atlantic croaker (0.06) and sand seatrout (0.06) in 1979-80; catch rates for each of the other species were  $\leq 0.03$  in both years.

The mean seasonal catch rate, for all species and strata combined, was greater during the high use season (0.43 to 0.45 fish/man-h) than during

the low use season (0.39 to 0.40) in both years. The annual spotted seatrout catch rate was greatest during the low use season (0.17) in 1975-76 and (0.13) in 1979-80.

#### Mean Weight of Fish

The annual mean weights, for all strata combined, ranged from 0.21-0.22 kg for "other" species to 1.14-2.05 kg for black drum in both years (Table 42). Mean annual weight for spotted seatrout increased from 0.44 kg in 1975-76 to 0.50 kg in 1979-80. Red drum weight decreased from 0.88 kg in 1975-76 to 0.63 kg in 1979-80.

In both years the heaviest spotted seatrout (0.53-0.69 kg) were landed by wade/bank fishermen, the heaviest red drum (0.86-1.13 kg) by lighted pier fishermen and the heaviest black drum (2.22-2.57 kg) by sport boat anglers.

Mean weights, for all strata combined, were heaviest for spotted seatrout during the high use season (0.52 kg) in 1975-76 and the low use season (0.67 kg) in 1979-80. In both years, mean weights were the heaviest for red drum (0.65-1.10 kg) during the high use season and for black drum (1.47-2.85 kg) during the low season.

#### Mean Length of Fish

The annual mean lengths, for all strata combined, ranged from 300 mm for Atlantic croaker to 470 mm for gafftopsail catfish in 1975-76 and from 256 mm for Atlantic croaker to 485 mm for gafftopsail catfish in 1979-80 (Table 43). Red drum were the second largest fish caught in 1975-76 (434 mm) and third largest in 1979-80 (422 mm) while black drum were the third largest fish caught in 1975-76 (422 mm) and second largest in 1979-80 (466 mm).

Annual mean lengths for sport boat fishermen ranged from 258 mm for Atlantic croaker to 510 mm for black drum in 1979-80. Seasonal mean lengths for spotted seatrout (380 mm), black drum (647 mm), Atlantic croaker (262 mm), sand seatrout (312 mm) and gafftopsail catfish (538 mm) were larger during the low use season while red drum (443 mm), southern flounder (362 mm) sheepshead (368 mm) and "others" (277 mm) were larger during the high use season.

Annual mean lengths for wade/bank fishermen ranged from 228 mm for "other" species to 495 mm for gafftopsail catfish in 1979-80. Seasonal mean lengths for spotted seatrout (432 mm), red drum (387 mm), sand seatrout (316 mm) and "other" species (375 mm) were larger during the low use season while mean lengths for black drum (337 mm) and sheepshead (410 mm) were larger during the high use season.

Annual mean lengths for lighted pier fishermen ranged from 254 mm for Atlantic croaker to 444 mm for red drum in 1979-80. Seasonal mean lengths for spotted seatrout (330 mm), black drum (314 mm), southern flounder (406 mm) and sand seatrout (315 mm) were larger during the low use season, while mean lengths for red drum (452 mm), Atlantic croaker (272 mm), gafftopsail catfish (490 mm) and "other" species (279 mm) were larger during the high use season.

#### Bait Type, Use and Success

Bait types used by fishermen interviewed in both years were live shrimp, dead shrimp, artificial and "other" baits such as squid, fish and crab (Table 44). The most common bait was dead shrimp which was used by 53% to 57% of the fishermen in both years. These fishermen had a 40% success rate. Live shrimp was used by 23-25% of the fishermen with these fishermen having the highest success rate of 65-69%. "Other" bait was used by 10% to 14% of the fishermen with a 36% to 41% success rate. The smallest number of fishermen used artificial bait (8% to 10%) but they had a 52% to 55% success rate.

#### Angler Origin

Anglers from Texas accounted for 94% of the total in 1975-76 and 94% in 1979-80 (Table 45). Three Texas counties, Nueces, San Patricio and Bexar, contributed 79% of the Texas anglers in 1975-76 and 83% in 1979-80. Nueces county contributed slightly more anglers in 1979-80 (~ 1%) than in 1975-76; Bexar county contributed more (~ 6%); and San Patricio county contributed less (~ 3%).

Out-of-state anglers comprised 6% of the anglers interviewed in both 1975-76 and 1979-80. Oklahoma and Kansas were the leading states of non-resident anglers during both survey periods.

## Upper Laguna Madre

## Total Pressure

Total fishing pressure decreased by 31% from 1,430,900 man-h in 1974-75 to 982,300 man-h in 1979-80 (Table 46). Sport boat anglers accounted for 62% of the man-h in 1974-75 and 80% in 1979-80. Sport boat anglers accounted for 53% of the trips in 1974-75 and 64% of the trips in 1979-80. The number of man-h and trips decreased between 1974-75 and 1979-80 for each strata.

During 1974-75, the high use season accounted for at least 55% of the pressure in each strata. During 1979-80, the high use season accounted for at least 51% of the pressure at each strata.

## Total Sport Harvest

Total sport harvest, for all strata and species combined, declined 53% from 1,014,500 fish (988,700 kg) in 1974-75 to 474,600 fish (218,600 kg) in 1979-80 (Tables 47 & 48). Spotted seatrout constituted 63% (642,900 fish) of the harvest by number and 78% (766,500 kg) by weight in 1974-75; they constituted 58% (273,000 fish) by number and 56% (123,400 kg) by weight in 1979-80. By number, Atlantic croaker followed spotted seatrout in the harvest in both years with 20% (206,800 fish) in 1974-75 and 18% (86,200 fish) in 1979-80. By weight, Atlantic croaker was second in the harvest in 1974-75 with 6% (61,000 kg) while red drum was second in 1979-80 with 14% (30,900 kg). Each of the other species were  $\leq$  8% by number and  $\leq$  10% by weight of the harvest in both years.

Boat ramp anglers accounted for at least 81% of the total harvest in both years (819,100 fish in 1974-75 and 399,000 fish in 1979-80). Spotted seatrout constituted 71% (580,500 fish in 1974-75) and 64% (254,900 fish in 1979-80) of the annual harvest by sport boat fishermen.

Wade/bank anglers harvested 12% (119,300 fish) of the total landings in 1974-75 and 4% (21,100 fish) in 1979-80. Spotted seatrout constituted 33% (40,000 fish) in 1974-75 and 18% (3,900 fish) in 1979-80.

Lighted pier anglers harvested 7% (76,100 fish) of the total harvest in 1974-75 and 11% (54,500 fish) in 1979-80. Of the total annual harvest 30% (22,500 fish) were spotted seatrout in 1974-75 and 26% (14,200 fish) in 1979-80. Pinfish was the major "other" species retained by sport fishermen (Table 49).

## Catch Per Unit Effort

The annual catch rate, for all species and strata combined, was 0.71 in 1974-75 and 0.48 in 1979-80 (Table 50). The annual catch rate for spotted

seatrout in 1974-75 and 1979-80 were 0.45 and 0.28, respectively. Catch rates for Atlantic croaker were 0.15 in 1974-75 and 0.09 in 1979-80; catch rates for each of the other species were  $\leq 0.04$  in both years.

At boat ramps the catch rates, for all species combined, declined 45% from 0.93 fish/man-h in 1974-75 to 0.51 in 1979-80. Annual catch rates for spotted seatrout in 1974-75 and 1979-80 were 0.66 and 0.32, respectively, a 51% decline. Catch rates for Atlantic croaker were 0.16 in 1974-75 and 0.07 in 1979-80. Catch rates for each of the other species were  $\leq 0.04$  in both years.

At wade/bank areas the catch rate, for all species combined, was 0.39 fish/man-h in 1974-75 and 0.23 in 1979-80. Catch rates for spotted seatrout were 0.13 and 0.04 in 1974-75 and 1979-80, respectively, and for Atlantic croaker were 0.12 and 0.10. The catch rates for each of the other species were  $\leq 0.05$  during both years.

The annual catch rate at lighted piers increased 74% from 0.31 fish/man-h in 1974-75 and 0.54 in 1979-80. Catch rates for spotted seatrout were 0.09 and 0.14 and for Atlantic croaker were 0.12 and 0.25 in 1974-75 and 1979-80, respectively. The catch rates for each of the other species were  $\leq 0.05$  in both years, except for "other" species in 1979-80.

#### Mean Weight of Fish

The mean weight of fish caught by sport anglers, for all strata combined, ranged from 0.20 kg for "other" fishes to 2.22 kg for black drum in 1974-75 and from 0.25 kg for Atlantic croaker to 1.06 kg for sheepshead in 1979-80 (Table 51). The annual mean weight of all species decreased between 1974-75 and 1979-80 except for "other" species which increased from 0.20 kg in 1974-75 to 0.27 kg in 1979-80.

Mean weight for spotted seatrout decreased for each strata between 1974-75 and 1979-80, with the seasonal mean decreasing from 0.50 kg in 1974-75 to 0.45 kg in 1979-80. Mean weights for red drum decreased for each strata between 1974-75 and 1979-80 with the seasonal mean decreasing from 1.13 kg in 1974-75 to 0.83 kg in 1979-80.

Annual mean weights for spotted seatrout were greatest for lighted pier fishermen and for wade/bank fishermen in 1974-75 (0.56 and 0.57 kg). Sport boat and wade/bank fishermen had the heaviest mean weights for spotted seatrout in 1979-80 (0.43 and 0.39 kg). Annual mean weights for red drum were greatest for sport boat fishermen (0.87 and 1.16 kg) and wade/bank fishermen (0.60-1.20 kg) during both years.

#### Mean Length of Fish

In 1974-75 the mean lengths of fish caught by sport anglers for, all strata combined, ranged from 342 mm for sheepshead to 464 mm for black drum (Table 52). Spotted seatrout (358 mm) and red drum (436 mm) ranked fourth

and second, respectively, in size. In 1979-80 the range was from 260 mm for Atlantic croaker to 424 mm for red drum. During 1979-80 spotted seatrout (369 mm) was the fourth largest fish caught and black drum (386 mm) was the second. The largest fish in 1979-80 were caught during the low use season except for red drum which were larger (431 mm) during the high use season.

Annual mean lengths for sport boat fishermen during 1979-80 ranged from 428 mm for red drum to 264 mm for Atlantic croaker. Spotted seatrout (369 mm) and black drum (385 mm) were the fourth and third largest fish caught.

Mean lengths at wade/bank areas during 1979-80 ranged from 234 mm for Atlantic croaker to 382 mm for red drum. Southern flounder (364 mm) and spotted seatrout (334 mm) were the third and fourth largest fish caught at wade/bank areas. The largest red drum (393 mm), southern flounder (394 mm) and sand seatrout (307 mm) were caught during the high use season while the largest spotted seatrout (339 mm) and Atlantic croaker (261 mm) were caught during the low use season.

The largest fish caught at lighted piers was black drum with a mean length of 405 mm; the smallest was Atlantic croaker with a mean length of 253 mm. Red drum and spotted seatrout ranked second and third in size with mean lengths of 389 mm and 342 mm respectively. At lighted piers the largest fish of all species were caught during the low use season.

#### Bait Type, Use and Success

Dead shrimp were used by 56% of the anglers in 1974-75 and 41% of the anglers in 1979-80 (Table 53). In 1974-75, 40% of these anglers were successful and in 1979-80, 35% were successful.

Live shrimp ranked second in bait use during both years with 31% in 1974-75 and 40% in 1979-80. In both years, it was the most successful bait with a 67% success rate in 1974-75 and 65% in 1979-80.

Artificial bait was used by 10% of the anglers in 1974-75 and 7% of the anglers in 1979-80. In 1974-75, 57% of these anglers were successful and in 1979-80, 49% were successful.

"Other" bait was used by 3% of the anglers in 1974-75 and 12% in 1979-80. In 1974-75, 55% of these anglers were successful and in 1979-80, 57% were successful.



### Angler Origin

Texas residents represented 97.1% of the anglers that fished the upper Laguna Madre during both 1974-75 and 1979-80 (Table 54). Approximately 80% of these Texas anglers in both years came from Nueces, Bexar, and Kleberg counties. From 1974-75 to 1979-80, the percent of anglers from Nueces county increased from 47.9% to 57.3% and those from Bexar county increased from 11.6% to 15.7%. The percent of Kleberg county anglers decreased from 19.6% to 7.8% during the same period.

In 1974-75 the remaining 3% of the anglers came from 23 other states. Those states with the highest percentage were Oklahoma, Illinois, Louisiana and Ohio. In 1979-80 the remaining 3% of the anglers came from only 8 other states with Oklahoma, Colorado and Missouri providing the most fishermen.

## Lower Laguna Madre

### Fishing Pressure

Sport fishermen exerted 2,064,600 man-h in 1975-76 compared to 2,382,300 man-h in 1979-80, an increase of 15% (Table 55). Sport boat fishermen expended 834,500 man-h in 1975-76 compared to 529,500 man-h in 1979-80, a decrease of 40%. Wade/bank pressure increased 46% from 511,700 man-h in 1975-76 to 746,200 man-h in 1979-80. Lighted pier fishing pressure increased from 668,400 man-h in 1975-76 to 1,106,600 man-h in 1979-80, an increase of 65%.

Fishing pressure at boat ramps was greater in the high use season (545,000 and 352,800 man-h) than in the low use season (339,400 and 176,700 man-h) in both years. For the lighted pier strata, pressure was greater in the high use season (566,300 and 862,300 man-h) than in the low use period (102,100 and 244,300 man-h). For wade/bank areas, pressure was greater in the high use season (259,900 man-h) during 1975-76, but greater in the low use season (492,100 man-h) during 1979-80.

The number of trips decreased for boat anglers from 192,100 in 1975-76 to 98,000 in 1979-80 but increased from 169,700 to 238,500 trips for wade/bank fishermen. Trips by lighted pier anglers decreased from 142,900 to 83,900 in 1975-76 and 1979-80, respectively.

### Sport Harvest

During 1975-76, sport fishermen caught 1,244,400 fish (589,000 kg) compared to 678,900 fish (292,700 kg) in 1979-80 (Tables 56 & 57). This is a 45% decline by number and a 50% decline by weight. Both the total number and weight of fish increased for wade/bank anglers, but decreased for the boat ramp and lighted pier stratas.

Spotted seatrout ranked first in total number caught with 60% (748,100 fish) of the harvest in 1975-76 and 61% (417,100 fish) in 1979-80. It also ranked first in total weight with 61% (356,700 kg) in 1975-76 and 58% (171,000 kg) in 1979-80. This represents a 44% decrease by number and a 52% decrease by weight. The sand seatrout sport fishermen's catch in 1975-76 was 270,400 fish compared to 48,500 fish in 1979-80, a decline of 82%. Total weight also declined 84% from 67,100 kg to 11,000 kg. Black drum decreased from 28,800 fish in 1975-76 to 7,600 fish in 1979-80 and decreased in total weight from 50,800 kg to 11,900 kg.

More spotted seatrout were taken in the high use period in both surveys in all strata than in the low use period except for lighted piers during 1979-80. The high use season accounted for the majority (71-66%) of the sport boat harvest during both years. The wade/bank and lighted pier harvests

were greatest in the low use period in 1975-76 (63% and 93%), but were greater in the high use period in 1979-80 (66% and 50%).

The gulf and southern kingfish constituted 48-67% of the "other" fishes in all strata during 1979-80 (Table 58).

#### Catch Per Unit Effort

Overall, sport fishermen averaged 0.60 fish/man-h in 1975-76 compared to 0.29 in 1979-80, a decrease of 52% (Table 59). The sport boat fishermen's annual catch rate increased 21% from 0.52 fish/man-h in 1975-76 to 0.63 in 1979-80. The wade/bank catch rate decreased 19% from 0.16 to 0.13 fish/man-h. Lighted pier anglers experienced a 79% decrease in catch rate from 1.05 to 0.22 fish/man-h.

Lighted pier fishermen had the highest catch rate in 1975-76 with 1.05 fish/man-h, while sport boat fishermen had the highest catch rate in 1979-80 with 0.63 fish/man-h. Sport boat fishermen were second in 1975-76 with 0.52 fish/man-h, while lighted pier anglers were second in 1979-80 with 0.22 fish/man-h. Wade/bank anglers were third in both surveys with 0.16 and 0.13 fish/man-h.

Spotted seatrout annual catch rates dominated the bay fishery in both years, although catch rates decreased 50% from 0.36 fish/man-h in 1975-76 to 0.18 in 1979-80. The sand seatrout catch rate declined 85% from 0.13 fish/man-h in 1975-76 to 0.02 in 1979-80. Annual catch rates of all other species were similar in both surveys.

#### Mean Weight of Fish

The annual mean weight of black drum declined from 2.33 kg in 1975-76 to 1.50 kg in 1979-80, sheepshead from 0.88 to 0.64 kg and Atlantic croaker from 0.31 to 0.21 kg (Table 60). Annual mean weights of all other species declined slightly or remained the same. The annual mean weight of red drum was greater in the high use season (1.06 and 0.78 kg) than it was in the low use season (0.83 and 0.57 kg) as was the annual mean weight of southern flounder (0.77 and 0.74 kg). The annual mean weight of black drum was greater in the low use season during both years (2.75 and 1.60 kg) than it was in the high use season (0.72 and 0.58 kg).

Spotted seatrout and sand seatrout taken from lighted piers were smaller (0.35 and 0.20 kg) than those taken from sport boats (0.46 and 0.33 kg) and from wade/bank areas (0.53 and 0.21 kg) in 1979-80.

### Sport Fish Lengths

Annual mean fish lengths of red drum declined from 434 mm in 1975-76 to 389 mm in 1979-80 and black drum declined from 466 to 319 mm (Table 61). Fish lengths of all other species were similar in both surveys.

Spotted seatrout and sand seatrout taken from lighted piers were smaller (327 and 262 mm) than those taken by sport boat fishermen (359 and 307 mm) and by wade/bank fishermen (328-273 mm).

### Bait Type, Use and Success

Bait used by sport fishermen were classified into live shrimp, dead shrimp, artificial and "other" baits (Table 62). Live shrimp ranked first with a 34% use and second (65%) as most successful in catching fish in 1975-76. It also ranked first with a 35% use and second in rate of success (61%) in the 1979-80 survey. Dead shrimp ranked second in use (31%) and third in success (42%) in 1975-76 compared to second in use (30%) and fourth in success (39%) in 1979-80. Artificial bait ranked third in preference (25%) but first in rate of success (76%) in 1975-76 compared to last in preference (15%) and first in success (84%) in 1979-80. "Other" natural bait was the least used (10%) and least successful (37%) in 1975-76 but ranked third in both preferred use (20%) and rate of success (56%) in 1979-80.

### Angler Origin

Texas anglers constituted 88.9% of the interviewed parties in 1975-76 compared to 90.9% in 1979-80 (Table 63). During both years, 84 to 89% of the lower Laguna Madre fishermen resided in the adjacent counties of Cameron, Hidalgo and Willacy. Out of state visitors came from 24 states and Mexico and Canada in 1975-76 and 18 states and Mexico in 1979-80. Kansas, Illinois and Minnesota led out of state anglers in 1975-76; Oklahoma, Michigan and Nebraska in 1979-80.

## COASTWIDE

## Fishing Pressure

In the seven major bays of Texas sport boat, wade/bank and lighted pier fishing pressure decreased 31% from 15,061,100 man-h in 1974-75 to 10,362,700 in 1979-80 (Table 64). The number of fishing trips decreased 27% from 4,385,400 to 2,836,600. During both periods boat ramp fishermen accounted for at least 46% of the annual pressure, wade/bank fishermen for at least 27% and lighted pier fishermen for at least 18%.

Of the total annual pressure, 64% or 9,694,900 man-h were exerted in 1974-76 and 69% or 7,105,200 man-h were exerted in 1979-80 during the high use season. Each strata fishing pressure decreased in 1979-80 compared to the 1974-76 totals.

## Sport Harvest

Sport boat, wade/bank and lighted pier fishermen landed 9,731,900 fish (4,151,500 kg) in 1974-76 and 4,437,200 fish (1,851,700 kg) in 1979-80 (Tables 65 & 66). This is a decrease in number of 54% and a decrease in weight of 55%. Of these landings, spotted seatrout constituted 39% (3,812,200 fish) by number and 45% (1,876,200 kg) by weight during 1974-76; and 32% (1,412,900 fish) by number and 35% (655,600 kg) by weight during 1979-80 (Figures 1 & 2). This represents a decrease of at least 63% for both number and weight. By number, Atlantic croaker with 21% (2,047,900 fish) in 1974-76 and 18% (808,600 fish) in 1979-80 was the second most important fish landed; sand seatrout was the third most important fish with 17% (1,655,200 fish) in 1974-76 and southern flounder and sand seatrout were the third most important fishes with 13% each (594,500 and 574,600 fish, respectively) in 1979-80; all other species landings each constituted  $\leq$  8% (822,200 fish) of the total during both years. By weight, sand seatrout was the second most important fish landed in 1974-76 with 11% (470,300 kg) of the landings and Atlantic croaker was third with 10% (421,300 kg). In 1979-80 southern flounder was the second most important species with 18% (338,500 kg) and red drum was third with 10% (187,900 kg) of the landings. All other species landings each constituted  $\leq$  9% of the total during both 1974-75 and 1979-80.

Sport boat fishermen accounted for at least 64% of the overall landings in both 1974-76 (6,273,100 fish) and 1979-80 (2,970,500 fish). These fishermen also landed between 57 and 71% (759,100-2,211,400 fish) of all fish recorded during both the high and low use seasons in both years.

Spotted seatrout was the major fish landed in all seasons during both years. In the high use season it constituted between 30 to 40% (936,500-2,769,100 fish) of the landings and in the low use season between 35-37% (476,400-1,043,100 fish).

### Catch Per Unit Effort

The coastwide mean annual catch rate, for all strata and species combined, decreased 34% from 0.65 fish/man-h in 1974-76 to 0.43 in 1979-80 (Table 67). Spotted seatrout accounted for ~ 38% (0.25 fish/man-h) and 33% (0.14 fish/man-h) of these catch rates in 1974-76 and 1979-80, respectively. Atlantic croaker accounted for 16-22% (0.07-0.14 fish/man-h) and sand seatrout for 14-17% (0.06-0.11 fish/man-h). All other species catch rates, except for southern flounder in 1979-80 constituted  $\leq$  9% (0.06 fish/man-h) of the total.

Sport boat fishermen had the highest annual catch rate of 0.91 fish/man-h in 1974-76 and 0.56 in 1979-80. Spotted seatrout, with a catch rate of 0.40 and 0.18 fish/man-h in 1974-76 and 1979-80, respectively, was the most common fish caught followed by Atlantic croaker with 0.19 and 0.09 and sand seatrout with 0.16 and 0.08. All other species catch rates, except for southern flounder in 1979-80 were  $\leq$  0.04 fish/man-h in both 1974-76 and 1979-80.

Wade/bank fishermen were most successful in catching Atlantic croaker in 1974-76 (0.10 fish/man-h) and most successful in catching Atlantic croaker and spotted seatrout in 1979-80 (0.07 fish/man-h). All other species annual catch rates were each  $\leq$  0.06 fish/man-h in both years.

Lighted pier fishermen had the best annual catch rates for spotted seatrout (0.25 fish/man-h), sand seatrout (0.16) and "other" fishes (0.08) in 1974-76 and for spotted seatrout (0.13), Atlantic croaker (0.07), sand seatrout (0.04) and southern flounder (0.06) in 1979-80. All other lighted pier fishermen's catch rates were  $\leq$  0.04 fish/man-h.

The high use season had the highest catch rates of 0.71 fish/man-h in 1974-76 and 0.44 in 1979-80 when compared to the respective low use seasons. Spotted seatrout was the major fish landed by sport boat fishermen in both the high use (0.18-0.46 fish/man-h) and low use (0.18-0.31 fish/man-h) seasons in both years. Atlantic croaker was the major fish landed by wade/bank fishermen in both the 1974-76 and 1979-80 high use seasons (0.09-0.11 fish/man-h) while Atlantic croaker (0.09 fish/man-h) was the major fish landed in the 1974-76 low use season and spotted seatrout and southern flounder were the major fishes (0.06 fish/man-h) in the 1979-80 low use season. Spotted seatrout was the major fish landed by lighted pier fishermen in both the 1974-76 high and low use (0.08-0.31 fish/man-h) and 1979-80 low use (0.26 fish/man-h) seasons; Atlantic croaker and spotted seatrout were the major fishes landed in the 1979-80 high use season (0.08 fish/man-h).

### Mean Weight of Fish

The smallest fishes landed were Atlantic croaker (0.19-0.21 kg) and sand seatrout (0.22-0.28 kg) in both years (Table 68). Heaviest fish caught was gafftopsail catfish (1.13-1.18 kg). Spotted seatrout caught by lighted pier fishermen were smaller (0.35 to 0.41 kg) than those retained by wade/bank (0.48-0.68 kg) and sport boat fishermen (0.46-0.52 kg) in both seasons during both years. All other fishes mean weights varied between seasons, strata and year.

From 1974-76 to 1979-80 the annual mean weights for spotted seatrout declined slightly from 0.50 to 0.45 kg; for red drum declined from 0.95 to 0.77 kg; for black drum declined from 0.84 to 0.69; for southern flounder declined slightly from 0.61 to 0.58 kg; for Atlantic croaker declined slightly from 0.21 to 0.19 kg; for sand seatrout declined from 0.28 to 0.22 kg; for gafftopsail catfish declined from 1.18 to 1.13 kg; and for "other" fishes declined from 0.29 to 0.21 kg. Sheepshead increased slightly from 0.72 to 0.73 kg.

#### Mean Length of Fish

The annual mean length, for all strata combined, for spotted seatrout (352 and 356 mm), red drum (425 and 416 mm), black drum (323 and 328 mm), southern flounder (368 and 346 mm), Atlantic croaker (241 mm), sand seatrout (281 and 269 mm) and gafftopsail catfish (464 and 491 mm) were relatively unchanged (Table 69). Only sheepshead increased appreciably in length from 281 mm in 1974-76 to 329 mm in 1979-80.

#### Bait Type, Use and Success

During both years live and dead shrimp were used by 59 to 92% of the fishermen (Table 70). Artificial bait was used by > 20% of the fishermen only in San Antonio Bay (27-33%) and Aransas Bay (23-24%) during both years, lower Laguna Madre in 1974-76 and Matagorda Bay (20%) in 1979-80. "Other" bait was used by > 20% of the sport fishermen in Matagorda Bay in 1974-76 and lower Laguna Madre in 1979-80.

Fishermen who used live shrimp generally exhibited a higher success rate (56 to 70%) than fishermen who used other baits. Artificial bait fishermen in San Antonio Bay and lower Laguna Madre during both 1974-76 and 1979-80 and "other" bait fishermen in Matagorda and San Antonio Bays in 1974-76 had success rates (65-84%) that were as high or higher than their live shrimp fishermen counterparts. Dead shrimp fishermen's success rates were generally the lowest (24-42%) of the baits used except San Antonio Bay in 1974-76 where they had a success rate of 61%.

#### Angler Origin

The majority of the sport fishermen were from Texas in both years. The highest percentage of Texas anglers were seen in Galveston Bay (~ 99%), Matagorda Bay (~ 98%), San Antonio Bay (~ 99%) and upper Laguna Madre (~ 97%). The percentage of anglers in the other bays ranged from 86% to 94% during both years.

## LITERATURE CITED

- Bailey, R. M., J. E. Fitch, E. S. Herald, E. A. Lackner, C. C. Lindsey, C. R. Robins and W. B. Scott. 1970. A list of common and scientific names of fishes from the United States and Canada (3rd edition). Amer. Fish. Soc. Spec. Pub. No. 6. 150 p.
- Belden Associates. 1958. A state-wide survey of fishing habits and the catch of redfish, speckled trout, flounder, and drum off the Texas coast. Mimeo. rept. 94 p.
- \_\_\_\_\_. 1960. The second state-wide survey of fishing habits and the catch of redfish, speckled trout, flounder, and drum off the Texas coast. Mimeo. rept. 80 p.
- Breuer, J. P., R. L. Benefield, M. G. Weixelman, A. R. Martinez and I. Nava. 1977. Survey of finfish harvest in selected Texas bays Segment II. Texas Pks. & Wildl. Dept. Coastal Fish. Branch Proj. Rept. No. 2-231-R-2. 116 p.
- Green, A. W., T. L. Heffernan and J. P. Breuer. 1978. Recreational and commercial finfish catch statistics for Texas bay systems, September 1974 to August 1977. Texas Pks. & Wildl. Dept. Coastal Fish. Branch Proj. Rept. No. 2-293-R. 81 p.
- Heffernan, T. L., A. W. Green, L. W. McEachron, M. G. Weixelman, P. C. Hammerschmidt and R. A. Harrington. 1976. Survey of finfish harvest in selected Texas bays. Texas Pks. & Wildl. Dept. Coastal Fish. Branch Proj. Rept. No. 2-231-R-1. 116 p.
- Hoese, H. D. and R. H. Moore. 1977. Fishes of the Gulf of Mexico, Texas, Louisiana, and adjacent waters. Texas A&M Univ. Press, College Station. 327 p.
- Kish, L. 1965. Survey Sampling. John Wiley & Sons, New York. 643 p.
- Matlock, G. C. and J. E. Weaver. 1979. Assessment and monitoring of Texas coastal finfish resources. Texas Pks. & Wildl. Dept. Coastal Fish. Branch Proj. Rept. No. 2-313-R. 268 p.
- McEachron, L. W. 1980a. Recreational and commercial finfish catch statistics for Texas bay systems, September 1977-August 1978. Mgmt. Data Ser. No. 7. Texas Pks. & Wildl. Dept. Coastal Fish. Branch. 22 p.
- \_\_\_\_\_. 1980b. Recreational and commercial finfish catch statistics for Texas bay systems, September 1978-August 1979. Mgmt. Data Ser. No. 9. Texas Pks. & Wildl. Dept. Coastal Fish. Branch. 76 p.



- More, W. R. 1964. Survey of salt water sports fishing in Galveston and Trinity Bays. Texas Pks. & Wildl. Dept. Coastal Fish. Proj. Rept. 1964. 7 p.
- Simmons, E. G. 1960. Evaluation of sportfish catch and recall methods of survey. Texas Game & Fish Comm., Mar. Fish. Div., Proj. Repts. for 1959-60. 51 p.
- Stevens, J. R. 1962. Analysis of populations of sports and commercial finfish and of factors which affect these populations in the coastal bays of Texas. Texas Game & Fish Comm. Rept. 1961-62. 11 p.

Table 1. Total pressure (man-h X 1000 and trips X 1000) by season and strata in Galveston Bay (Sept. 1974-Aug. 1975 and Sept. 1979-Aug. 1980).

Strata	Man-h	Trips
Boat Ramp		
1974-75		
High use	2309.1	464.2
Low use	970.5	200.9
Annual	3279.6	665.1
1979-80		
High use	1664.6	318.7
Low use	634.4	125.1
Annual	2299.1	443.8
Wade/Bank		
1974-75		
High use	2264.5	779.2
Low use	867.8	405.5
Annual	3132.3	1184.7
1979-80		
High use	667.5	214.4
Low use	193.6	102.4
Annual	861.1	316.8
Lighted Pier		
1974-75		
High use	481.3	124.2
Low use	305.6	76.4
Annual	786.9	200.6
1979-80		
High use	356.5	83.8
Low use	47.2	16.5
Annual	403.7	100.3

Table 1. (Cont'd.)

Strata	Man-h	Trips
Season Total (all strata combined)		
1974-75		
High use	5054.9	1367.6
Low use	2144.0	682.8
Annual	7198.9	2050.4
1979-80		
High use	2688.5	616.9
Low use	875.3	244.0
Annual	3563.8	860.9

Table 2. Total sport harvest (no X 1000) estimated for Galveston Bay by season, strata and species (Sept. 1974-Aug. 1975 and Sept. 1979-Aug. 1980).

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Cofftopsail catfish	Other	All <sup>a</sup> species combined
Boat Ramp										
1974-75										
High use	991.3	19.4	43.5	19.9	36.6	973.9	535.4	44.9	137.3	2802.3
Low use	129.4	31.5	23.0	40.7	18.4	148.1	273.2	1.6	82.2	748.0
Annual <sup>a</sup>	1120.7	50.9	66.5	60.6	54.9	1122.1	808.6	46.5	219.5	3550.3
1979-80										
High use	182.6	31.7	22.5	199.8	41.5	308.4	314.7	6.3	76.4	1183.9
Low use	30.3	3.9	3.7	196.8	54.3	14.7	19.0	0.0	4.0	326.7
Annual <sup>a</sup>	212.8	35.6	26.1	396.6	95.8	323.1	333.7	6.3	80.4	1510.6
Wade/Bank										
1974-75										
High use	77.5	50.0	103.2	14.2	20.3	238.0	27.2	3.6	217.4	751.4
Low use	14.3	6.5	43.2	1.6	52.7	132.8	22.3	0.1	44.5	318.2
Annual <sup>a</sup>	91.8	56.5	146.5	15.8	73.0	370.7	49.6	3.8	261.9	1069.6
1979-80										
High use	44.2	6.7	21.4	16.8	1.2	92.4	23.0	0.0	53.9	259.8
Low use	1.1	3.4	2.4	34.0	2.3	43.7	0.0	1.9	18.1	107.1
Annual <sup>a</sup>	45.4	10.1	23.9	50.9	3.5	136.0	23.0	1.9	72.0	366.9

Table 2. (Cont'd.)

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other	All species combined <sup>a</sup>
Lighted Pier										
1974-75										
High use	8.0	0.9	37.7	9.1	0.1	76.0	128.0	0.0	96.7	356.6
Low use	0.3	0.9	16.8	1.9	0.1	22.8	25.4	1.0	29.8	99.1
Annual <sup>a</sup>	8.3	1.8	54.5	11.0	0.2	98.8	153.5	1.0	126.5	455.6
1979-80										
High use	9.4	2.1	1.8	6.2	1.8	59.9	20.7	1.1	44.5	147.4
Low use	0.0	0.1	1.1	0.3	0.3	5.2	0.1	0.0	1.4	8.4
Annual <sup>a</sup>	9.4	2.2	2.9	6.5	2.1	65.1	20.8	1.1	45.8	155.8
Season Total (all strata combined) <sup>a</sup>										
1974-75										
High use	1076.9	70.3	184.4	43.2	57.0	1287.9	690.7	48.5	451.4	3910.3
Low use	144.0	38.9	83.0	44.2	71.1	303.7	321.0	2.8	156.5	1165.3
Annual	1220.9	109.2	267.4	87.5	128.1	1591.6	1011.7	51.3	607.8	5075.5
1979-80										
High use	236.2	40.4	45.7	222.9	44.6	460.7	358.4	7.4	174.8	1591.1
Low use	31.4	7.5	7.2	231.1	56.9	63.6	19.1	1.9	23.5	442.2
Annual	267.6	47.9	52.9	454.0	101.4	524.3	377.6	9.3	198.3	2033.3

<sup>a</sup> Due to rounding of numbers, these totals may not equal exactly individual totals.

Table 3. Total sport harvest (kg X 1000) estimated for Galveston Bay by season, strata and species (Sept. 1974-Aug. 1975 and Sept. 1979-Aug. 1980).

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other	All <sup>a</sup> species combined
Boat Ramp										
1974-75										
High use	604.6	20.4	25.2	15.9	27.4	185.0	155.2	37.7	35.7	1107.1
Low use	94.4	27.7	51.5	25.6	12.5	25.1	73.7	2.2	22.1	334.8
Annual <sup>a</sup>	699.0	48.1	76.7	41.5	39.9	210.1	228.9	39.9	57.8	1441.9
1979-80										
High use	94.9	27.2	8.7	105.8	26.1	64.7	59.7	5.8	20.6	413.5
Low use	19.0	2.6	2.2	92.5	47.7	1.4	4.7	0.0	0.8	170.9
Annual <sup>a</sup>	113.9	29.8	10.9	198.3	73.8	66.1	64.4	5.8	21.4	584.4
Wade/Bank										
1974-75										
High use	37.9	37.0	35.0	8.0	11.1	30.9	5.4	0.5	58.7	224.5
Low use	18.7	7.4	25.4	0.7	20.0	19.9	14.5	0.2	10.6	117.4
Annual <sup>a</sup>	56.6	44.4	60.4	8.7	31.1	50.8	19.9	0.7	69.3	341.9
1979-80										
High use	23.8	5.2	4.9	6.2	0.8	14.7	5.2	0.0	7.0	67.8
Low use	0.5	2.7	1.1	37.4	2.8	4.8	0.0	0.4	4.8	54.5
Annual <sup>a</sup>	24.3	7.9	6.0	43.6	3.6	19.5	5.2	0.4	11.8	122.3

Table 3. (Cont'd.)

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other	All <sup>a</sup> species combined
Lighted Pier										
1974-75										
High use	5.5	0.7	12.4	5.6	<0.1	14.4	26.8	0.0	15.4	80.8
Low use	0.2	8.1	5.8	0.7	<0.1	2.5	6.6	1.1	5.6	30.6
Annual <sup>a</sup>	5.7	8.8	18.2	6.3	0.1	16.9	33.4	1.1	21.0	111.4
1979-80										
High use	4.7	5.4	0.9	2.9	0.6	7.7	3.5	1.4	4.4	31.5
Low use	0.0	<0.1	1.2	0.2	0.3	0.5	<0.1	0.0	0.4	2.7
Annual <sup>a</sup>	4.7	5.4	2.1	3.1	0.9	8.2	3.5	1.4	4.8	34.2
Season Total (all strata combined) <sup>a</sup>										
1974-75										
High use	648.0	58.1	72.6	29.5	38.5	230.3	187.4	38.2	109.8	1412.4
Low use	113.3	43.2	82.7	27.0	32.5	47.5	94.8	3.5	38.3	482.8
Annual	761.3	101.3	155.3	56.5	71.0	277.8	282.2	41.7	148.1	1895.2
1979-80										
High use	123.4	37.8	14.5	114.9	27.5	87.1	68.4	7.2	32.0	512.8
Low use	19.5	5.3	4.5	130.1	50.8	6.7	4.7	0.4	6.0	228.1
Annual	142.9	43.1	19.0	245.0	78.3	93.8	73.1	7.6	38.0	740.9

<sup>a</sup> Due to rounding of numbers, these totals may not equal exactly individual totals.

Table 4. Species composition (%) of total other fishes caught by sport fisherman by strata in Galveston Bay (Sept. 1979-Aug. 1980).

Species	Boat %	Wade/Bank %	Lighted Pier %
<u>Menticirrhus</u> sp.	33	10	17
<u>Arius felis</u>	30	19	6
<u>Orthopristis chrysoptera</u>	12	16	2
<u>Bairdiella chrycura</u>	9	33	63
<u>Chaetodipterus faber</u>	7	0	6
<u>Pomatomus saltatrix</u>	3	13	0
<u>Lagodon rhomboides</u>	3	5	1
<u>Leiostomus xanthurus</u>	1	2	3
<u>Scomberomorus maculatus</u>	<1	1	0
<u>Elops saurus</u>	<1	0	0
<u>Labotes surinamensis</u>	<1	0	0
<u>Lepisosteus spatula</u>	<1	0	0
<u>Dasyatis americana</u>	<1	0	0
<u>Opsanus beta</u>	<1	0	0
<u>Carcharhinus limbatus</u>	<1	0	0
<u>Sphyrna tiburo</u>	<1	0	<1
<u>Trachinotus carolinus</u>	0	1	1
<u>Caranx hippos</u>	0	<1	<1
<u>Mugil cephalus</u>	0	<1	0
<u>Carcharhinus maculipinnus</u>	0	0	<1



Table 5. Total sport harvest (no/man-h) estimated for Galveston Bay by season, strata and species (Sept. 1974-Aug. 1975 and Setp. 1979-Aug. 1980).

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other	All <sup>a</sup> species combined
Boat Ramp										
1974-75										
High use	0.43	0.01	0.02	0.01	0.02	0.42	0.23	0.02	0.06	1.21
Low use	0.13	0.03	0.02	0.04	0.02	0.15	0.28	<.01	0.09	0.77
Annual <sup>a</sup>	0.34	0.02	0.02	0.02	0.02	0.34	0.25	0.01	0.07	1.08
1979-80										
High use	0.11	0.02	0.01	0.12	0.03	0.18	0.19	<.01	0.05	0.71
Low use	0.05	0.01	0.01	0.31	0.09	0.02	0.03	0.00	0.01	0.52
Annual <sup>a</sup>	0.09	0.02	0.01	0.17	0.04	0.14	0.15	<.01	0.04	0.66
Wade/Bank										
1974-75										
High use	0.03	0.02	0.05	0.01	0.01	0.11	0.01	<.01	0.10	0.33
Low use	0.02	0.01	0.05	<.01	0.06	0.15	0.03	<.01	0.05	0.37
Annual <sup>a</sup>	0.03	0.02	0.05	0.01	0.02	0.12	0.02	<.01	0.08	0.34
1979-80										
High use	0.07	0.01	0.03	0.03	<.01	0.14	0.04	0.00	0.08	0.39
Low use	0.01	0.02	0.01	0.18	0.01	0.23	0.00	0.01	0.09	0.55
Annual <sup>a</sup>	0.05	0.01	0.03	0.06	<.01	0.16	0.03	<.01	0.08	0.43

Table 5. (Cont'd.)

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other	All species combined
Lighted Pier										
1974-75										
High use	0.02	<.01	0.08	0.02	<.01	0.16	0.27	0.00	0.20	0.74
Low use	<.01	<.01	0.06	0.01	<.01	0.08	0.08	<.01	0.10	0.72
Annual <sup>a</sup>	0.01	<.01	0.07	0.01	<.01	0.13	0.20	<.01	0.16	0.58
1979-80										
High use	0.03	0.01	0.01	0.02	0.01	0.17	0.06	<.01	0.13	0.41
Low use	0.00	<.01	0.02	0.01	0.01	0.11	<.01	0.00	0.03	0.18
Annual <sup>a</sup>	0.02	0.01	0.01	0.02	0.01	0.16	0.05	<.01	0.11	0.39
Season Total (all strata combined) <sup>a</sup>										
1974-75										
High use	0.21	0.01	0.04	0.01	0.01	0.26	0.13	0.01	0.09	0.77
Low use	0.07	0.02	0.04	0.02	0.03	0.14	0.15	<.01	0.07	0.54
Annual	0.17	0.02	0.04	0.01	0.02	0.22	0.14	0.01	0.08	0.71
1979-80										
High use	0.09	0.02	0.02	0.08	0.02	0.17	0.13	<.01	0.07	0.59
Low use	0.04	0.01	0.01	0.26	0.07	0.07	0.02	<.01	0.03	0.50
Annual	0.08	0.01	0.02	0.13	0.03	0.15	0.11	<.01	0.06	0.57

<sup>a</sup> Due to rounding of numbers, these totals may not equal exactly individual totals.

Table 6. Mean weight (kg) of sport caught finfish by season, strata and species in Galveston Bay (Sept. 1974-Aug. 1975 and Sept. 1979-Aug. 1980).  
Blanks = no fish weighed.

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other
Boat Ramp									
1974-75									
High use	0.61	1.08	0.58	0.80	0.75	0.19	0.29	0.84	0.26
Low use	0.73	0.88	2.24	0.63	0.68	0.17	0.27	1.42	0.27
Annual	0.62	1.01	1.17	0.73	0.73	0.19	0.29	0.87	0.26
1979-80									
High use	0.52	0.86	0.39	0.53	0.63	0.21	0.19	0.93	0.27
Low use	0.63	0.68	0.60	0.47	0.88	0.10	0.25		0.21
Annual	0.55	0.82	0.43	0.52	0.72	0.20	0.20	0.93	0.27
Wade/Bank									
1974-75									
High use	0.49	0.74	0.34	0.57	0.55	0.13	0.20	0.16	0.27
Low use	1.31	1.15	0.59	0.45	0.38	0.15	0.65	2.15	0.24
Annual	0.55	0.81	0.40	0.56	0.46	0.14	0.30	0.41	0.26
1979-80									
High use	0.54	0.79	0.23	0.37	0.70	0.16	0.23		0.13
Low use	0.45	0.80	0.48	1.10	1.25	0.11		0.25	0.27
Annual	0.54	0.80	0.26	0.86	1.09	0.15	0.23	0.25	0.16

Table 6 . (Cont'd).

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other
Lighted Pier									
1974-75									
High use	0.69	0.87	0.33	0.62	0.56	0.19	0.21		0.16
Low use		9.05	0.35	0.38	0.68	0.11	0.26	1.14	0.19
Annual	0.69	2.92	0.33	0.58	0.60	0.18	0.22	1.14	0.16
1979-80									
High use	0.51	2.60	0.51	0.47	0.38	0.13	0.17	1.30	0.10
Low use		0.55	1.14	0.67	1.12	0.10	0.45		0.32
Annual	0.51	2.37	0.97	0.48	0.63	0.13	0.17	1.30	0.11
Season Total (all strata combined)									
1974-75									
High use	0.60	0.86	0.39	0.75	0.70	0.18	0.28	0.81	0.24
Low use	0.83	1.03	1.13	0.62	0.53	0.16	0.29	1.46	0.25
Annual	0.61	0.90	0.59	0.70	0.64	0.18	0.28	0.85	0.24
1979-80									
High use	0.52	0.93	0.33	0.51	0.63	0.19	0.19	0.96	0.18
Low use	0.62	0.72	0.67	0.71	0.93	0.10	0.25	0.25	0.26
Annual	0.54	0.87	0.40	0.57	0.75	0.18	0.20	0.91	0.19

Table 7 . Mean length (mm) of sport caught finfish by season, strata and species in Galveston Bay (Sept. 1974-Aug. 1975 and Sept. 1979-Aug. 1980).  
Blanks = no fish measured.

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish
Boat Ramp								
1974-75								
High use	349	420	280	377	308	251	276	297
Low use	435	422	304	386	304	231	300	396
Annual	381	421	288	382	305	242	284	361
1979-80								
High use	382	435	314	344	345	246	264	511
Low use	361	428	278	324	269	236	263	439
Annual	376	432	293	336	309	243	264	508
Wade/Bank								
1974-75								
High use	338	356	250	382	250	193	269	200
Low use	394	457	337	355	282	215	344	468
Annual	353	386	285	376	258	212	294	379
1979-80								
High use	366	411	235	301	304	232	277	
Low use	374	415	235	365	413	201		367
Annual	368	412	235	311	351	220	277	367

Table 7. (Cont'd).

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish
Lighted Pier								
1974-75								
High use	385		292	348				
Low use	308	920	307	340	280	228	267	
Annual	370	920	298	346	280	204	312	394
1979-80								
High use	355	577	325	337	273	213	249	
Low use	445	420	314	341	393	218	309	350
Annual	373	516	319	337	300	214	251	350
Season Total (all strata combined)								
1974-75								
High use	347	374	263	374	275	248	271	269
Low use	425	454	326	384	301	224	304	408
Annual	373	404	287	379	291	235	279	376
1979-80								
High use	377	447	282	329	335	239	264	504
Low use	366	426	275	331	279	228	265	403
Annual	374	438	279	330	310	237	264	496

Table 8. Percent of fishermen use and percent success by bait type in Galveston Bay (Sept. 1974-Aug. 1975 and Sept. 1979-Aug. 1980).

Bait	% of fishermen using bait type	% success by bait type
1974-75		
Live shrimp	33	60
Dead shrimp	59	36
Artificial	3	39
Other	5	38
1979-80		
Live shrimp	34	56
Dead shrimp	54	42
Artificial	3	46
Other	9	41

Table 9 . Origin of sport anglers in Galveston Bay (Sept. 1974-Aug. 1975 and Sept. 1979-Aug. 1980).

State or Country	County	% of Total	
		1974-75	1979-80
TEXAS		99.5	99.4
	Harris	77.1	68.1
	Galveston	10.6	11.1
	Brazoria	3.5	6.2
	Jefferson	2.6	5.2
	Ft. Bend	1.0	2.2
	Chambers	0.3	1.7
	Montgomery	0.3	1.0
	Dallas	0.8	0.8
	Hardin	0.3	0.7
	Orange	0.2	0.5
	Jasper	0.1	0.4
	Liberty	0.6	0.4
	Tarrant	0.8	0.2
	Milam	0.1	0.1
	Travis	0.1	0.1
	Wharton	0.1	0.1
	McLennan	0.2	0.0
	Ector	0.2	0.0
	Bexar	0.1	0.0
	Waller	0.1	0.0
	Brazos	0.1	0.0
	Collin	0.1	0.0
	Falls	0.1	0.0
	Haskell	0.1	0.0
	Trinity	0.1	0.0
	El Paso	0.1	0.0
	Kerr	0.1	0.0
	Nueces	0.1	0.0
	Angelina	0.1	0.0
	Callahan	0.1	0.0
	Comanche	0.1	0.0
	Ellis	0.1	0.0
	Johnson	0.1	0.0
	Upshur	0.1	0.0
	Walker	0.1	0.0
	Austin	<.1	0.0
	Cass	<.1	0.0
	Henderson	<.1	0.0
	Victoria	<.1	0.0
	Cameron	0.0	0.2
	Guadalupe	0.0	0.2



Table 9 . (Cont'd.)

State or Country	County	% of Total	
		1974-75	1979-80
TEXAS			
	Calhoun	0.0	0.2
	Denton	0.0	0.2
	Bell	0.0	0.1
	Hays	0.0	0.1
	Bastrop	0.0	0.1
	Clay	0.0	0.1
	Coryell	0.0	0.1
	Grimes	0.0	0.1
	Willacy	0.0	0.1
	Colorado	0.0	<.1
	Kaufman	0.0	<.1
	Rusk	0.0	<.1
	Shelby	0.0	<.1
	Wise	0.0	<.1
LOUISIANA		<.1	0.2
OKLAHOMA		0.1	0.1
KANSAS		0.1	0.0
MISSOURI		0.1	0.0
ALABAMA		<.1	0.0
COLORADO		<.1	0.0
ILLINOIS		<.1	0.0
MICHIGAN		<.1	0.0
ARIZONA		<.1	0.0
TENNESSEE		<.1	0.0
NEW YORK		0.0	0.1
CALIFORNIA		0.0	0.1

Table 10. Total pressure (man-h X 1000 and trips X 1000) by season and strata in Matagorda Bay (Sept. 1975-Aug. 1976 and Sept. 1979-Aug. 1980).

Strata	Man-h	Trips
Boat Ramp		
1975-76		
High use	464.4	92.5
Low use	149.3	28.4
Annual	613.8	120.9
1979-80		
High use	795.9	185.5
Low use	111.4	22.2
Annual	907.3	207.7
Wade/Bank		
1975-76		
High use	307.0	93.9
Low use	274.8	91.9
Annual	581.8	185.8
1979-80		
High use	202.8	72.2
Low use	254.2	117.7
Annual	457.1	189.9
Lighted Pier		
1975-76		
High use	101.0	29.8
Low use	50.0	15.7
Annual	151.1	45.5
1979-80		
High use	71.6	24.3
Low use	23.4	8.0
Annual	95.0	32.3

Table 10. (Cont'd.)

Strata	Man-h	Trips
Season Total (all strata combined)		
1975-76		
High use	872.4	216.2
Low use	474.2	136.0
Annual	1346.6	352.2
1979-80		
High use	1070.3	282.0
Low use	389.0	123.5
Annual	1459.3	405.5

Table 11. Total sport harvest (no X 1000) estimated for Matagorda Bay by season, strata and species (Sept. 1975-Aug. 1976 and Sept. 1979-Aug. 1980).

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other	All <sup>a</sup> species combined
Boat Ramp										
1975-76										
High use	124.2	16.6	10.1	10.3	7.0	12.7	28.9	40.8	3.1	253.7
Low use	40.3	16.2	3.8	20.1	2.6	2.9	2.2	13.3	2.6	104.1
Annual <sup>a</sup>	164.5	32.8	14.0	30.5	9.6	15.6	31.1	54.1	5.7	357.8
1979-80										
High use	40.1	22.8	21.4	29.6	5.6	83.1	28.2	0.4	20.8	252.1
Low use	14.1	7.8	6.3	3.0	2.8	4.1	0.1	0.0	2.8	41.0
Annual <sup>a</sup>	54.2	30.6	27.7	32.7	8.4	87.2	28.3	0.4	23.7	293.1
Wade/Bank										
1975-76										
High use	10.9	3.2	13.7	7.2	3.0	77.8	25.8	0.0	7.6	149.2
Low use	1.2	2.7	5.8	20.9	6.6	4.5	1.7	0.2	1.5	45.1
Annual <sup>a</sup>	12.1	5.9	19.5	28.0	9.6	82.3	27.5	0.2	9.1	194.2
1979-80										
High use	22.5	2.2	1.2	2.4	1.2	10.6	0.0	0.0	0.8	40.9
Low use	9.1	11.6	29.5	2.7	6.6	0.0	2.3	0.0	1.1	62.9
Annual <sup>a</sup>	31.6	13.8	30.8	5.1	7.8	10.6	2.3	0.0	1.9	103.9

Table 11.(Cont'd.)

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other	All species combined <sup>a</sup>
Lighted Pier										
1975-76										
High use	25.6	0.1	0.8	0.5	0.2	1.0	11.2	0.7	1.4	41.4
Low use	10.1	2.4	3.1	0.8	0.0	1.5	2.2	1.5	0.8	22.4
Annual <sup>a</sup>	35.6	2.5	3.9	1.3	0.2	2.6	13.4	2.2	2.1	63.9
1979-80										
High use	3.9	0.5	0.4	0.8	0.4	0.5	3.1	0.1	0.7	10.4
Low use	10.7	0.6	0.5	0.4	0.6	0.0	0.0	0.5	0.1	13.3
Annual <sup>a</sup>	14.6	1.2	0.9	1.2	1.0	0.5	3.1	0.6	0.7	23.7
Season Total (all strata combined) <sup>a</sup>										
1975-76										
High use	160.7	19.9	24.6	18.0	10.1	91.6	65.9	41.5	12.1	444.3
Low use	51.5	21.3	12.8	41.8	9.2	8.9	6.1	15.1	4.8	171.6
Annual	212.2	41.2	37.4	59.8	19.4	100.4	72.0	56.5	16.9	615.9
1979-80										
High use	66.5	25.6	23.1	32.9	7.3	94.1	31.3	0.5	22.3	303.5
Low use	33.9	20.0	36.3	6.1	10.0	4.1	2.4	0.5	4.0	117.3
Annual	100.4	45.6	59.4	39.0	17.2	98.3	33.6	1.0	26.3	420.8

<sup>a</sup> Due to rounding of numbers, these totals may not equal exactly individual totals.

Table 12. Total sport harvest (kg X 1000) estimated for Matagorda Bay by season, strata and species (Sept. 1975-Aug. 1976 and Sept. 1979-Aug. 1980).

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other	All <sup>a</sup> species combined
Boat Ramp										
1975-76										
High use	43.5	15.9	9.3	9.4	2.7	2.0	7.2	46.1	0.7	136.8
Low use	25.8	11.3	2.2	7.8	1.1	0.5	.6	23.8	0.7	73.8
Annual <sup>a</sup>	69.3	27.2	11.5	17.2	3.8	2.5	7.8	69.9	1.4	210.6
1979-80										
High use	15.2	19.4	6.6	15.7	3.6	14.1	6.8	0.6	7.1	89.1
Low use <sup>a</sup>	8.6	5.2	3.2	1.5	2.4	0.5	<.1	0.0	3.1	24.5
Annual <sup>a</sup>	23.8	24.6	9.8	17.2	6.0	14.6	6.8	0.6	10.2	113.6
Wade/Bank										
1975-76										
High use	5.1	4.6	4.4	4.5	2.9	17.9	16.5	0.0	9.4	65.3
Low use	0.7	1.4	0.9	12.3	1.3	2.6	0.6	0.1	0.4	20.3
Annual <sup>a</sup>	5.8	6.0	5.3	16.8	4.2	20.5	17.1	0.1	9.8	85.6
1979-80										
High use	10.1	1.6	0.2	0.8	1.0	2.0	0.0	0.0	0.2	15.9
Low use <sup>a</sup>	5.1	6.5	16.2	1.1	4.4	0.0	0.5	0.0	0.5	34.3
Annual <sup>a</sup>	15.2	8.1	16.4	1.9	5.4	2.0	0.5	0.0	0.7	50.2

Table 12. (Cont'd.)

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other	All species combined <sup>a</sup>
Lighted Pier										
1975-76										
High use	9.5	<.1	3.2	0.2	0.2	0.6	7.5	1.2	0.6	23.0
Low use	3.5	1.4	1.6	0.4	0.0	0.3	0.7	1.7	0.7	10.3
Annual <sup>a</sup>	13.0	1.4	4.8	0.6	0.2	0.9	8.2	2.9	1.3	33.3
1979-80										
High use	1.2	0.3	0.2	0.3	0.7	<.1	0.4	0.1	0.2	3.4
Low use	4.8	0.4	0.3	0.1	0.3	0.0	0.0	0.3	<.1	6.2
Annual <sup>a</sup>	6.0	0.7	0.5	0.4	1.0	<.1	0.4	0.4	0.2	9.6
Season Total (all strata combined) <sup>a</sup>										
1975-76										
High use	58.1	20.5	16.9	14.1	5.8	20.5	31.2	47.3	10.7	225.1
Low use	30.0	14.1	4.7	20.5	2.4	3.4	1.9	25.6	1.8	104.4
Annual	88.1	34.6	21.6	34.6	8.2	23.9	33.1	72.9	12.5	329.5
1979-80										
High use	26.5	24.3	7.0	16.8	5.3	16.1	6.8	0.7	7.5	111.00
Low use	18.5	12.1	19.7	2.7	7.1	0.5	0.5	0.3	3.6	65.00
Annual	45.0	36.4	26.7	19.5	12.4	16.6	7.3	1.0	11.1	176.00

<sup>a</sup> Due to rounding of numbers, these totals may not equal exactly individual totals.

Table 13. Species composition (%) of total other fishes caught by sport fishermen by strata in Matagorda Bay (Sept. 1979-Aug. 1980).

Species	Boat %	Wade/Bank %	Lighted Pier %
<u>Arius felis</u>	31	17	0
<u>Bairdiella chrysur</u>	26	17	0
<u>Menticirrhus sp.</u>	18	50	71
<u>Lagodon rhomboides</u>	14	0	0
<u>Lobotes surinamensis</u>	4	0	0
<u>Sphyrna tibura</u>	4	0	0
<u>Caranx hippos</u>	3	0	0
<u>Pomatomus saltatrix</u>	0	17	0
Sharks (species unidentified)	0	0	29



Table 14. Total sport harvest (no/man-h) estimated for Matagorda Bay by season, strata and species (Sept. 1975-Aug. 1976 and Sept. 1979-Aug. 1980).

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other	All <sup>a</sup> species combined
Boat Ramp										
1975-76										
High use	0.27	0.04	0.02	0.02	0.02	0.03	0.06	0.09	0.01	0.55
Low use	0.27	0.11	0.03	0.14	0.02	0.02	0.02	0.09	0.02	0.70
Annual <sup>a</sup>	0.27	0.05	0.02	0.05	0.02	0.03	0.05	0.09	0.01	0.58
1979-80										
High use	0.05	0.03	0.03	0.04	0.01	0.10	0.04	<.01	0.03	0.32
Low use	0.13	0.07	0.06	0.03	0.03	0.04	<.01	0.00	0.03	0.37
Annual <sup>a</sup>	0.06	0.03	0.03	0.04	0.01	0.10	0.03	<.01	0.03	0.32
Wade/Bank										
1975-76										
High use	0.04	0.01	0.05	0.02	0.01	0.25	0.08	0.00	0.03	0.49
Low use	<.01	0.01	0.02	0.08	0.02	0.02	0.01	<.01	0.01	0.16
Annual <sup>a</sup>	0.02	0.01	0.03	0.05	0.02	0.14	0.05	<.01	0.02	0.33
1979-80										
High use	0.11	0.01	0.01	0.01	0.01	0.05	0.00	0.00	<.01	0.20
Low use	0.04	0.05	0.12	0.01	0.03	0.00	0.01	0.00	<.01	0.25
Annual <sup>a</sup>	0.07	0.03	0.07	0.01	0.02	0.02	0.01	0.00	<.01	0.23

Table 14.(Cont'd.)

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other	All <sup>a</sup> species combined
Lighted Pier										
1975-76										
High use	0.25	<.01	0.01	0.01	<.01	0.01	0.11	0.01	0.01	0.41
Low use	0.20	0.05	0.06	0.02	0.00	0.03	0.04	0.03	0.02	0.45
Annual <sup>a</sup>	0.24	0.02	0.03	0.01	<.01	0.02	0.09	0.02	0.01	0.42
1979-80										
High use	0.05	0.01	0.01	0.01	0.01	0.01	0.04	<.01	0.01	0.15
Low use	0.46	0.03	0.02	0.02	0.02	0.00	0.00	0.02	<.01	0.57
Annual <sup>a</sup>	0.15	0.01	0.01	0.01	0.01	0.01	0.03	0.01	0.01	0.25
Season Total (all strata combined) <sup>a</sup>										
1975-76										
High use	0.18	0.02	0.03	0.02	0.01	0.11	0.08	0.03	0.01	0.51
Low use	0.11	0.05	0.03	0.09	0.02	0.02	0.01	0.03	0.01	0.36
Annual	0.16	0.03	0.03	0.04	0.01	0.08	0.05	0.04	0.01	0.46
1979-80										
High use	0.06	0.02	0.02	0.03	0.01	0.09	0.03	<.01	0.02	0.28
Low use	0.10	0.05	0.09	0.02	0.03	0.01	0.01	<.01	0.01	0.30
Annual	0.07	0.03	0.04	0.03	0.01	0.07	0.02	<.01	0.02	0.29

<sup>a</sup> Due to rounding of numbers, these totals may not equal exactly individual totals.

Table 15. Mean weight (kg) of sport caught finfish by season, strata and species in Matagorda Bay (Sept. 1975-Aug. 1976 and Sept. 1979-Aug. 1980).  
Blanks = no fish weighed.

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other
Boat Ramp									
1975-76									
High use	0.35	0.96	0.92	0.91	0.38	0.16	0.25	1.13	0.21
Low use	0.64	0.70	0.59	0.39	0.42			1.79	0.25
Annual	0.45	0.84	0.82	0.50	0.39	0.16	0.25	1.33	0.22
1979-80									
High use	0.38	0.85	0.31	0.53	0.64	0.17	0.24	1.43	0.34
Low use	0.61	0.66	0.51	0.50	0.85	0.13	0.20		1.11
Annual	0.50	0.82	0.33	0.52	0.77	0.17	0.24	1.43	0.43
Wade/Bank									
1975-76									
High use	0.47	1.43	0.32	0.63	0.97	0.23	0.64		1.24
Low use	0.59	0.53	0.15	0.59	0.20	0.58	0.34		0.25
Annual	0.48	1.19	0.29	0.61	0.88	0.24	0.64		0.96
1979-80									
High use	0.45	0.72	0.20	0.35	0.87	0.19			0.22
Low use	0.56	0.56	0.55	0.40	0.67		0.22		0.42
Annual	0.47	0.61	0.52	0.37	0.68	0.19	0.22		0.33

Table 15. (Cont'd).

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Cofftopsail catfish	Other
Lighted Pier									
1975-76									
High use	0.37	0.90	3.96	0.30		0.62	0.67	1.69	0.42
Low use	0.35	0.59	0.51	0.45		0.22	0.31	1.13	0.45
Annual	0.36	0.75	2.24	0.38		0.42	0.50	1.41	0.44
1979-80									
High use	0.31	0.65	0.47	0.42	1.70	0.17	0.13		
Low use	0.45	0.61	0.63	0.34	0.43			0.68	
Annual	0.41	0.63	0.56	0.40	1.01	0.17	0.13	0.68	
Seasonal Total (all strata combined)									
1975-76									
High use	0.37	1.06	1.67	0.68	0.64	0.28	0.53	1.27	0.51
Low use	0.52	0.65	0.44	0.50	0.31	0.46	0.32	1.46	0.30
Annual	0.42	0.89	1.40	0.56	0.59	0.29	0.51	1.33	0.45
1979-80									
High use	0.38	0.79	0.33	0.48	0.78	0.17	0.20	1.43	0.32
Low use	0.53	0.62	0.55	0.44	0.62	0.13	0.21	0.68	0.88
Annual	0.45	0.74	0.41	0.47	0.67	0.17	0.20	1.11	0.40

Table 16. Mean length (mm) of sport caught finfish by season, strata and species in Matagorda Bay (Sept. 1975-Aug. 1976 and Sept. 1979-Aug. 1980).  
Blanks = no fish measured.

Strata	Spotted seatrout	Red drum	Black drum	Southern Flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish
Boat Ramp								
1975-76								
High use								
Low use								
Annual								
1979-80								
High use	369	451	284	347	330	236	276	434
Low use	383	400	438	342	366	221	279	533
Annual	374	429	367	344	358	235	276	485
Wade/Bank								
1975-76								
High use								
Low use								
Annual								
1979-80								
High use	363	414	342	346	373	246	280	
Low use		379	272	269	295			
Annual	363	389	316	303	360	246	280	

Table 16. (Cont'd).

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish
Lighted Pier								
1975-76								
High use								
Low use								
Annual								
1979-80								
High use	324	424	239	318	340	230	237	
Low use	369	369	333	308	271			377
Annual	356	389	298	313	282	230	237	377
Seasonal Total (all strata combined)								
1975-76								
High use								
Low use								
Annual	346	422	279	364	270	238	291	518
1979-80								
High use	364	449	290	346	335	237	262	434
Low use	378	396	403	337	362	221	279	477
Annual	370	425	349	341	355	236	263	461

Table 17. Percent of fishermen use and percent success by bait type in Matagorda Bay (Sept. 1975-Aug. 1976 and Sept. 1979-Aug. 1980).

Bait	% of fishermen using bait type	% success by bait type
1975-76		
Live Shrimp	34	65
Dead Shrimp	31	42
Artificial	10	37
Other	25	76
1979-80		
Live Shrimp	19	59
Dead Shrimp	53	28
Artificial	20	48
Other	8	39

Table 18. Origin of sport anglers in Matagorda Bay (Sept. 1974 - Aug. 1975 and Sept. 1979 - Aug. 1980).

State or Country	County	% of Total	
		1975-76	1979-80
TEXAS		97.0	98.9
	Matagorda	16.1	18.2
	Victoria	14.8	17.9
	Harris	16.7	14.5
	Calhoun	7.1	13.7
	Wharton	12.7	6.4
	Fort Bend	4.2	5.0
	Bexar	2.1	3.8
	Brazoria	3.6	3.2
	Jackson	1.7	1.8
	Travis	1.9	1.6
	Dallas	0.4	1.5
	Lavaca	2.0	1.4
	Bell	1.1	1.2
	Hays	0.5	0.8
	Tarrant	0.1	0.6
	Fayette	0.7	0.6
	Austin	0.8	0.5
	DeWitt	1.1	0.5
	Bee	0.0	0.5
	Guadalupe	0.0	0.3
	McLennan	0.1	0.3
	San Patricio	0.0	0.3
	Williamson	0.3	0.3
	Kaufman	0.0	0.3
	Lubbock	0.5	0.3
	Milam	0.0	0.3
	Ector	0.1	0.2
	Galveston	0.4	0.2
	Goliad	0.3	0.2
	Medina	0.2	0.2
	Polk	0.0	0.2
	Real	0.0	0.2
	Refugio	0.0	0.2
	Anderson	0.0	0.1
	Angelina	0.0	0.1
	Bastrop	0.2	0.1
	Caldwell	0.2	0.1
	Colorado	0.7	0.1
	El Paso	0.0	0.1
	Liberty	0.0	0.1



Table 18. (Cont'd.)

State or Country	County	% of Total	
		1975-76	1979-80
TEXAS (Cont'd.)	Montgomery	0.3	0.1
	Nueces	0.3	0.1
	Parker	0.0	0.1
	Upton	0.0	0.1
	Burleson	0.0	0.1
	Chambers	0.0	0.1
	Ellis	0.0	0.1
	Houston	0.0	0.1
	Kendall	0.0	0.1
	Morris	0.0	0.1
	Jefferson	0.6	0.0
	Burnet	0.5	0.0
	Wilson	0.5	0.0
	Dallam	0.4	0.0
	Coryell	0.3	0.0
	Gonzales	0.3	0.0
	Jim Hogg	0.3	0.0
	Lampasas	0.3	0.0
	Llano	0.3	0.0
	Callahan	0.2	0.0
	Washington	0.2	0.0
	Andrew	0.1	0.0
	Brazos	0.1	0.0
	Brown	0.1	0.0
	Comal	0.1	0.0
	Denton	0.1	0.0
	Erath	0.1	0.0
	Hidalgo	0.1	0.0
	Johnson	0.1	0.0
	Lee	0.1	0.0
	Moore	0.1	0.0
	Potter	0.1	0.0
	Robertson	0.1	0.0
	Rusk	0.1	0.0
	Smith	0.1	0.0
	Waller	0.1	0.0
	Wheeler	0.1	0.0
ALABAMA		0.1	0.0
ARIZONA		0.1	0.0

Table 18. (Cont'd.)

State or Country	County	% of Total	
		1975-76	1979-80
CALIFORNIA		0.0	0.1
FLORIDA		0.1	0.0
KANSAS		0.1	0.0
MICHIGAN		0.5	0.0
MISSISSIPPI		0.1	0.1
MISSOURI		0.1	0.3
NEBRASKA		0.2	0.1
NEW MEXICO		0.2	0.0
NEW YORK		0.1	0.0
NORTH CAROLINA		0.0	0.1
OHIO		0.4	0.0
OKLAHOMA		0.8	0.1
SOUTH DAKOTA		0.0	0.1
WEST VIRGINIA		0.0	0.1
WISCONSIN		0.1	0.1
CANADA		0.1	0.0

Table 19. Total pressure (man-h X 1000 and trips X 1000) by season and strata in San Antonio Bay (Sept. 1974-Aug. 1975 and Sept. 1979-Aug. 1980).

Strata	Man-h	Trips
Boat Ramp		
1974-75		
High use	292.2	59.6
Low use	102.7	44.6
Annual	394.9	104.2
1979-80		
High use	149.5	29.3
Low use	80.0	18.6
Annual	229.5	47.9
Wade/Bank		
1974-75		
High use	12.9	5.4
Low use	49.0	24.5
Annual	61.9	29.9
1979-80		
High use	2.7	1.9
Low use	1.5	0.8
Annual	4.1	2.7
Season Total (all strata combined)		
1974-75		
High use	305.1	65.0
Low use	151.7	69.1
Annual	456.8	134.1
1979-80		
High use	152.1	31.2
Low use	81.5	19.4
Annual	233.6	50.6

Table 20. Total sport harvest (no X 1000) estimated for San Antonio Bay by season, strata and species (Sept. 1974-Aug. 1975 and Sept. 1979-Aug. 1980).

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other	All <sup>a</sup> species combined
Boat Ramp										
1974-75										
High use	148.4	19.2	1.5	7.1	3.1	3.0	4.8	2.8	4.0	194.0
Low use	103.7	12.9	1.1	2.6	2.2	0.2	4.0	1.5	1.3	129.7
Annual <sup>a</sup>	252.2	32.1	2.6	9.7	5.3	3.2	8.8	4.3	5.2	323.6
1979-80										
High use	74.8	10.3	1.0	7.7	2.3	1.1	2.0	0.1	2.0	101.4
Low use	10.1	9.5	1.4	1.0	0.5	0.5	0.0	0.9	0.4	24.2
Annual <sup>a</sup>	84.9	19.8	2.3	8.7	2.7	1.6	2.0	1.0	2.5	125.6
Wade/Bank										
1974-75										
High use	7.8	0.1	0.8	0.7	0.2	0.5	0.2	0.0	1.4	11.7
Low use	0.0	1.6	0.0	0.2	1.6	0.2	0.0	0.0	8.2	11.7
Annual <sup>a</sup>	7.8	1.7	0.8	0.9	1.8	0.7	0.2	0.0	9.5	23.4
1979-80										
High use	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Low use	0.0	0.3	0.0	0.0	<.1	0.0	0.0	0.0	0.0	0.4
Annual <sup>a</sup>	0.0	0.3	0.0	0.0	<.1	0.0	0.0	0.0	0.0	0.4

Table 20. (Cont'd).

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Cofftopsail catfish	Other	Alla species combined
Season Total (all strata combined) <sup>a</sup>										
1974-75										
High use	156.2	19.3	2.3	7.9	3.3	3.5	5.0	2.8	5.3	205.6
Low use	103.8	14.5	1.1	2.7	3.9	0.4	4.0	1.5	9.5	141.4
Annual	260.0	33.8	3.4	10.6	7.2	3.9	9.0	4.3	14.8	347.0
1979-80										
High use	74.8	10.3	1.0	7.7	2.3	1.1	2.0	0.1	2.0	101.4
Low use	10.1	9.8	1.4	1.0	0.5	0.5	0.0	0.9	0.4	24.6
Annual	84.9	20.1	2.3	8.7	2.8	1.6	2.0	1.0	2.5	125.9

<sup>a</sup>Due to rounding of numbers these totals may not exactly equal individual totals.

Table 21. Total sport harvest (kg X 1000) estimated for San Antonio Bay by season, strata and species (Sept. 1974-Aug. 1975 and Sept. 1979-Aug. 1980).

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other	All <sup>a</sup> species combined
Boat Ramp										
1974-75										
High use	56.4	21.9	1.2	4.6	2.3	0.9	1.2	3.1	2.2	93.8
Low use	43.6	13.7	1.3	1.8	1.6	0.1	1.4	1.8	0.8	66.1
Annual <sup>a</sup>	100.0	35.6	2.5	6.4	3.9	1.0	2.6	4.9	3.0	159.9
1979-80										
High use	34.4	9.8	0.3	5.2	2.2	0.3	0.5	0.1	0.8	53.6
Low use	4.8	5.7	3.8	0.4	0.4	0.2	0.0	1.2	0.4	16.9
Annual <sup>a</sup>	39.2	15.5	4.1	5.6	2.6	0.5	0.5	1.3	1.2	70.5
Wade/Bank										
1974-75										
High use	2.2	0.2	0.2	0.4	<.1	0.1	<.1	0.0	0.4	3.5
Low use	0.0	3.1	0.0	<.1	1.3	0.1	0.0	0.0	1.9	6.4
Annual <sup>a</sup>	2.2	3.3	0.2	0.4	1.3	0.2	<.1	0.0	2.3	9.9
1979-80										
High use	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Low use	0.0	0.3	0.0	0.0	<.1	0.0	0.0	0.0	0.0	0.3
Annual <sup>a</sup>	0.0	0.3	0.0	0.0	<.1	0.0	0.0	0.0	0.0	0.3

Table 21. (Cont'd).

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other	All species combined
Season Total (all strata combined) <sup>a</sup>										
1974-75										
High use	58.6	22.1	1.4	5.0	2.3	1.0	1.2	3.1	2.6	97.3
Low use	43.6	16.8	1.3	1.8	2.9	0.2	1.4	1.8	2.7	72.5
Annual	102.2	38.9	2.7	6.8	5.2	1.2	2.6	4.9	5.3	169.8
1979-80										
High use	34.4	9.8	0.3	5.2	2.2	0.3	0.5	0.1	0.8	53.6
Low use	4.8	6.0	3.8	0.4	0.4	0.2	0.0	1.2	0.4	17.2
Annual	39.2	15.8	4.1	5.6	2.6	0.5	0.5	1.3	1.2	70.8

<sup>a</sup>Due to rounding of numbers these totals may not exactly equal individual totals.

Table 22. Species composition (%) of total other fishes caught by sport fisherman by strata in San Antonio Bay (Sept. 1979-Aug. 1980).

Species	Boat %	Wade/Bank %
<u>Menticirrhus sp.</u>	84	0
<u>Ictalurus furcatus</u>	9	0
<u>Elops saurus</u>	4	0
Sharks (species unidentified)	2	0
<u>Dasyatis sabina</u>	<1	0
<u>Trachinotus carolinus</u>	<1	0
<u>Pomatomus saltatrix</u>	<1	0



Table 23. Total sport harvest (no/man-h) estimated for San Antonio Bay by season, strata and species (Sept. 1974-Aug. 1975 and Sept. 1979-Aug. 1980).

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other	All <sup>a</sup> species combined
Boat Ramp										
1974-75										
High use	0.51	0.07	0.01	0.02	0.01	0.01	0.02	0.01	0.01	0.66
Low use	1.01	0.13	0.01	0.03	0.02	<.01	0.04	0.02	0.01	1.26
Annual <sup>a</sup>	0.63	0.08	0.01	0.03	0.01	0.01	0.02	0.01	0.01	0.82
1979-80										
High use	0.50	0.07	0.01	0.05	0.02	0.01	0.01	<.01	0.01	0.68
Low use	0.12	0.12	0.02	0.01	0.01	0.01	0.00	0.01	0.01	0.30
Annual <sup>a</sup>	0.37	0.09	0.01	0.04	0.01	0.01	0.01	<.01	0.01	0.55
Wade/Bank										
1974-75										
High use	0.60	0.01	0.06	0.06	0.01	0.04	0.02	0.00	0.11	0.91
Low use	0.00	0.03	0.00	<.01	0.03	<.01	0.00	0.00	0.17	0.24
Annual <sup>a</sup>	0.13	0.03	0.01	0.01	0.03	0.01	<.01	0.00	0.15	0.38
1979-80										
High use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Low use	0.00	0.22	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.24
Annual <sup>a</sup>	0.00	0.08	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.08

Table 23. (Cont'd).

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other	All <sup>a</sup> species combined
Season Total (all strata combined) <sup>a</sup>										
1974-75										
High use	0.51	0.06	0.01	0.03	0.01	0.01	0.02	0.01	0.02	0.67
Low use	0.68	0.10	0.01	0.02	0.03	<.01	0.03	0.01	0.06	0.93
Annual	0.57	0.07	0.01	0.02	0.02	0.01	0.02	0.01	0.03	0.76
1979-80										
High use	0.49	0.07	0.01	0.05	0.02	0.01	0.01	<.01	0.01	0.67
Low use	0.12	0.12	0.02	0.01	0.01	0.01	0.00	0.01	0.01	0.30
Annual	0.36	0.09	0.01	0.04	0.01	0.01	0.01	<.01	0.01	0.54

<sup>a</sup>Due to rounding of numbers these totals may not exactly equal individual totals.

Table 24. Mean weight (kg) of sport caught finfish by season, strata and species in San Antonio Bay (Sept. 1974-Aug. 1975 and Sept. 1979-Aug. 1980).  
Blanks = no fish weighed.

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other
<b>Boat Ramp</b>									
1974-75									
High use	0.38	1.14	0.78	0.65	0.75	0.29	0.25	1.12	0.55
Low use	0.42	1.06	1.20	0.71	0.70	0.32	0.36	1.20	0.41
Annual	0.40	1.11	1.02	0.67	0.73	0.29	0.26	1.16	0.51
1979-80									
High use	0.46	0.95	0.34	0.67	0.95	0.30	0.23	1.37	0.39
Low use	0.47	0.60	2.72	0.40	0.80			1.34	1.09
Annual	0.46	0.79	1.77	0.64	0.93	0.30	0.23	1.34	0.49
<b>Wade/Bank</b>									
1974-75									
High use	0.28	1.81	0.24	0.50	0.16	0.25	0.40		0.25
Low use		1.95		0.42	0.79	0.50			0.23
Annual	0.28	1.88	0.24	0.50	0.48	0.29	0.40		0.24
1979-80									
High use									
Low use									
Annual									

Table 24. (Cont'd).

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other
Season Total (all strata combined)									
1974-75									
High use	0.37	1.14	0.64	0.62	0.74	0.29	0.26	1.12	0.48
Low use	0.42	1.07	1.20	0.70	0.70	0.37	0.36	1.20	0.37
Annual	0.39	1.11	0.91	0.64	0.72	0.30	0.25	1.16	0.45
1979-80									
High use	0.46	0.95	0.34	0.67	0.95	0.30	0.23	1.37	0.39
Low use	0.47	0.60	2.72	0.40	0.80			1.34	1.09
Annual	0.46	0.79	1.77	0.64	0.93	0.30	0.23	1.34	0.49

Table 25. Mean length (mm) of sport caught finfish by season, strata and species in San Antonio Bay (Sept. 1974-Aug. 1975 and Sept. 1979-Aug. 1980).  
Blanks = no fish measured.

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish
Boat Ramp								
1974-75								
High use								
Low use								
Annual								
1979-80								
High use	366	434	314	360	377	273	298	551
Low use	371	381	444	357	340			526
Annual	367	405	405	360	369	273	298	532
Wade/Bank								
1974-75								
High use								
Low use								
Annual								
1979-80								
High use								
Low use								
Annual								

Table 25. (Cont'd).

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish
Season Total (all strata combined)								
1974-75								
High use								
Low use								
Annual	335	489	258	373	306			
1979-80								
High use	366	434	314	360	377	273	298	551
Low use	371	381	444	357	340			526
Annual	367	405	405	360	369	273	298	532

Table 26. Percent of fishermen use and percent success by bait type in San Antonio Bay (Sept. 1974-Aug. 1975 and Sept. 1979-Aug. 1980).

Bait	% of fishermen using bait type	% success by bait type
1974-75		
Live shrimp	45	70
Dead shrimp	17	61
Artificial	33	71
Other	5	79
1979-80		
Live shrimp	35	66
Dead shrimp	24	45
Artificial	27	65
Other	14	56

Table 27. Origin of sport anglers in San Antonio Bay (Sept. 1974 - Aug. 1975 and Sept. 1979 - Aug. 1980).

State or Country	County	% of Total	
		1974-75	1979-80
TEXAS		99.6	99.7
	Victoria	23.2	26.3
	Harris	19.7	16.0
	Calhoun	12.3	14.9
	Travis	7.0	8.2
	Bexar	5.8	4.2
	DeWitt	3.7	3.2
	Fayette	0.9	2.4
	Lavaca	2.3	2.2
	McLennan	1.6	1.8
	Guadalupe	0.9	1.6
	Jackson	2.9	1.2
	Brazoria	0.7	1.1
	Wharton	1.9	1.1
	Tarrant	1.5	1.0
	Wilson	0.7	0.9
	Bell	0.6	0.9
	Medina	0.0	0.9
	Williamson	1.2	0.8
	Fort Bend	0.9	0.8
	Washington	0.0	0.6
	Austin	1.0	0.6
	Bastrop	0.4	0.6
	Brown	0.4	0.6
	Caldwell	0.2	0.5
	Colorado	0.9	0.4
	Comal	0.2	0.4
	Galveston	0.1	0.4
	Bee	0.1	0.3
	Gonzales	0.8	0.3
	Johnson	0.2	0.3
	Matagorda	0.2	0.3
	San Patricio	0.3	0.3
	Witchita	0.0	0.3
	Nueces	< .1	0.3
	Dallas	0.7	0.3
	Grimes	0.0	0.3
	Hayes	0.5	0.3
	Houston	0.0	0.2
	McMullen	0.2	0.2
	Kaufman	0.0	0.2



Table 27. (Cont'd.)

State or Country	County	% of Total	
		1974-75	1970-80
TEXAS (Cont'd.)	Limestone	0.0	0.2
	Madison	0.1	0.2
	Stonewall	0.0	0.2
	Tom Green	0.0	0.2
	Brazos	0.4	0.1
	Freestone	0.0	0.1
	Howard	0.0	0.1
	Milam	< .1	0.1
	Nacogdochas	0.0	0.1
	Shackleford	0.0	0.1
	Anderson	0.0	0.1
	Angelina	0.1	0.1
	Atascosa	0.0	0.1
	Cameron	0.0	0.1
	Cherokee	0.2	0.1
	Goliad	0.3	0.1
	Gregg	0.1	0.1
	Hill	0.1	0.1
	Jim Wells	0.0	0.1
	Karnes	0.4	0.1
	Kendall	0.0	0.1
	Live Oak	0.0	0.1
	Midland	0.0	0.1
	Parmer	0.0	0.1
	Pecos	0.0	0.1
	Terrell	0.0	0.1
	Hood	0.0	0.1
	Robertson	0.2	0.1
	Refugio	0.7	0.0
	Montgomery	0.4	0.0
	Waller	0.4	0.0
	Hopkins	0.3	0.0
	Wise	0.3	0.0
	Falls	0.2	0.0
	Grayson	0.2	0.0
	Runnels	0.2	0.0
	Walker	0.2	0.0
	Yoakum	0.2	0.0
	Burleson	0.1	0.0
	Burnet	0.1	0.0
Coryell	0.1	0.0	
Hidalgo	0.1	0.0	
Kimble	0.1	0.0	

Table 27. (Cont'd.)

State or Country	County	% of Total	
		1974-75	1979-80
TEXAS (Cont'd.)	Liberty	0.1	0.0
	Parker	0.1	0.0
	Randell	0.1	0.0
	Willacy	0.1	0.0
ARKANSAS		0.0	0.1
COLORADO		0.0	0.1
MISSOURI		0.4	0.0
OKLAHOMA		0.0	0.1

Table 28. Total pressure (man-h X 1000 and trips X 1000) by season and strata in Aransas Bay (Sept. 1974-Aug. 1975 and Sept. 1979-Aug. 1980).

Strata	Man-h	Trips
Boat Ramp		
1974-75		
High use	343.2	76.4
Low use	212.4	47.3
Annual	555.7	123.7
1979-80		
High use	210.0	49.4
Low use	40.5	10.7
Annual	250.5	60.1
Wade/Bank		
1974-75		
High use	153.6	83.9
Low use	165.4	100.8
Annual	319.0	184.7
1979-80		
High use	111.8	60.4
Low use	63.9	42.0
Annual	175.7	102.4
Lighted Pier		
1974-75		
High use	177.8	57.9
Low use	149.5	46.3
Annual	327.3	104.2
1979-80		
High use	182.9	44.4
Low use	72.9	18.0
Annual	255.8	62.4

Table 28. (Cont'd.)

Strata	Man-h	Trips
Season Total (all strata combined)		
1974-75		
High use	443.6	218.2
Low use	414.5	194.4
Annual	858.1	412.6
1979-80		
High use	504.8	154.2
Low use	177.3	70.7
Annual	682.1	224.9

Table 29. Total sport harvest (no X 1000) estimated for Aransas Bay by season, strata and species (Sept. 1974-Aug. 1975 and Sept. 1979-Aug. 1980).

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other	All <sup>a</sup> species combined
Boat Ramp										
1974-75										
High use	123.4	18.6	22.7	8.3	1.5	7.2	89.2	1.4	16.3	288.6
Low use	123.8	9.7	2.2	7.2	47.0	0.1	9.2	5.6	1.0	205.8
Annual <sup>a</sup>	247.2	28.3	25.0	15.4	48.6	7.3	98.5	7.0	17.4	494.4
1979-80										
High use	46.7	8.3	9.8	3.1	1.8	1.1	6.1	0.3	1.3	78.6
Low use	13.4	7.1	0.2	0.4	14.8	0.2	0.1	0.1	0.0	36.2
Annual <sup>a</sup>	60.1	15.5	10.0	3.5	16.6	1.3	6.2	0.4	1.3	114.8
Wade/Bank										
1974-75										
High use	13.5	3.9	2.2	0.7	2.9	11.7	1.2	0.4	0.5	37.0
Low use	127.2	7.0	6.2	3.0	5.0	0.0	9.0	0.0	1.0	161.3
Annual <sup>a</sup>	143.6	10.9	8.5	3.7	7.9	11.7	10.2	0.4	1.5	198.3
1979-80										
High use	11.4	7.9	2.4	1.5	1.5	2.1	1.4	0.1	3.9	32.2
Low use	10.6	5.5	1.6	0.0	7.0	0.6	0.4	0.0	4.2	30.0
Annual <sup>a</sup>	22.0	13.4	4.0	1.5	8.5	2.7	1.9	0.1	8.1	62.2

Table 29.(Cont'd.)

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other	All species combined
Lighted Pier										
1974-75										
High use	72.8	0.1	0.8	1.7	1.3	2.1	9.5	0.7	29.0	118.0
Low use	40.4	0.1	3.0	0.1	0.7	0.0	0.3	2.5	0.4	47.4
Annual <sup>a</sup>	113.2	0.2	3.8	1.8	2.0	2.1	9.7	3.2	29.4	165.4
1979-80										
High use	33.4	0.5	0.3	0.5	2.1	1.2	22.2	0.7	2.9	64.0
Low use	25.9	0.1	0.0	0.1	2.1	0.0	0.0	0.6	1.7	30.6
Annual <sup>a</sup>	59.3	0.6	0.3	0.6	4.2	1.2	22.2	1.4	4.6	94.6
Season Total (all strata combined) <sup>a</sup>										
1974-75										
High use	209.6	22.5	25.8	10.7	5.7	21.0	99.8	2.6	45.9	443.6
Low use	294.3	16.8	11.5	10.2	52.7	0.1	18.5	8.0	2.4	414.5
Annual	504.0	39.3	37.2	20.9	58.4	21.0	118.4	10.6	48.3	858.1
1979-80										
High use	91.5	16.7	12.5	5.1	5.4	4.4	29.8	1.2	8.1	174.8
Low use	49.9	12.8	1.7	0.5	23.9	0.8	0.5	0.7	5.9	96.7
Annual	141.5	29.5	14.2	5.6	29.3	5.2	30.3	1.9	14.0	221.5

<sup>a</sup> Due to rounding of numbers, these totals may not equal exactly individual totals.

Table 30. Total sport harvest (kg X 1000) estimated for Aransas Bay by season, strata and species (Sept. 1974-Aug. 1975 and Sept. 1979-Aug. 1980).

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other	All <sup>a</sup> species combined
Boat Ramp										
1974-75										
High use	33.3	16.9	10.0	4.8	1.3	1.1	17.8	2.2	3.3	90.7
Low use	44.6	7.4	2.3	3.3	25.8	0.0	2.5	7.9	0.6	94.4
Annual <sup>a</sup>	77.9	24.3	12.3	8.1	27.1	1.1	20.3	10.1	3.9	185.1
1979-80										
High use	18.2	7.0	4.9	1.6	1.3	0.1	1.3	0.4	0.3	35.1
Low use	6.0	4.5	0.0	0.2	8.1	0.1	0.0	0.2	0.0	19.1
Annual <sup>a</sup>	24.2	11.5	4.9	1.8	9.4	0.2	1.3	0.6	0.3	54.2
Wade/Bank										
1974-75										
High use	6.2	4.8	1.2	0.4	2.7	2.6	0.3	0.5	0.1	18.8
Low use	34.3	3.4	2.7	1.4	4.0	0.0	3.7	0.0	0.2	49.7
Annual <sup>a</sup>	40.5	8.2	3.9	1.8	6.7	2.6	4.0	0.5	0.3	68.5
1979-80										
High use	5.4	5.7	1.3	0.7	1.0	0.4	0.2	0.1	0.7	15.5
Low use	4.6	2.9	0.3	0.0	4.8	0.1	0.1	0.0	0.7	13.5
Annual <sup>a</sup>	10.0	8.6	1.6	0.7	5.8	0.5	0.3	0.1	1.4	29.0

Table 30. (Cont'd.)

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other	All species combined <sup>a</sup>
Lighted Pier										
1974-75										
High use	18.9	0.0	0.2	0.6	0.6	0.6	1.3	0.7	2.3	25.2
Low use	11.7	0.1	0.8	0.1	0.2	0.0	0.0	2.8	0.0	15.7
Annual <sup>a</sup>	30.6	0.1	1.0	0.7	0.8	0.6	1.3	3.5	2.3	40.9
1979-80										
High use	10.4	0.4	3.0	0.2	1.2	0.2	3.1	0.7	0.4	19.6
Low use	8.6	0.1	0.0	0.1	1.2	0.0	0.0	0.3	0.1	10.4
Annual <sup>a</sup>	19.0	0.5	3.0	0.3	2.4	0.2	3.1	1.0	0.5	30.0
Season Total (all strata combined) <sup>a</sup>										
1974-75										
High use	58.4	21.7	11.4	5.8	4.6	4.3	19.4	3.4	5.7	134.7
Low use	90.6	10.9	5.8	4.8	30.0	0.0	6.2	10.7	0.8	159.8
Annual	149.0	32.6	17.2	10.6	34.6	4.3	25.6	14.1	6.5	294.5
1979-80										
High use	34.0	13.1	9.2	2.5	3.5	0.7	4.6	1.2	1.4	70.2
Low use	19.2	7.5	0.3	0.3	14.1	0.2	0.1	0.5	0.8	43.0
Annual	53.2	20.6	9.5	2.8	17.6	0.9	4.7	1.7	2.2	113.2

<sup>a</sup> Due to rounding of numbers, these totals may not equal exactly individual totals.



Table 31. Species composition (%) of total other fishes caught by sport fishermen by strata in Aransas Bay (Sept. 1979-Aug. 1980).

Species	Boat %	Wade/Bank %	Lighted Pier %
<u>Menticirrhus sp.</u>	79	9	7
<u>Bairdiella chrysur</u>	18	6	32
<u>Lagodon rhomboides</u>	0	9	0
<u>Orthopristis chrysoptera</u>	0	49	0
<u>Arius felis</u>	0	0	24
Unidentified species	4	29	37

Table 32. Total sport harvest (no/man-h) estimated for Aransas Bay by season, strata and species (Sept. 1974-Aug. 1975 and Sept. 1979-Aug. 1980).

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other	All <sup>a</sup> species combined
Boat Ramp										
1974-75										
High use	0.36	0.05	0.07	0.02	<.01	0.02	0.26	<.01	0.05	0.84
Low use	0.58	0.05	0.01	0.03	0.22	<.01	0.04	0.03	0.01	0.97
Annual <sup>a</sup>	0.45	0.05	0.05	0.03	0.09	0.01	0.18	0.01	0.03	0.89
1979-80										
High use	0.22	0.04	0.05	0.02	0.01	0.01	0.03	<.01	0.01	0.38
Low use	0.33	0.18	0.01	0.01	0.37	0.01	<.01	<.01	0.00	0.90
Annual <sup>a</sup>	0.24	0.06	0.04	0.01	0.07	0.01	0.03	<.01	0.01	0.46
Wade/Bank										
1974-75										
High use	0.09	0.03	0.02	0.01	0.02	0.08	0.01	<.01	<.01	0.24
Low use	0.79	0.04	0.04	0.02	0.03	0.00	0.06	0.00	0.01	0.98
Annual <sup>a</sup>	0.45	0.03	0.03	0.01	0.03	0.04	0.03	<.01	0.01	0.62
1979-80										
High use	0.10	0.07	0.02	0.01	0.01	0.02	0.01	<.01	0.03	0.29
Low use	0.17	0.09	0.02	0.00	0.11	0.01	0.01	0.00	0.07	0.47
Annual <sup>a</sup>	0.13	0.08	0.02	0.01	0.05	0.02	0.01	<.01	0.05	0.35

Table 32.(Cont'd.)

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other	All species combined
Lighted Pier										
1974-75										
High use	0.41	<.01	<.01	0.01	0.01	0.01	0.05	<.01	0.16	0.66
Low use	0.27	<.01	0.02	<.01	0.01	0.00	<.01	0.02	<.01	0.32
Annual <sup>a</sup>	0.35	<.01	0.01	0.01	0.01	0.01	0.03	0.01	0.09	0.51
1979-80										
High use	0.18	<.01	<.01	<.01	0.01	0.01	0.12	<.01	0.02	0.35
Low use	0.36	<.01	0.00	<.01	0.03	0.00	0.00	0.01	0.02	0.42
Annual <sup>a</sup>	0.23	<.01	<.01	<.01	0.02	0.01	0.09	0.01	0.02	0.37
Season Total (all strata combined) <sup>a</sup>										
1974-75										
High use	0.31	0.03	0.04	0.02	0.01	0.03	0.15	<.01	0.11	0.66
Low use	0.56	0.03	0.02	0.02	0.10	0.00	0.04	0.02	0.01	0.79
Annual	0.42	0.03	0.03	0.02	0.05	0.02	0.10	0.01	0.04	0.71
1979-80										
High use	0.18	0.03	0.03	0.01	0.01	0.01	0.06	<.01	0.02	0.35
Low use	0.28	0.07	0.01	<.01	0.14	0.01	<.01	<.01	0.03	0.55
Annual	0.21	0.04	0.02	0.01	0.04	0.01	0.04	<.01	0.02	0.40

<sup>a</sup> Due to rounding of numbers, these totals may not equal exactly individual totals.

Table 33. Mean weight (kg) of sport fish caught finfish by season, strata and species in Aransas Bay (Sept. 1974-Aug. 1975 and Sept. 1979-Aug. 1980).  
Blanks = no fish weighed.

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other
Boat Ramp									
1974-75									
High use	0.27	0.91	0.44	0.58	0.88	0.15	0.20	1.59	0.20
Low use	0.36	0.76	1.04	0.46	0.55	0.14	0.27	1.41	0.62
Annual	0.32	0.83	0.62	0.55	0.58	0.15	0.21	1.47	0.24
1979-80									
High use	0.39	0.84	0.50	0.53	0.74	0.08	0.21	1.20	0.20
Low use	0.45	0.64		0.56	0.55	0.28	0.40	2.13	
Annual	0.40	0.75	0.50	0.54	0.56	0.13	0.21	1.35	0.20
Wade/Bank									
1974-75									
High use	0.46	1.24	0.57	0.60	0.94	0.22	0.28	1.33	0.23
Low use	0.27	0.48	0.43	0.47	0.79		0.41		
Annual	0.34	0.96	0.51	0.55	0.90	0.22	0.36	1.33	0.23
1979-80									
High use	0.47	0.72	0.55	0.47	0.67	0.20	0.17	0.50	
Low use	0.43	0.53	0.20		0.68	0.17	0.36		0.17
Annual	0.45	0.66	0.55	0.47	0.68	0.19	0.21	0.50	0.17

Table 33. (Cont'd)

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic creeker	Sand seatrout	Garftopsail catfish	Other
Lighted Pier									
1974-75									
High use	0.26	0.28	0.23	0.38	0.50	0.29	0.14	0.96	0.08
Low use	0.29	0.82	0.28	0.48	0.35		0.13	1.13	0.11
Annual	0.27	0.79	0.26	0.39	0.48	0.29	0.14	1.09	0.08
1979-80									
High use	0.31	0.71	9.85	0.31	0.57	0.15	0.14	1.02	0.14
Low use	0.33	0.60		0.47	0.58			0.43	0.06
Annual	0.32	0.69	9.85	0.34	0.57	0.15	0.14	1.24	0.19
Season Total (all strata combined)									
1974-75									
High use	0.28	1.03	0.45	0.56	0.84	0.20	0.20	1.40	0.12
Low use	0.33	0.71	0.78	0.46	0.56	0.14	0.38	1.34	0.59
Annual	0.30	0.86	0.56	0.53	0.62	0.20	0.21	1.36	0.14
1979-80									
High use	0.37	0.77	0.79	0.49	0.64	0.16	0.16	1.01	0.16
Low use	0.39	0.61	0.20	0.50	0.58	0.21	0.37	1.52	0.14
Annual	0.38	0.72	0.73	0.50	0.59	0.17	0.16	1.20	0.15

Table 34. Mean length (mm) of sport caught finfish by season, strata and species in Aransas Bay (Sept. 1974-Aug. 1975 and Sept. 1979-Aug. 1980).  
Blanks = no fish measured.

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other
Boat Ramp									
1974-75									
High use									
Low use									
Annual									
1979-80									
High use	350	435	317	355	341	216	277		316
Low use	364	400		340	332	225	307	528	275
Annual	353	426	317	352	339	217	285	528	300
Wade/Bank									
1974-75									
High use									
Low use									
Annual									
1979-80									
High use	378	407	427	286	265	210	240	369	
Low use	361	377	245		337		340		235
Annual	372	392	381	286	330	210	283	369	235

Table 34. (Cont'd).

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other
Lighted Pier									
1974-75									
High use									
Low use									
Annual									
1979-80									
High use	312	357	710	306	301	200	231	495	234
Low use	333	370		332	309			534	
Annual	323	358	710	316	306	200	231	518	234
Season Total (all strata combined)									
1974-75									
High use									
Low use									
Annual	311	402	285	348	254	266	291		
1979-80									
High use	337	430	330	349	332	215	249	479	299
Low use	343	395	245	338	322	225	309	532	258
Annual	340	421	330	347	327	215	257	513	280

Table 35. Percent of fishermen use and percent success by bait type in Arkansas Bay (Sept. 1974-Aug. 1975 and Sept. 1979-Aug. 1980).

Bait	% of fishermen using bait type	% success by bait type
1974-75		
Live shrimp	22	61
Dead shrimp	44	24
Artificial	24	45
Other	10	35
1979-80		
Live shrimp	19	49
Dead shrimp	41	26
Artificial	23	58
Other	16	32



Table 36. Origin of sport anglers in Aransas Bay (Sept. 1974-Aug. 1975 and Sept. 1979-Aug. 1980).

State or Country	County	% of Total	
		1974-75	1979-80
TEXAS		86.2	93.0
	Bexar	35.6	37.9
	Aransas	8.3	11.2
	Travis	6.6	4.3
	San Patricio	5.7	7.4
	Harris	5.2	3.2
	Nueces	4.6	4.6
	Victoria	4.2	2.6
	Tarrant	2.5	3.3
	Dallas	2.4	2.9
	Refugio	2.4	2.6
	Goliad	1.3	0.6
	Guadalupe	1.3	0.4
	Bee	1.3	2.2
	DeWitt	1.2	2.0
	Jim Wells	1.0	0.1
	Caldwell	0.8	0.0
	Atascosa	0.8	0.8
	Tom Green	0.8	0.1
	Williamson	0.8	0.6
	Uvalde	0.0	0.7
	Collin	0.7	0.2
	Comal	0.7	0.4
	Austin	0.0	0.6
	Lubbock	0.6	0.1
	McLennan	0.6	0.3
	Karnes	0.5	0.6
	Bell	0.4	0.9
	Calhoun	0.4	0.0
	Kerr	0.4	4.1
	Bosque	0.0	0.3
	Gonzales	0.3	0.1
	Johnson	0.3	0.1
	Van Zandt	0.0	0.3
	Brazoria	0.3	0.4
	Hockley	0.3	0.0
	Wichita	0.0	0.3
	Brown	0.2	0.2
	Hays	0.2	0.2
	Medina	0.2	0.5
	Blanco	0.2	0.1
	Brazos	0.2	0.5
	Burnet	0.2	0.1

Table 36. (Cont'd).

State or Country	County	% of Total	
		1974-75	1979-80
TEXAS (Cont'd).	Ellis	0.2	0.0
	McCulloch	0.2	0.0
	Montgomery	0.2	0.1
	Wilson	0.2	0.6
	Bastrop	0.2	0.2
	Deaf Smith	0.2	0.0
	Falls	0.2	0.0
	Freestone	0.2	0.0
	Galveston	0.2	0.0
	Grayson	0.2	0.0
	Henderson	0.2	0.0
	Houston		0.2
	Kimble	0.2	0.0
	Jefferson	0.0	0.2
	Llano	0.2	0.1
	Mitchell	0.2	0.0
	Newton	0.0	0.2
	Taylor	0.2	0.0
	Terry	0.2	0.0
	Wise	0.2	0.0
	Real	0.2	0.2
	Smith	0.2	0.2
	Andrews	0.1	0.1
	Brewster	0.2	0.1
	Comerson	0.2	0.1
	Ector	0.1	0.2
	Gillespie	0.1	0.3
	Kendall	0.1	0.1
	La Salle	0.1	0.2
	McMullen	0.1	0.1
	Milam	0.1	0.3
	Parker	0.1	0.3
	Wilbarger	0.1	0.2
	Banders	0.1	0.1
	Callahan	0.1	0.2
	Childress	0.2	0.1
	Colorado	0.1	0.1
	Cottle	0.2	0.1
	Culberson	0.1	0.2
	Dawson	0.1	<.1
El Paso	0.1	0.0	
Fannin	0.0	0.1	

Table 36. (Cont'd).

State or Country	County	% of Total	
		1974-75	1979-80
TEXAS (Cont'd).	Fayette	0.1	0.2
	Fisher	0.0	0.1
	Foard	0.0	0.1
	Ft. Bend	0.0	0.1
	Gregg	0.1	0.0
	Hansford	0.1	0.0
	Hidalgo	0.1	0.0
	Hill	0.1	0.0
	Howard	0.1	0.0
	Jasper	0.1	0.0
	Kenedy	0.0	0.1
	Lampasas	0.1	0.0
	Lee	0.1	0.1
	Leon	0.1	0.0
	Matagorda	0.0	0.1
	Menard	0.0	0.1
	Midland	0.0	0.1
	Motley	0.1	0.0
	Orange	0.1	0.0
	Palo Pinto	0.0	0.1
	Roberts	0.0	0.1
	Swisher	0.1	0.0
	Titus	0.1	0.0
	Waller	0.0	0.1
	Wharton	0.1	0.0
	Yoakum	0.1	0.0
	Young	0.1	0.0
	Burleson	0.1	0.0
	Dawson	0.0	0.1
	Dimmit	0.1	0.0
	Erath	0.0	0.1
	Frio	0.0	0.1
	Haskell	0.1	0.0
	Jackson	0.1	0.0
	Lavaca	0.1	0.4
	Liberty	0.0	0.1
	Mason	0.0	0.1
	Red River	0.1	0.2
	Rusk	0.0	0.1
	Wheeler	0.1	0.0
	Wichita	0.1	0.3

Table 36. (Cont'd).

State or Country	County	% of Total	
		1974-75	1979-80
OKLAHOMA		3.3	1.8
KANSAS		1.5	0.7
ILLINOIS		1.3	0.6
MINNESOTA		1.0	0.5
COLORADO		0.7	0.3
NEBRASKA		0.7	0.1
INDIANA		0.5	0.1
MISSOURI		0.5	0.2
OHIO		0.5	0.2
IOWA		0.5	0.4
WISCONSIN		0.5	0.5
LOUISIANA		0.4	0.1
MICHIGAN		0.3	0.6
ARIZONA		0.0	0.2
ARKANSAS		0.2	0.1
NORTH CAROLINA		0.2	0.0
NEW MEXICO		0.1	<.1
TENNESSEE		0.0	0.1
VERMONT		0.1	0.0
WYOMING		0.1	0.0
IDAHO		0.1	0.1
MISSISSIPPI		0.1	0.1
NORTH DAKOTA		0.1	0.0
FLORIDA		0.1	<.1
MASSACHUSETTS		0.1	0.0
NEW YORK		0.1	0.0
UTAH		0.0	0.1
VIRGINIA		0.1	0.0
ALABAMA		<.1	0.0
CALIFORNIA		<.1	0.0
CONNECTICUT		<.1	0.0
NEW HAMPSHIRE		<.1	0.0
OREGON		0.0	<.1
PENNSYLVANIA		<.1	0.0
SOUTH DAKOTA		<.1	0.0
MEXICO		0.0	0.1
CANADA		0.2	0.0
FRANCE		0.1	0.0

Table 37. Total pressure (man-h X 1000 and trips X 1000) by season and strata in Corpus Christi Bay (Sept. 1975-Aug. 1976 and Sept. 1979-Aug. 1980).

Strata	Man-h	Trips
Boat Ramp		
1975-76		
High use	160.7	40.2
Low use	124.0	33.1
Annual	284.7	73.3
1979-80		
High use	163.2	39.4
Low use	119.7	27.9
Annual	282.9	67.3
Wade/Bank		
1974-75		
High use	274.8	112.1
Low use	264.3	125.2
Annual	539.1	237.3
1979-80		
High use	267.9	100.1
Low use	245.8	124.7
Annual	513.7	224.8
Lighted Pier		
1975-76		
High use	165.0	49.7
Low use	372.7	122.2
Annual	537.7	171.9
1979-80		
High use	84.3	30.0
Low use	178.4	58.9
Annual	262.7	88.9

Table 37 (Cont'd.)

Strata	Man-h	Trips
Season Total (all strata combined)		
1975-76		
High use	600.6	206.0
Low use	761.0	312.7
Annual	1361.6	518.7
1979-80		
High use	515.4	171.5
Low use	543.9	177.7
Annual	1059.3	349.2

Table 38. Total sport harvest (no X 1000) estimated for Corpus Christi Bay by season, strata and species (Sept. 1975-Aug. 1976 and Sept. 1979-Aug. 1980).

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other	All <sup>a</sup> species combined
Boat Ramp										
1975-76										
High use	74.9	8.6	5.5	2.3	1.9	10.7	75.1	3.1	6.2	188.2
Low use	34.3	6.1	3.7	3.2	2.7	6.9	14.6	3.3	3.5	78.4
Annual <sup>a</sup>	109.2	14.6	9.2	5.5	4.6	17.6	89.7	6.4	9.7	266.7
1979-80										
High use	26.3	7.7	5.3	4.3	0.4	7.1	25.6	0.5	15.3	92.4
Low use <sup>a</sup>	18.1	6.0	2.7	3.4	5.7	5.8	6.8	3.3	47.2	99.1
Annual <sup>a</sup>	44.4	13.7	8.0	7.7	6.1	12.9	32.4	3.7	62.5	191.5
Wade/Bank										
1975-76										
High use	8.6	0.2	10.7	4.0	4.8	7.4	0.7	0.0	5.3	41.8
Low use	0.0	6.9	19.4	2.3	0.0	26.9	56.5	0.0	6.4	118.5
Annual <sup>a</sup>	8.6	7.1	30.2	6.4	4.8	34.3	56.2	0.0	11.7	160.3
1979-80										
High use	16.8	9.5	12.7	4.4	0.5	24.8	4.1	0.0	14.8	87.6
Low use <sup>a</sup>	48.7	1.9	0.5	1.8	3.8	0.0	15.8	3.7	14.3	90.5
Annual <sup>a</sup>	65.5	11.4	13.2	6.2	4.3	24.8	19.9	3.7	29.1	178.1

Table 38. (Cont'd.)

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other	All species combined <sup>a</sup>
Lighted Pier										
1975-76										
High use	12.1	0.1	1.8	0.8	0.2	7.1	7.2	7.8	4.4	41.6
Low use	94.2	0.0	0.2	0.2	0.0	10.6	1.9	0.0	0.8	107.9
Annual <sup>a</sup>	106.4	0.1	2.1	1.0	0.2	17.8	9.0	7.8	5.2	149.5
1979-80										
High use	16.0	0.3	0.4	1.0	0.0	13.5	6.1	0.2	2.2	39.9
Low use	2.6	0.6	5.7	0.1	0.1	1.9	9.7	0.1	1.9	22.7
Annual <sup>a</sup>	18.6	0.9	6.1	1.2	0.1	15.4	15.8	0.3	4.1	62.6
Season Total (all strata combined) <sup>a</sup>										
1975-76										
High use	95.7	8.9	18.1	7.1	6.9	25.2	82.9	10.9	15.9	271.7
Low use	128.5	13.0	23.4	5.8	2.7	44.4	73.0	3.3	10.7	304.9
Annual	224.1	21.8	41.6	12.9	9.7	69.7	155.9	14.2	26.6	576.5
1979-80										
High use	59.1	17.5	18.4	9.7	0.8	45.5	35.8	0.7	32.3	219.9
Low use	69.4	8.5	8.8	5.4	9.7	7.6	32.3	7.1	63.4	212.3
Annual	128.5	26.0	27.2	15.1	10.5	53.1	68.1	7.8	95.7	432.2

<sup>a</sup> Due to rounding of numbers, these totals may not equal exactly individual totals.



Table 39. Total sport harvest (kg X 1000) estimated for Corpus Christi Bay by season, strata and species (Sept. 1975-Aug. 1976 and Sept. 1979-Aug. 1980).

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other	All <sup>a</sup> species combined
Boat Ramp										
1975-76										
High use	41.9	10.0	4.2	1.3	1.6	3.0	22.5	4.7	1.9	91.1
Low use	12.3	4.1	19.7	1.0	1.8	1.7	4.2	4.2	1.4	50.4
Annual <sup>a</sup>	54.2	14.1	23.9	2.3	3.4	4.7	26.7	8.9	3.3	141.5
1979-80										
High use	12.1	7.5	3.0	3.3	0.4	1.7	7.4	0.6	3.8	39.8
Low use	9.6	3.9	15.8	1.6	5.7	1.0	1.8	5.5	9.9	54.8
Annual <sup>a</sup>	21.7	11.4	18.8	4.9	6.1	2.7	9.2	7.1	13.7	94.6
Wade/Bank										
1975-76										
High use	4.6	0.1	5.4	1.6	3.0	2.1	0.1	0.0	0.5	17.4
Low use	0.0	5.3	10.5	0.4	0.0	6.4	22.6	0.0	0.6	45.8
Annual <sup>a</sup>	4.6	5.4	15.9	2.0	3.0	8.5	22.7	0.0	1.1	63.2
1979-80										
High use	8.2	3.5	6.8	2.6	0.6	6.2	1.3	0.0	2.7	31.9
Low use	38.0	0.5	0.1	1.0	3.3	0.0	5.7	5.9	3.1	57.6
Annual <sup>a</sup>	46.2	4.0	6.9	3.6	3.9	6.2	7.0	5.9	5.8	89.5

Table 39. (Cont'd.)

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other	All species combined <sup>a</sup>
Lighted Pier										
1975-76										
High use	5.7	0.1	2.6	0.4	0.1	1.9	1.6	8.9	0.9	22.2
Low use	26.4	0.0	0.1	0.0	0.0	3.2	0.4	0.0	0.2	30.3
Annual <sup>a</sup>	32.1	0.1	2.7	0.4	0.1	5.1	2.0	8.9	1.1	52.5
1979-80										
High use	4.6	0.3	0.2	0.4	0.0	3.5	1.7	0.0	0.7	11.4
Low use	0.8	0.4	7.4	0.1	0.0	0.2	3.3	0.1	0.4	24.1
Annual <sup>a</sup>	5.4	0.7	7.6	0.5	0.0	3.7	5.0	0.1	1.1	35.5
Season Total (all strata combined) <sup>a</sup>										
1975-76										
High use	49.8	9.8	13.8	3.2	5.0	7.1	24.0	14.1	3.2	130.0
Low use	46.2	9.4	34.4	1.4	1.8	11.1	25.6	4.2	2.6	136.7
Annual	96.0	19.2	48.2	4.6	6.8	18.2	49.6	18.3	5.8	266.7
1979-80										
High use	23.6	11.4	10.1	6.2	0.9	11.4	10.4	0.8	7.8	82.6
Low use	46.5	5.0	25.1	2.8	9.3	1.3	10.6	11.6	13.3	125.5
Annual	70.1	16.4	35.2	9.0	10.2	12.7	21.0	12.4	21.1	208.1

<sup>a</sup> Due to rounding of numbers, these totals may not equal exactly individual totals.

Table 40. Species composition (%) of total "other" fishes caught by sport fisherman by strata in Corpus Christi Bay (Sept. 1979-Aug. 1980).

Species	Boat %	Wade/Bank %	Lighted Pier %
<u>Menticirrhus</u> sp.	49	71	29
<u>Lagodon rhomboides</u>	24	14	12
<u>Arius felis</u>	4	0	0
<u>Orthopristis chrysoptera</u>	4	0	0
<u>Bairdiella chrysura</u>	1	3	24
<u>Sphyrna</u> sp.	4	0	0
<u>Dasyatis</u> sp.	1	0	3
<u>Elops saurus</u>	1	0	0
<u>Pomatomus saltatrix</u>	<1	0	0
<u>Lutjanus campechanus</u>	<1	0	0
<u>Mugil cephalus</u>	0	0	3
<u>Chaetodipterus faber</u>	2	4	0
Unidentified species	9	6	29

Table 41. Total sport harvest (no/man-h) estimated for Corpus Christi Bay by season, strata and species (Sept. 1975-Aug. 1976 and Sept. 1979-Aug. 1980).

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other	All <sup>a</sup> species combined
Boat Ramp										
1975-76										
High use	0.47	0.05	0.03	0.01	0.01	0.06	0.47	0.02	0.04	1.17
Low use	0.28	0.05	0.03	0.03	0.02	0.06	0.12	0.03	0.03	0.63
Annual <sup>a</sup>	0.38	0.05	0.03	0.02	0.02	0.06	0.32	0.02	0.03	0.94
1979-80										
High use	0.16	0.05	0.03	0.03	<.01	0.04	0.16	<.01	0.09	0.57
Low use	0.15	0.05	0.02	0.03	0.05	0.05	0.06	0.03	0.40	0.83
Annual <sup>a</sup>	0.16	0.05	0.03	0.03	0.02	0.05	0.11	0.01	0.22	0.68
Wade/Bank										
1975-76										
High use	0.03	<.01	0.04	0.02	0.02	0.03	<.01	0.00	0.02	0.15
Low use	0.00	0.03	0.07	0.01	0.00	0.10	0.21	0.00	0.02	0.45
Annual <sup>a</sup>	0.02	0.01	0.06	0.01	0.01	0.06	0.11	0.00	0.02	0.30
1979-80										
High use	0.06	0.04	0.05	0.02	<.01	0.09	0.02	0.00	0.06	0.33
Low use	0.20	0.01	<.01	0.01	0.02	0.00	0.06	0.02	0.06	0.37
Annual <sup>a</sup>	0.13	0.02	0.03	0.01	0.01	0.05	0.04	0.01	0.06	0.35

Table 41. (Cont'd.)

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other	All species combined <sup>a</sup>
Lighted Pier										
1975-76										
High use	0.07	<.01	0.01	0.01	<.01	0.04	0.04	0.05	0.03	0.25
Low use	0.25	0.00	<.01	<.01	0.00	0.03	0.01	0.00	<.01	0.29
Annual <sup>a</sup>	0.20	<.01	0.01	<.01	<.01	0.03	0.02	0.01	0.01	0.28
1979-80										
High use	0.19	<.01	0.01	0.01	0.00	0.16	0.07	<.01	0.03	0.47
Low use	0.02	<.01	0.03	<.01	<.01	0.01	0.05	<.01	0.01	0.13
Annual <sup>a</sup>	0.07	<.01	0.02	<.01	<.01	0.06	0.06	<.01	0.02	0.24
Season Total (all strata combined) <sup>a</sup>										
1975-76										
High use	0.16	0.02	0.03	0.01	0.01	0.04	0.14	0.02	0.03	0.45
Low use	0.17	0.02	0.03	0.01	<.01	0.06	0.10	<.01	0.01	0.40
Annual	0.17	0.02	0.03	0.01	0.01	0.05	0.11	0.01	0.02	0.42
1979-80										
High use	0.12	0.03	0.04	0.02	<.01	0.09	0.07	<.01	0.06	0.43
Low use	0.13	0.02	0.02	0.01	0.02	0.01	0.06	0.01	0.12	0.39
Annual	0.12	0.03	0.03	0.01	0.01	0.05	0.06	0.01	0.09	0.41

<sup>a</sup> Due to rounding of numbers, these totals may not equal exactly individual totals.

Table 42. Mean weight (kg) of sport caught finfish by season, strata and species in Corpus Christi Bay (Sept. 1975-Aug. 1976 and Sept. 1979-Aug. 1980). Blanks= no fish weighed.

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other
Boat Ramp									
1975-76									
High use	0.56	1.16	0.77	0.56	0.84	0.28	0.30	1.53	0.30
Low use	0.36	0.68	5.32	0.31	0.67	0.25	0.29	1.28	0.39
Annual	0.40	0.96	2.57	0.44	0.75	0.27	0.30	1.36	0.33
1979-80									
High use	0.46	0.97	0.57	0.76	1.07	0.24	0.29	1.11	0.25
Low use	0.53	0.65	5.86	0.48	1.00	0.18	0.27	1.68	0.21
Annual	0.48	0.82	2.22	0.65	1.00	0.21	0.28	1.55	0.22
Wade/Bank									
1975-76									
High use	0.53	0.28	0.50	0.41	0.62	0.28	0.15		0.09
Low use		0.77	0.54	0.16		0.24	0.40		0.10
Annual	0.53	0.72	0.53	0.35	0.62	0.25	0.39		0.09
1979-80									
High use	0.49	0.37	0.54	0.60	1.19	0.25	0.31		0.18
Low use	0.78	0.25	0.27	0.55	0.87		0.36	1.60	0.22
Annual	0.69	0.36	0.52	0.59	0.91	0.25	0.35	1.60	0.20

Table 42. (Cont'd).

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Garftopail catfish	Other
Lighted Pier									
1975-76									
High use	0.47	1.13	1.46	0.46	0.45	0.27	0.22	1.14	0.20
Low use	0.28		0.56	0.25		0.30	0.22		0.28
Annual	0.44	1.13	1.40	0.42	0.45	0.28	0.22	1.14	0.21
1979-80									
High use	0.29	0.95	0.52	0.42		0.26	0.28		0.33
Low use	0.31	0.60	1.30	0.75		0.12	0.34	0.83	0.23
Annual	0.29	0.86	1.04	0.43		0.25	0.30	0.83	0.31
Season Total (all strata combined)									
1975-76									
High use	0.52	1.10	0.76	0.45	0.73	0.28	0.29	1.29	0.20
Low use	0.36	0.72	1.47	0.24	0.67	0.25	0.35	1.28	0.24
Annual	0.44	0.88	2.05	0.38	0.71	0.26	0.32	1.29	0.21
1979-80									
High use	0.40	0.65	0.55	0.64	1.14	0.25	0.29	1.11	0.24
Low use	0.67	0.59	2.85	0.51	0.96	0.17	0.33	1.63	0.21
Annual	0.50	0.63	1.14	0.60	0.97	0.24	0.31	1.56	0.22

Table 43. Mean length (mm) of sport caught finfish by season, strata and species in Corpus Christi Bay (Sept. 1975-Aug. 1976 and Sept. 1979-Aug. 1980). Blanks = no fish measured.

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other
Boat Ramp									
1975-76									
High use									
Low use									
Annual									
1979-80									
High use	359	443	337	362	368	257	290	439	277
Low use	380	399	647	340	331	262	312	538	266
Annual	366	423	510	354	338	258	297	490	274
Wade/Bank									
1975-76									
High use									
Low use									
Annual									
1979-80									
High use	375	341	337		410	250	272		219
Low use	432	387	310	380	358		316	495	375
Annual	406	355	326	380	366	250	313	495	228



Table 43. (Cont'd).

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other
Lighted Pier									
1975-76									
High use									
Low use									
Annual									
1979-80									
High use	324	452	289	343		272	281	490	279
Low use	330	394	314	406		211	315	397	224
Annual	326	444	308	360		254	307	420	261
Season Total (all strata combined)									
1975-76									
High use									
Low use									
Annual	353	434	422	325	320	300	310	470	
1979-80									
High use	355	440	333	361	371	258	289	440	268
Low use	379	398	562	344	333	247	314	521	264
Annual	365	422	466	355	341	256	300	485	267

Table 44. Percent of fishermen use and percent success by bait type in Corpus Christi Bay (Sept. 1975-Aug. 1976 and Sept. 1979-Aug. 1980).

Bait	% of fishermen using bait type	% success by bait type
1975-76		
Live shrimp	25	69
Dead shrimp	57	40
Artificial	8	52
Other	10	36
1979-80		
Live shrimp	23	65
Dead shrimp	53	40
Artificial	10	55
Other	14	41

Table 45. Origin of sport anglers in Corpus Christi Bay (Sept. 1975-Aug. 1976 and Sept. 1979-Aug. 1980).

State or Country	County	% of Total	
		1975-76	1979-80
TEXAS		93.6	93.9
	Nueces	50.0	51.2
	San Patricio	18.1	15.2
	Bexar	10.7	16.5
	Aransas	3.2	1.5
	Jim Wells	2.8	1.9
	Harris	1.9	1.7
	Tarrant	1.6	1.6
	Dallas	1.4	1.0
	Travis	1.2	2.2
	Bee	0.6	0.8
	Guadalupe	0.6	0.0
	De Witt	0.5	0.2
	Witchita	0.5	0.2
	Bell	0.4	0.1
	Victoria	0.4	0.2
	Brown	0.4	0.3
	Lubbock	0.3	0.2
	Williamsons	0.3	0.2
	Kerr	0.3	0.0
	Galveston	0.3	0.0
	Stephens	0.3	0.0
	Grayson	0.3	0.0
	Gaines	0.3	0.0
	Frio	0.2	0.0
	Red River	0.2	0.0
	Webb	0.2	0.2
	Kleberg	0.2	<.1
	Duval	0.2	0.1
	Gray	0.2	0.0
	Brooks	0.2	0.0
	Brazos	0.2	0.0
	Cameron	0.2	0.0
	Gonzales	0.1	<.1
	Karnes	0.1	0.2
	Terry	0.1	0.0
	Oldham	0.1	0.0
	Medina	0.1	0.0
	McLennan	0.1	0.0
	Tom Green	0.1	0.0
	Blanco	0.1	0.0
	Jones	0.1	0.0
	Llano	0.1	0.0

Table 45. (Cont'd).

State or Country	County	% of Total	
		1975-76	1979-80
TEXAS (Cont'd).			
	El Paso	0.1	0.0
	Live Oak	0.1	0.7
	Val Verde	0.1	0.0
	Denton	0.1	0.0
	Hays	0.0	0.5
	McCulloch	0.0	0.3
	Wilson	0.0	0.2
	Smith	0.0	0.2
	Taylor	0.0	0.2
	Leon	0.0	0.2
	Atascosa	0.0	0.1
	Edwards	0.0	0.1
	Ector	0.0	0.1
	Hall	0.0	0.1
	Hidalgo	0.0	0.1
	Johnson	0.0	0.1
	Callahan	0.0	0.1
	Goliad	0.0	0.1
	Ellis	0.0	0.1
	Refugio	0.0	0.1
	Midland	0.0	0.1
	Navarro	0.0	0.1
	Wheeler	0.0	0.1
	Zapata	0.0	0.1
	Bailey	0.0	<.1
	Clay	0.0	<.1
	Yoakum	0.0	<.1
OKLAHOMA		2.0	1.8
KANSAS		1.7	1.3
MISSOURI		0.6	0.2
COLORADO		0.4	0.4
CALIFORNIA		0.4	<.1
NEBRASKA		0.2	0.6
INDIANA		0.2	0.0
ILLINOIS		0.1	0.4
ARKANSAS		0.1	0.0
WEST VIRGINIA		0.1	0.0
HAWAII		0.1	0.0
IOWA		0.0	0.7
WISCONSIN		0.0	0.2

Table 45. (Cont'd).

State or Country	County	% of Total	
		1975-76	1979-80
MINNESOTA		0.0	0.1
OHIO		0.0	0.1
SOUTH DAKOTA		0.0	0.1
WYOMING		0.0	0.1
NORTH DAKOTA		0.0	0.1
OREGON		0.0	<.1
NEW YORK		0.0	<.1
LOUISIANA		0.0	<.1
INDIA		0.3	0.0
CANADA		0.1	0.0
MEXICO		0.1	0.0

Table 46. Total pressure (man-h X 1000 and trips X 1000) by season and strata in upper Laguna Madre (Sept. 1974-75 and Sept. 1979-80).

Strata	Man-h	Trips
Boat Ramp		
1974-75		
High use	484.5	101.4
Low use	397.3	138.0
Annual	881.7	239.4
1979-80		
High use	601.5	108.6
Low use	188.5	64.8
Annual	790.0	173.4
Wade/Bank		
1974-75		
High use	174.0	67.7
Low use	130.0	61.3
Annual	304.0	129.0
1979-80		
High use	52.0	28.1
Low use	39.3	25.7
Annual	91.3	53.8
Lighted Pier		
1974-75		
High use	157.5	54.7
Low use	87.6	35.0
Annual	245.1	89.7
1979-80		
High use	51.4	17.6
Low use	49.7	20.7
Annual	101.1	38.3

Table 46. (Cont'd.)

Strata	Man-h	Trips
Season Total (all strata combined)		
1974-75		
High use	816.1	217.0
Low use	614.8	232.9
Annual	1430.9	449.9
1979-80		
High use	704.8	159.8
Low use	277.5	108.8
Annual	982.3	268.6

Table 47. Total sport harvest (no X 1000) estimated for upper Laguna Madre by season, strata and species (Sept. 1974-Aug. 1975 and Sept. 1979-Aug. 1980).

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other	All <sup>a</sup> species combined
Boat Ramp										
1974-75										
High use	396.5	15.8	2.1	12.3	3.4	53.5	11.0	0.0	2.1	496.7
Low use	184.0	8.8	7.8	23.6	7.1	86.2	3.6	0.0	1.3	322.4
Annual <sup>a</sup>	580.5	24.6	9.9	35.9	10.4	139.8	14.6	0.0	3.4	819.1
1979-80										
High use	164.0	22.1	3.0	8.8	1.3	51.8	10.4	<.1	20.4	281.8
Low use	90.9	10.8	6.6	2.1	4.1	0.4	1.4	0.2	0.7	117.2
Annual <sup>a</sup>	254.9	32.9	9.6	10.9	5.4	52.2	11.8	0.2	21.1	399.0
Wade/Bank										
1974-75										
High use	32.4	5.4	3.0	5.4	1.0	28.3	1.0	0.2	3.9	80.5
Low use	7.6	1.4	4.7	10.8	0.0	8.3	1.4	0.0	4.6	38.8
Annual <sup>a</sup>	40.0	6.9	7.7	16.2	1.0	36.6	2.3	0.2	8.5	119.3
1979-80										
High use	1.7	1.6	0.3	1.2	0.0	8.3	0.1	0.0	0.3	13.5
Low use	2.2	1.8	0.0	0.4	0.0	0.4	1.8	0.0	0.9	7.6
Annual <sup>a</sup>	3.9	3.4	0.3	1.6	0.0	8.8	1.8	0.0	1.3	21.1



Table 47 (Cont'd.)

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gaiftopsail catfish	Other	All <sup>a</sup> species combined
Lighted Pier										
1974-75										
High use	15.0	1.3	1.9	2.8	0.1	28.8	0.4	0.0	5.7	56.0
Low use	7.5	0.6	2.7	0.8	0.3	1.7	0.4	0.0	6.0	20.1
Annual <sup>a</sup>	22.5	1.9	4.6	3.6	0.4	30.5	0.9	0.0	11.7	76.1
1979-80										
High use	10.0	0.0	0.0	0.6	0.0	12.4	0.8	0.0	8.8	32.7
Low use	4.1	1.1	3.1	0.4	0.0	12.9	0.0	0.0	0.1	21.8
Annual <sup>a</sup>	14.2	1.1	3.1	1.1	0.0	25.3	0.8	0.0	9.0	54.5
Season Total (all strata combined) <sup>a</sup>										
1974-75										
High use	443.9	22.5	7.0	20.5	4.4	110.7	12.4	0.2	11.7	633.2
Low use	199.1	10.9	15.2	35.2	7.4	96.2	5.4	0.0	12.0	381.3
Annual	642.9	33.4	22.3	55.7	11.8	206.8	17.8	0.2	23.6	1014.5
1979-80										
High use	175.7	23.6	3.3	10.7	1.3	72.5	11.3	<.1	29.6	328.0
Low use	97.2	13.8	9.7	2.9	4.1	13.7	3.2	0.2	1.7	146.6
Annual	273.0	39.4	13.0	13.6	5.4	86.2	14.4	0.2	31.3	474.6

<sup>a</sup> Due to rounding of numbers, these totals may not equal exactly individual totals.

Table 48. Total sport harvest (kg X 1000) estimated for upper Laguna Madre by season, strata and species (Sept. 1974-Aug. 1975 and Sept. 1979-Aug. 1980).

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other	All <sup>a</sup> species combined
Boat Ramp										
1974-75										
High use	190.3	19.1	5.0	10.9	4.2	17.7	3.9	0.0	0.6	251.7
Low use	99.4	8.8	15.1	18.6	10.9	21.6	1.9	0.0	0.1	176.4
Annual <sup>a</sup>	289.7	27.9	20.1	29.5	15.1	39.3	5.8	0.0	0.7	428.1
1979-80										
High use	70.5	21.2	1.6	5.4	0.9	11.9	2.9	0.0	5.9	120.3
Low use	46.4	7.3	5.9	1.4	5.0	0.1	0.7	0.0	0.2	67.0
Annual <sup>a</sup>	116.9	28.5	7.5	6.8	5.9	12.0	3.6	0.0	6.1	187.3
Wade/Bank										
1974-75										
High use	16.2	5.4	2.6	5.2	1.6	9.9	0.2	0.1	0.5	41.6
Low use	6.2	2.9	5.8	8.1	0.0	2.6	0.7	0.0	0.6	26.9
Annual <sup>a</sup>	22.4	8.3	8.4	13.3	1.6	12.5	0.9	0.1	1.1	68.5
1979-80										
High use	0.5	1.0	0.6	1.0	0.0	2.1	<.1	0.0	0.7	6.0
Low use	1.1	1.0	0.0	0.0	0.0	<.1	0.5	0.0	0.1	2.7
Annual <sup>a</sup>	1.6	2.0	0.6	1.0	0.0	2.1	0.5	0.0	0.8	8.7

Table 48. (Cont'd.)

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other	All <sup>a</sup> species combined
Lighted Pier										
1974-75										
High use	8.1	0.7	2.7	1.9	<.1	9.2	0.1	0.0	1.0	23.7
Low use	4.2	0.6	11.6	0.7	0.3	0.4	0.1	0.0	2.1	20.0
Annual <sup>a</sup>	12.3	1.3	24.3	2.6	0.3	9.6	0.2	0.0	3.1	43.7
1979-80										
High use	3.2	0.0	0.0	0.1	0.0	3.5	0.2	0.0	1.6	8.6
Low use	1.9	0.6	4.1	0.3	0.0	3.4	0.0	0.0	0.0	10.3
Annual <sup>a</sup>	5.1	0.6	4.1	0.4	0.0	6.9	0.2	0.0	1.6	18.9
Season Total (all strata combined) <sup>a</sup>										
1974-75										
High use	657.0	25.4	13.9	18.2	5.4	36.5	4.2	0.1	2.3	763.9
Low use	109.5	11.7	34.8	27.4	11.1	25.0	2.8	0.0	2.5	224.8
Annual	766.5	37.1	48.7	45.6	16.5	61.0	7.0	0.1	4.8	988.7
1979-80										
High use	73.8	21.9	1.6	7.0	0.9	17.4	3.2	0.0	7.8	133.6
Low use	49.6	9.0	11.3	2.0	5.0	3.6	1.5	0.0	0.3	85.0
Annual	123.4	30.9	12.9	9.0	5.9	21.0	4.7	0.0	8.1	218.6

<sup>a</sup> Due to rounding of numbers, these totals may not equal exactly individual totals.

Table 49. Species composition (%) of total other fishes caught by sport fisherman by strata in upper Laguna Madre (Sept. 1979-Aug. 1980).

Species	Boat %	Wade/Bank %	Lighted Pier %
<u>Lagodon rhomboides</u>	23	56	91
<u>Arius felis</u>	10	0	0
<u>Orthopristis chrysoptera</u>	15	11	3
<u>Bairdiella chrysur</u>	10	11	3
<u>Menticirrhus sp.</u>	13	11	3
<u>Scomberomorus maculatus</u>	1	0	0
<u>Paralichthys albigutta</u>	1	0	0
<u>Ancyclopsetta quadrocellata</u>	1	0	0
<u>Trachinotus carolinus</u>	1	0	0
<u>Caranx hippos</u>	1	0	0
Unidentified species	24	11	0

Table 50. Total sport harvest (no/man-h) estimated for upper Laguna Madre by season, strata and species (Sept. 1975-Aug. 1976 and Sept. 1979-Aug. 1980).

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other	All <sup>a</sup> species combined
Boat Ramp										
1974-75										
High use	0.82	0.03	<.01	0.03	0.01	0.11	0.02	0.00	<.01	1.03
Low use	0.46	0.02	0.02	0.06	0.02	0.22	0.01	0.00	<.01	0.81
Annual <sup>a</sup>	0.66	0.03	0.01	0.04	0.01	0.16	0.02	0.00	<.01	0.93
1979-80										
High use	0.27	0.04	0.01	0.02	<.01	0.09	0.02	0.00	0.03	0.47
Low use	0.48	0.06	0.04	0.01	0.02	<.01	0.01	<.01	<.01	0.62
Annual <sup>a</sup>	0.32	0.04	0.01	0.01	0.01	0.07	0.02	<.01	0.03	0.51
Wade/Bank										
1974-75										
High use	0.19	0.03	0.02	0.03	0.01	0.16	0.01	<.01	0.02	0.46
Low use	0.06	0.01	0.04	0.08	0.00	0.06	0.01	0.00	0.04	0.30
Annual <sup>a</sup>	0.13	0.02	0.03	0.05	<.01	0.12	0.01	<.01	0.03	0.39
1979-80										
High use	0.03	0.03	0.01	0.02	0.00	0.16	<.01	0.00	0.01	0.26
Low use	0.06	0.05	0.00	0.01	0.00	0.01	0.05	0.00	0.02	0.19
Annual <sup>a</sup>	0.04	0.04	<.01	0.02	0.00	0.10	0.02	0.00	0.01	0.23

Table 50. (Cont'd.)

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other	All <sup>a</sup> species combined
Lighted Pier										
1974-75										
High use	0.10	0.01	0.01	0.02	<.01	0.18	<.01	0.00	0.04	0.36
Low use	0.09	0.01	0.03	0.01	<.01	0.02	0.01	0.00	0.07	0.23
Annual <sup>a</sup>	0.09	0.01	0.02	0.02	<.01	0.12	<.01	0.00	0.05	0.31
1979-80										
High use	0.20	0.00	0.00	0.01	0.00	0.24	0.02	0.00	0.17	0.64
Low use	0.08	0.02	0.06	0.01	0.00	0.26	0.00	0.00	<.01	0.44
Annual <sup>a</sup>	0.14	0.01	0.03	0.01	0.00	0.25	0.01	0.00	0.09	0.54
Season Total (all strata combined) <sup>a</sup>										
1974-75										
High use	0.54	0.03	0.01	0.03	0.01	0.14	0.02	0.00	0.01	0.78
Low use	0.32	0.02	0.03	0.06	0.01	0.16	0.01	0.00	0.02	0.62
Annual	0.45	0.02	0.02	0.04	0.01	0.15	0.01	0.00	0.02	0.71
1979-80										
High use	0.25	0.03	0.01	0.02	<.01	0.10	0.02	0.00	0.04	0.47
Low use	0.35	0.05	0.04	0.01	0.02	0.05	0.01	<.01	0.01	0.53
Annual	0.28	0.04	0.01	0.01	0.01	0.09	0.02	<.01	0.03	0.48

<sup>a</sup> Due to rounding of numbers, these totals may not equal exactly individual totals.

Table 51. Mean weight (kg) of sport caught finfish by season, strata and species in upper Laguna Madre (Sept. 1974-Aug. 1975 and Sept. 1979-Aug. 1980).  
Blanks = no fish weighed.

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other
Boat Ramp									
1974-75									
High use	0.48	1.21	2.38	0.89	1.23	0.33	0.35		0.30
Low use	0.54	1.00	1.94	0.79	1.54	0.25	0.54		0.11
Annual	0.49	1.16	2.05	0.83	1.31	0.30	0.37		0.28
1979-80									
High use	0.43	0.96	0.54	0.62	0.69	0.23	0.28		0.29
Low use	0.51	0.68	0.90	0.68	1.21	0.29	0.49		0.24
Annual	0.43	0.87	0.73	0.63	1.06	0.23	0.38		0.29
Wade/Bank									
1974-75									
High use	0.50	1.01	0.86	0.96	1.62	0.35	0.24	0.68	0.12
Low use	0.82	1.50	1.25	0.75		0.32	0.48		0.12
Annual	0.57	1.20	1.19	0.82	1.62	0.34	0.31	0.68	0.12
1979-80									
High use	0.31	0.62	0.20	0.81		0.25	0.25		0.24
Low use	0.49	0.57		0.28			0.26		0.13
Annual	0.39	0.60	0.20	0.76		0.25	0.26		0.16

Table 51. (Cont'd).

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other
Lighted Pier									
1974-75									
High use	0.54	0.50	1.41	0.69	0.22	0.32	0.26		0.18
Low use	0.59	0.92	4.31	0.86	0.96	0.26	0.31		0.35
Annual	0.56	0.65	3.41	0.73	0.71	0.31	0.29		0.26
1979-80									
High use	0.32					0.28	0.25		0.18
Low use	0.46	0.56	1.33	0.85		0.26			0.15
Annual	0.35	0.56	1.33	0.85		0.26	0.25		0.18
Season Total (all strata combined)									
1974-75									
High use	0.48	1.13	1.98	0.89	1.23	0.33	0.34	0.68	0.20
Low use	0.55	1.07	2.29	0.78	1.50	0.26	0.52		0.21
Annual	0.50	1.13	2.22	0.83	1.29	0.31	0.37	0.68	0.20
1979-80									
High use	0.42	0.93	0.48	0.65	0.69	0.24	0.28		0.27
Low use	0.51	0.65	1.17	0.70	1.21	0.26	0.46		0.20
Annual	0.45	0.83	0.97	0.66	1.06	0.25	0.36		0.27



Table 52. Mean length (mm) of sport caught finfish by season, strata and species in upper Laguna Madre (Sept. 1974-Aug. 1975 and Sept. 1979-Aug. 1980).  
Blanks = no fish measured.

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other
Boat Ramp									
1974-75									
High use									
Low use									
Annual									
1979-80									
High use	367	429	339	364	312	264	297	294	279
Low use	374	426	474	374	404	271	360		294
Annual	369	428	385	367	390	264	302	294	289
Wade/Bank									
1974-75									
High use									
Low use									
Annual									
1979-80									
High use	328	393		394		230	307		417
Low use	339	337		305		261	298		248
Annual	334	382		364		234	299		303

Table 52. (Cont'd).

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other
Lighted Pier									
1974-75									
High use									
Low use									
Annual									
1979-80									
High use	340	342	268			248	310		
Low use	350	406	610			264			212
Annual	342	389	405			253	310		212
Season Total (all strata combined)									
1974-75									
High use									
Low use									
Annual	358	436	464	391	342				
1979-80									
High use	365	431	336	366	312	259	298	294	417
Low use	373	421	482	368	404	266	321		280
Annual	369	424	386	367	390	260	302	294	289

Table 53. Percent of fishermen use and percent success by bait type in upper Laguna Madre (Sept. 1974-Aug. 1975 and Sept. 1979-Aug. 1980).

Bait	% of fishermen using bait type	% success by bait type
1974-75		
Live shrimp	31	67
Dead shrimp	56	40
Artificial	10	57
Other	3	55
1979-80		
Live shrimp	40	65
Dead shrimp	41	35
Artificial	7	49
Other	12	57

Table 54. Origin of sport anglers in upper Laguna Madre (Sept. 1974-Aug. 1975 and Sept. 1979-Aug. 1980).

State or Country	County	% of Total	
		1974-75	1979-80
TEXAS		97.1	97.1
	Nueces	47.9	57.3
	Bexar	11.6	15.7
	Kleberg	19.6	7.8
	Jim Wells	4.6	3.2
	San Patricio	1.3	1.9
	Harris	1.1	1.6
	Travis	0.8	1.5
	Webb	0.1	0.9
	Tarrant	0.6	0.9
	Victoria	0.1	0.8
	Bee	0.5	0.8
	Wilson	0.0	0.6
	Dallas	0.5	0.6
	Karnes	0.1	0.6
	Bell	0.2	0.4
	Brooks	4.0	0.4
	Johnson	0.2	0.4
	Matagorda	0.0	0.4
	Comal	0.5	0.3
	Live Oak	0.2	0.3
	Duval	0.6	0.2
	Galveston	<.1	0.2
	Lubbock	0.0	0.2
	Bosque	0.0	0.1
	Brazoria	0.0	0.1
	Collin	0.0	0.1
	Coryell	0.0	0.1
	Frio	0.0	0.1
	Gaines	0.0	0.1
	Gonzales	0.0	0.1
	Jim Hogg	0.4	0.1
	Jones	0.0	0.1
	Kendell	0.1	0.1
	Kerr	0.0	0.1
	McLennan	0.3	0.1
	Mason	0.0	0.1
	Milam	0.0	0.1
	Panola	0.0	0.1
	Potter	0.0	0.1
	Refugio	<.1	0.1
	Smith	0.0	0.1

Table 54. (Cont'd).

State or Country	County	% of Total	
		1974-75	1979-80
TEXAS (Cont'd).	Terry	0.0	0.1
	Williamson	0.0	0.1
	Caldwell	0.0	0.1
	De Witt	0.0	0.1
	Rockwall	0.0	0.1
	Tom Green	0.0	0.1
	Wichita	0.5	0.0
	Guadalupe	0.3	0.0
	Zavala	0.3	0.0
	Aransas	0.2	0.0
	Ector	0.2	0.0
	Johnson	0.2	0.0
	Anderson	0.1	0.0
	Atascosa	0.1	0.0
	Bandera	0.1	0.0
	Denton	0.1	0.0
	Ft. Bend	0.1	0.0
	Goliad	0.1	0.0
	Hayes	0.1	0.0
	Hidalgo	0.1	0.0
	Hopkins	0.1	0.0
	Jefferson	0.1	0.0
	Kenedy	0.1	0.0
	Kinney	0.1	0.0
	Lavaca	0.1	0.0
	Maverick	0.1	0.0
	Mitchell	0.1	0.0
	Taylor	0.1	0.0
	Uvalde	0.1	0.0
	Yoakum	0.1	0.0
	Jasper	<.1	0.0
	Montgomery	<.1	0.0
	Throckmorton	<.1	0.0
OKLAHOMA		0.4	0.7
COLORADO		0.1	0.4
MISSOURI		<.1	0.4
CALIFORNIA		0.1	0.2
ILLINOIS		<.1	0.2
KANSAS		0.4	0.2
NEBRASKA		<.1	0.2
ARKANSAS		0.0	0.1

Table 54. (Cont'd).

State or Country	County	% of Total	
		1974-75	1979-80
MICHIGAN		0.1	0.1
MINNESOTA		0.1	0.1
NEW JERSEY		<.1	0.1
MISSISSIPPI		0.0	<.1
NEW MEXICO		0.1	<.1
PENNSYLVANIA		0.0	<.1
LOUISIANA		0.3	0.0
OHIO		0.3	0.0
FLORIDA		0.1	0.0
INDIANA		0.1	0.0
IOWA		0.1	0.0
OREGON		0.1	0.0
VIRGINIA		0.1	0.0
WISCONSIN		0.1	0.0
MEXICO		0.1	<.1

Table 55. Total pressure (man-h X 1000 and trips X 1000) by season and strata in lower Laguna Madre (Sept. 1975-76 and Sept. 1979-80).

Strata	Man-h	Trips
Boat Ramp		
1975-76		
High use	545.0	114.7
Low use	339.4	77.4
Annual	884.5	192.1
1979-80		
High use	352.8	64.0
Low use	176.7	34.0
Annual	529.5	98.0
Wade/Bank		
1975-76		
High use	259.9	80.5
Low use	251.8	89.2
Annual	511.7	169.7
1979-80		
High use	254.1	90.6
Low use	492.1	147.9
Annual	746.2	238.5
Lighted Pier		
1975-76		
High use	566.3	117.9
Low use	102.1	25.0
Annual	668.4	142.9
1979-80		
High use	862.3	23.8
Low use	244.3	60.1
Annual	1106.6	83.9

Table 55 (Cont'd.)

---

Strata	Man-h	Trips
<hr/>		
Season Total (all strata combined)		
1975-76		
High use	1371.2	313.1
Low use	693.4	191.6
Annual	2064.6	504.7
1979-80		
High use	1469.2	178.4
Low use	913.1	242.0
Annual	2382.3	420.4

---



Table 56. Total sport harvest (no X 1000) estimated for lower Laguna Madre by season, strata and species (Sept. 1975-Aug. 1976 and Sept. 1979-Aug. 1980).

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other	All <sup>a</sup> species combined
Boat Ramp										
1975-76										
High use	239.8	24.7	10.0	4.1	2.5	11.5	20.2	0.0	14.2	327.0
Low use	106.3	9.6	8.1	1.3	2.1	1.8	2.4	0.0	2.6	134.1
Annual <sup>a</sup>	346.1	34.4	18.1	5.4	4.5	13.3	22.6	0.0	16.8	461.1
1979-80										
High use	165.0	20.2	1.2	13.7	8.3	1.5	8.2	0.1	3.0	221.2
Low use	67.7	8.2	2.8	3.3	29.1	0.3	1.3	0.0	1.9	114.7
Annual <sup>a</sup>	232.8	28.4	4.0	17.0	37.5	1.7	10.0	0.1	4.9	335.9
Wade/Bank										
1975-76										
High use	5.5	2.8	3.6	1.2	1.4	20.4	0.3	0.0	14.9	50.0
Low use	3.9	2.0	6.2	0.0	0.8	3.9	9.5	0.0	3.3	29.6
Annual <sup>a</sup>	9.4	4.8	9.8	1.2	2.2	24.3	9.7	0.0	18.1	79.5
1979-80										
High use	20.0	2.7	0.0	0.6	0.3	1.6	0.8	0.0	6.8	32.9
Low use	1.7	0.3	3.5	39.1	3.7	0.2	8.3	0.0	6.6	63.4
Annual <sup>a</sup>	21.7	3.0	3.5	39.6	4.1	1.8	9.1	0.0	13.4	96.3

Table 56. (Cont'd.)

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other	All <sup>a</sup> species combined
Lighted Pier										
1975-76										
High use	380.8	0.0	0.1	2.0	3.2	2.0	227.2	0.4	39.4	655.1
Low use	11.8	0.1	0.9	0.1	0.0	14.9	10.9	0.1	9.8	48.5
Annual <sup>a</sup>	392.7	0.1	1.0	2.1	3.2	16.9	238.1	0.5	49.2	703.7
1979-80										
High use	47.6	5.4	0.0	1.7	0.5	36.2	25.0	0.0	5.9	122.3
Low use	115.0	0.0	0.1	0.1	0.4	0.1	4.9	0.0	3.9	124.4
Annual <sup>a</sup>	162.6	5.4	0.1	1.7	0.9	36.3	30.0	0.0	9.9	246.7
Season Total (all strata combined) <sup>a</sup>										
1975-76										
High use	626.2	27.5	13.6	7.4	7.1	33.9	247.7	0.4	68.5	1032.2
Low use	122.0	11.7	15.2	1.4	2.8	20.6	22.7	0.1	15.7	212.2
Annual	748.1	39.2	28.8	8.8	9.9	54.4	270.4	0.5	84.2	1244.4
1979-80										
High use	232.6	28.3	1.2	16.0	9.2	39.2	34.0	0.1	15.8	376.4
Low use	184.5	8.5	6.4	42.4	33.2	0.6	14.5	0.0	12.5	302.5
Annual	417.1	36.8	7.6	58.4	42.4	39.8	48.5	0.1	28.2	678.9

<sup>a</sup> Due to rounding of numbers, these totals may not equal exactly individual totals.

Table 57. Total sport harvest (kg X 1000) estimated for lower Laguna Madre by season, strata and species (Sept. 1975-Aug. 1976 and Sept. 1979-Aug. 1980)

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other	All <sup>a</sup> species combined
Boat Ramp										
1975-76										
High use	117.5	25.4	8.2	3.2	1.9	3.7	5.6	0.0	14.2	179.7
Low use	61.6	7.9	30.5	0.8	2.4	0.4	0.9	0.0	10.2	114.7
Annual <sup>a</sup>	179.1	33.3	38.7	4.0	4.3	4.1	6.5	0.0	24.4	294.4
1979-80										
High use	79.2	13.7	0.6	10.5	5.4	0.4	2.7	0.1	0.6	113.2
Low use	26.4	4.6	1.4	1.4	17.7	<0.1	0.4	0.0	0.7	52.6
Annual <sup>a</sup>	105.6	18.3	2.0	11.9	23.1	0.4	3.1	0.1	1.3	165.8
Wade/Bank										
1975-76										
High use	2.5	3.1	1.5	1.2	1.0	6.1	0.1	0.0	4.4	19.9
Low use	2.0	1.3	8.6	0.0	0.5	1.1	3.2	0.0	0.8	17.5
Annual <sup>a</sup>	4.5	4.4	10.1	1.2	1.5	7.2	3.3	0.0	5.2	37.4
1979-80										
High use	10.6	2.8	0.0	0.1	0.3	0.3	0.1	0.0	1.0	15.2
Low use	0.9	0.1	8.3	18.7	2.4	<0.1	1.8	0.0	1.3	33.5
Annual <sup>a</sup>	11.5	2.9	8.3	18.8	2.7	0.3	1.9	0.0	2.3	48.7

Table 57.(Cont'd.)

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other	All <sup>a</sup> species combined
Lighted Pier										
1975-76										
High use	167.5	0.0	0.1	1.0	1.0	0.6	54.5	0.1	10.6	235.4
Low use	5.6	0.1	1.9	<0.1	0.0	8.4	2.8	<0.1	3.0	21.8
Annual <sup>a</sup>	173.1	0.1	2.0	1.0	1.0	9.0	57.3	0.1	13.6	257.2
1979-80										
High use	17.1	5.4	0.0	0.8	0.1	7.2	5.0	0.0	1.6	37.2
Low use	36.8	0.0	1.6	0.1	0.5	<0.1	1.0	0.0	1.0	41.0
Annual <sup>a</sup>	53.9	5.4	1.6	0.9	0.6	7.2	6.0	0.0	2.6	78.2
Season Total (all strata combined) <sup>a</sup>										
1975-76										
High use	287.5	28.5	9.8	5.4	3.9	10.4	60.2	0.1	29.2	435.0
Low use	69.2	9.3	41.0	0.8	2.9	9.9	6.9	<0.1	14.0	154.0
Annual	356.7	37.8	50.8	6.2	6.8	20.3	67.1	0.1	43.2	589.0
1979-80										
High use	106.9	21.9	0.6	11.4	5.8	7.9	7.8	0.1	3.2	165.6
Low use	64.1	4.7	11.3	20.2	20.6	1.0	3.2	0.0	3.0	127.1
Annual	171.0	26.6	11.9	31.6	26.4	8.9	11.0	0.1	6.2	292.7

<sup>a</sup> Due to rounding of numbers, these totals may not equal exactly individual totals.

Table 58. Species composition (%) of total other fishes caught by sport fisherman by strata in lower Laguna Madre (Sept. 1979-Aug. 1980).

Species	Boat %	Wade/Bank %	Lighted Pier %
<u>Menticirrhus</u> sp.	48	56	67
<u>Elops saurus</u>	1	1	1
<u>Scomberomorus maculatus</u>	9	0	0
<u>Lepisosteus spatula</u>	9	0	0
<u>Orthoristis chrysoptera</u>	7	4	10
<u>Trachinotus carolinus</u>	7	1	0
<u>Bagre marinus</u>	7	0	0
<u>Lobotes surinamensis</u>	4	0	0
<u>Bairdiella chrysur</u>	4	0	2
<u>Scomberomorus cavalla</u>	4	0	0
<u>Arius felis</u>	0	1	1
<u>Prionotus tribulus</u>	0	1	0
<u>Tilapia</u> sp.	0	1	0
<u>Lagodon rhomboides</u>	0	26	5
<u>Paralichthys albigutta</u>	0	1	0
<u>Eucinostomus gula</u>	0	4	11
<u>Chaetodipterus faber</u>	0	3	0
<u>Pomatomus saltatrix</u>	0	1	0
<u>Sphyrna</u> sp.	0	0	3

Table 59. Total sport harvest (no/man-h) estimated for lower Laguna Madre by season, strata and species (Sept. 1975-Aug. 1976 and Sept. 1979-Aug. 1980).

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other	All <sup>a</sup> species combined
Boat Ramp										
1975-76										
High use	0.44	0.04	0.02	0.01	0.01	0.02	0.04	0.00	0.03	0.60
Low use	0.31	0.03	0.02	<.01	0.01	0.01	0.01	0.00	0.01	0.40
Annual <sup>a</sup>	0.39	0.04	0.02	0.01	0.01	0.02	0.03	0.00	0.02	0.52
1979-80										
High use	0.47	0.06	<.01	0.04	0.02	<.01	0.02	0.00	0.01	0.62
Low use	0.38	0.05	0.02	0.02	0.17	<.01	0.01	0.00	0.01	0.65
Annual <sup>a</sup>	0.44	0.05	0.01	0.03	0.07	<.01	0.02	0.00	0.01	0.63
Wade/Bank										
1975-76										
High use	0.02	0.01	0.01	0.01	0.01	0.08	<.01	0.00	0.06	0.19
Low use	0.02	0.01	0.03	0.00	<.01	0.02	0.04	0.00	0.01	0.12
Annual <sup>a</sup>	0.02	0.01	0.02	<.01	<.01	0.05	0.02	0.00	0.04	0.16
1979-80										
High use	0.08	0.01	0.00	<.01	<.01	0.01	<.01	0.00	0.03	0.13
Low use	<.01	<.01	0.01	0.08	0.01	<.01	0.02	0.00	0.01	0.13
Annual <sup>a</sup>	0.03	<.01	0.01	0.05	0.01	<.01	0.01	0.00	0.02	0.13

Table 59. (Cont'd.)

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other	All species combined <sup>a</sup>
Lighted Pier										
1975-76										
High use	0.67	0.00	0.00	<.01	<.01	0.01	0.40	<.01	0.07	1.16
Low use	0.12	<.01	0.01	<.01	0.00	0.15	0.11	<.01	0.10	0.48
Annual <sup>a</sup>	0.59	<.01	<.01	<.01	<.01	0.03	0.36	<.01	0.07	1.05
1979-80										
High use	0.01	0.01	0.00	<.01	<.01	0.04	0.03	0.00	0.01	0.14
Low use	0.47	0.00	<.01	0.00	<.01	0.00	0.02	0.00	0.02	0.51
Annual <sup>a</sup>	0.15	0.01	<.01	<.01	<.01	0.03	0.03	0.00	0.01	0.22
Season Total (all strata combined) <sup>a</sup>										
1975-76										
High use	0.46	0.02	0.01	0.01	0.01	0.03	0.18	0.00	0.05	0.75
Low use	0.18	0.02	0.02	<.01	<.01	0.03	0.03	0.00	0.02	0.31
Annual	0.36	0.02	0.01	<.01	0.01	0.03	0.13	0.00	0.04	0.60
1979-80										
High use	0.16	0.02	<.01	0.01	0.01	0.03	0.02	0.00	0.01	0.26
Low use	0.20	0.01	0.01	0.05	0.04	<.01	0.02	0.00	0.01	0.33
Annual	0.18	0.02	<.01	0.03	0.02	0.02	0.02	0.00	0.01	0.29

<sup>a</sup> Due to rounding of numbers, these totals may not equal exactly individual totals.

Table 60. Mean weight (kg) of sport caught finfish by season, strata and species in lower Laguna Madre (Sept. 1975-Aug. 1976 and Sept. 1979-Aug. 1980). Blanks = no fish weighed.

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other
Boat Ramp									
1975-76									
High use	0.49	1.03	0.82	0.79	0.76	0.33	0.28		1.00
Low use	0.58	0.83	3.77	0.64	1.18	0.23	0.39		3.93
Annual	0.52	0.90	3.04	0.72	1.11	0.28	0.30		1.84
1979-80									
High use	0.48	0.68	0.58	0.77	0.66	0.27	0.33		0.21
Low use	0.39	0.57	0.50	0.43	0.61	0.21	0.33		0.37
Annual	0.46	0.64	0.51	0.72	0.62	0.26	0.33		0.28
Wade/Bank									
1975-76									
High use	0.47	1.13	0.42	1.07	0.72	0.30	0.30		0.30
Low use	0.53	0.68	1.40		0.69	0.29	0.34		0.27
Annual	0.48	1.04	1.20		0.71	0.29	0.33		0.28
1979-80									
High use	0.53	1.07		0.30	1.13	0.22	0.20		0.15
Low use	0.56	0.60	2.39	0.48	0.67	0.30	0.22		0.21
Annual	0.53	1.00		0.47	0.70	0.23	0.21		0.17



Table 60. (Cont'd).

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other
Lighted Pier									
1975-76									
High use	0.44	0.00	1.55	0.51	0.34	0.33	0.24	0.28	0.27
Low use	0.48	1.70	2.12	0.30		0.57	0.26	0.70	0.31
Annual	0.46	1.70	2.08	0.34		0.47	0.25	0.49	0.28
1979-80									
High use	0.36	1.00		0.49	0.35	0.20	0.20		0.28
Low use	0.32	0.00	16.30	0.85	1.26	0.25	0.21		0.26
Annual	0.35			0.54	0.87	0.20	0.20		0.27
Season Total (all strata combined)									
1975-76									
High use	0.47	1.06	0.72	0.77	0.59	0.31	0.25	0.28	0.31
Low use	0.52	0.83	2.75	0.50	1.12	0.31	0.27	0.70	0.41
Annual	0.49	0.93	2.33	0.62	0.88	0.31	0.26	0.49	0.35
1979-80									
High use	0.46	0.78	0.58	0.74	0.67	0.21	0.28		0.19
Low use	0.38	0.57	1.60	0.47	0.63	0.26	0.23		0.25
Annual	0.45	0.72	1.50	0.62	0.64	0.21	0.27		0.21

Table 61. Mean length (mm) of sport caught finfish by season, strata and species in lower Laguna Madre (Sept. 1975-Aug. 1976 and Sept. 1979-Aug. 1980).  
Blanks = no fish measured.

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other
Boat Ramp									
1975-76									
High use									
Low use									
Annual									
1979-80									
High use	367	405	437	414	322	280	285		
Low use	350	382	299	329	323	250	346		
Annual	359	388	306	361	323	270	307		
Wade/Bank									
1975-76									
High use									
Low use									
Annual									
1979-80									
High use	329	445		308	220	265	285		
Low use	328			353	350	200	271		
Annual	328	445		330	307	233	273		

Table 61. (Cont'd).

Strata	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other
Lighted Pier									
1975-76									
High use									
Low use									
Annual									
1979-80									
High use	332	408		305	433	281	252		273
Low use	321		1030	273	306	260	265		312
Annual	327	408	1030	280	331	278	262		308
Season Total (all strata combined)									
1975-76									
High use									
Low use									
Annual	352	434	466	364	315	250	258		
1979-80									
High use	361	407	437	400	334	280	262		
Low use	346	382	313	322	322	248	273		
Annual	354	389	319	351	323	272	271		

Table 62. Percent of fishermen use and percent success by bait type in lower Laguna Madre (Sept. 1975-Aug. 1976 and Sept. 1979-Aug. 1980).

Bait	% of fishermen using bait type	% success by bait type
1975-76		
Live shrimp	34	65
Dead shrimp	31	42
Artificial	25	76
Other	10	37
1979-80		
Live shrimp	35	61
Dead shrimp	30	39
Artificial	15	84
Other	20	56

Table 63. Origin of sport anglers in lower Laguna Madre (Sept. 1975-Aug. 1976 and Sept. 1979-Aug. 1980).

State or Country	County	% of Total	
		1975-76	1979-80
TEXAS		88.9	90.9
	Cameron	40.9	49.6
	Hidalgo	38.5	28.5
	Willacy	9.9	6.6
	Bexar	3.6	3.4
	Harris	1.6	2.3
	Dallas	0.5	1.6
	Houston	1.0	1.1
	Tarrant	0.7	1.0
	Starr	0.2	0.6
	Austin	0.2	0.5
	Brazos	0.0	0.4
	Lubbock	0.5	0.3
	McCulloch	0.2	0.3
	Midland	0.4	0.2
	Terrell	0.0	0.2
	Denton	0.0	0.2
	Kendall	0.0	0.2
	Dawson	0.0	0.2
	Harrison	0.0	0.2
	Swisher	0.0	0.2
	Travis	0.0	0.2
	Nueces	0.0	0.2
	Ft. Bend	0.0	0.1
	Bell	0.1	0.1
	Maverick	0.0	0.1
	El Paso	0.2	0.1
	Fayette	0.0	0.1
	Bastrop	0.0	0.1
	Polk	0.0	0.1
	Victoria	0.0	0.1
	Cass	0.0	0.1
	Navarro	0.2	0.1
	Crane	0.2	0.1
	Kerr	0.0	0.1
	Montgomery	0.0	0.1
	Potter	0.0	0.1
	Comal	0.0	0.1
	Jefferson	0.0	0.1
	Hays	0.0	0.1
	Trinity	0.0	0.1
	Hood	0.2	0.1

Table 63. (Cont'd).

State or Country	County	% of Total	
		1975-76	1979-80
OKLAHOMA		0.6	1.5
MICHIGAN		0.3	0.7
NEBRASKA		0.1	0.4
ILLINOIS		0.9	0.3
NEW YORK		0.1	0.3
KANSAS		1.1	0.3
SOUTH DAKOTA		0.1	0.2
MISSOURI		0.6	0.2
IOWA		0.4	0.2
MINNESOTA		0.7	0.1
WISCONSIN		0.2	0.1
CALIFORNIA		0.4	0.1
COLORADO		0.5	0.2
OREGON		0.1	0.1
VIRGINIA		0.0	0.1
WYOMING		0.0	0.1
ARKANSAS		0.1	0.2
INDIANA		0.3	0.0
LOUISIANA		0.1	0.3
ARIZONA		0.3	0.0
KENTUCKY		0.1	0.0
PENNSYLVANIA		0.2	0.0
NEW MEXICO		0.5	0.0
OHIO		0.5	0.0
MISSISSIPPI		0.1	0.0
NORTH CAROLINA		0.1	0.0
MEXICO		1.6	3.7
CANADA		0.3	0.0

Table 64. Total coastwide pressure (man-h X 1000) and total trips (no. X 1000) by season and strata (Sept. 1974-Aug. 1976 and Sept. 1979-Aug. 1980).

Season	Man-h	Trips
High use		
1974-75 and 1975-76		
Boat ramp	4599.1	953.8
Wade/Bank	3446.7	1250.3
Lighted pier	1649.0	447.1
Season total	9694.9	2651.2
1979-80		
Boat ramp	3937.5	774.5
Wade/Bank	1558.7	579.4
Lighted pier	1609.0	357.4
Season total	7105.2	1711.3
Low use		
1974-75 and 1975-76		
Boat ramp	2295.6	555.6
Wade/Bank	2003.1	900.1
Lighted pier	1067.6	278.5
Season total	5366.2	1734.2
1979-80		
Boat ramp	1351.2	284.4
Wade/Bank	1290.4	628.7
Lighted pier	615.9	212.2
Season total	3257.5	1125.3
Annual		
1974-75 and 1975-76		
Boat ramp	6894.7	1509.4
Wade/Bank	5449.8	2150.4
Lighted Pier	2716.5	725.6
GRAND TOTAL	15061.1	4385.4
1979-80		
Boat ramp	5288.7	1058.9
Wade/Bank	2849.2	1208.1
Lighted Pier	2224.9	569.6
GRAND TOTAL	10362.7	2836.6

Table 65. Total coastwide sport harvest (no X 1000) by season, species and strata (Sept. 1974-Aug. 1976 and Sept. 1979-Aug. 1980).

Season	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other	All species combined <sup>a</sup>
<b>High use</b>										
1974-75 and 1975-76										
Boat ramp	2098.6	122.9	95.5	64.4	55.9	1072.5	764.7	93.0	183.2	4550.7
Wade/bank	156.2	65.6	137.3	33.5	33.6	384.1	56.2	4.2	250.9	1121.6
Lighted pier	514.3	2.4	43.1	16.9	5.1	117.1	383.6	9.6	176.6	1268.8
Season total <sup>a</sup>	2769.1	140.9	275.9	114.8	94.6	1573.7	1204.5	106.8	610.7	6941.0
1979-80										
Boat ramp	699.5	123.1	64.2	267.1	61.2	454.1	395.2	7.7	139.3	2211.4
Wade/bank	116.7	30.5	38.1	26.9	4.8	139.8	29.5	0.1	80.5	466.9
Lighted pier	120.3	8.8	2.9	11.0	4.9	123.7	78.0	2.1	65.1	416.7
Season total <sup>a</sup>	936.5	162.5	105.1	304.9	70.9	717.6	502.6	10.0	284.9	3095.0
<b>Low use</b>										
1974-75 and 1975-76										
Boat ramp	721.7	94.8	49.8	98.7	82.2	246.2	309.2	25.3	94.5	1722.5
Wade/bank	157.1	28.1	85.7	38.7	66.6	176.5	100.5	0.3	69.5	892.6
Lighted pier	164.3	4.1	26.8	4.0	1.1	51.5	41.1	5.1	47.5	345.5
Season total <sup>a</sup>	1043.1	127.1	162.2	141.4	150.0	474.3	450.8	30.7	211.5	2791.0
1979-80										
Boat ramp	244.6	53.2	23.6	210.1	111.3	26.0	28.7	4.4	57.1	759.1
Wade/bank	73.4	24.9	37.6	78.1	23.4	45.0	28.5	5.7	45.3	361.9
Lighted pier	158.4	2.6	10.3	1.4	3.4	20.1	14.7	1.3	9.1	221.2
Season total <sup>a</sup>	476.4	80.8	71.5	289.5	138.2	91.0	71.9	11.3	111.4	1342.2



Table 65. (Cont'd).

Season	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other	All <sup>a</sup> species combined
Annual <sup>a</sup>										
1974-75 and 1975-76										
Boat ramp	2820.3	217.7	145.3	163.1	138.1	1318.7	1073.9	118.3	277.7	6273.1
Wade/bank	313.3	93.7	223.0	72.2	100.3	560.6	156.7	4.5	320.4	1844.6
Lighted pier	678.7	6.5	70.0	20.9	6.2	168.6	424.6	14.7	224.1	1614.2
GRAND TOTAL	3812.2	317.9	438.1	256.2	244.5	2047.9	1655.2	137.5	822.2	9731.9
1979-80										
Boat ramp	944.2	176.4	87.8	477.2	172.5	480.1	423.9	12.1	196.4	2970.5
Wade/bank	190.1	55.5	75.7	104.9	28.2	184.8	58.0	5.8	125.8	828.8
Lighted pier	278.7	11.4	13.2	12.4	8.3	143.7	92.7	3.4	74.1	637.9
GRAND TOTAL	1412.9	243.3	176.7	594.5	209.0	808.6	574.6	21.3	396.4	4437.2

<sup>a</sup>Due to rounding of numbers these totals may not exactly equal individual totals.

Table 66. Total coastwide sport harvest (kg X 1000) by season, species and strata (Sept. 1974-Aug. 1976 and Sept. 1979-Aug. 1980).

Season	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other	All species combined
High use										
1974-75 and 1975-76										
Boat ramp	1070.3	132.7	68.8	50.2	33.6	214.5	214.1	95.8	66.0	1946.0
Wade/bank	75.0	55.8	48.1	20.1	28.6	80.7	26.4	2.7	80.3	417.7
Lighted pier	195.3	1.6	23.7	9.3	2.1	29.3	88.2	10.6	35.3	395.4
Season total <sup>a</sup>	1340.6	190.1	140.6	79.6	64.3	324.5	328.7	109.1	181.6	2759.1
1979-80										
Boat ramp	321.8	107.1	26.3	152.3	40.4	95.4	83.0	7.5	39.0	872.8
Wade/bank	58.4	19.2	12.6	12.1	3.9	26.6	6.8	0.1	11.3	151.0
Lighted pier	42.1	11.3	5.3	5.0	3.2	21.0	15.6	2.6	9.1	115.2
Season total <sup>a</sup>	422.3	137.6	44.2	169.4	47.5	143.0	105.4	10.2	59.4	1139.0
Low use										
1974-75 and 1975-76										
Boat ramp	375.3	79.6	126.5	51.3	57.5	46.8	89.7	40.2	36.9	903.8
Wade/bank	86.4	25.9	52.3	22.5	26.6	37.1	41.2	0.7	15.3	308.0
Lighted pier	73.9	8.1	53.6	1.6	0.7	12.9	10.7	5.8	13.3	180.6
Season total <sup>a</sup>	535.6	113.6	232.4	75.4	84.8	96.8	141.6	46.7	65.5	1392.4
1979-80										
Boat ramp	124.8	34.1	34.2	100.9	83.5	3.4	7.8	7.2	12.6	408.5
Wade/bank	49.9	14.7	32.7	67.2	18.7	5.0	9.1	7.2	10.4	214.9
Lighted pier	58.6	1.5	14.2	1.0	1.9	4.4	4.1	1.4	2.2	89.3
Season total <sup>a</sup>	233.3	50.3	81.1	169.1	104.1	12.8	21.0	15.8	25.2	712.7

Table 66. (Cont'd).

Season	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other	All <sup>a</sup> species combined
Annual <sup>a</sup>										
1974-75 and 1975-76										
Boat ramp	1445.6	212.3	195.3	101.5	91.1	261.3	303.8	136.0	102.9	2849.8
Wade/bank	161.4	81.7	100.4	42.6	55.2	117.8	67.6	3.4	95.6	725.7
Lighted pier	269.2	9.7	77.3	10.9	2.8	42.2	98.9	16.4	48.6	576.0
GRAND TOTAL	1876.2	303.7	373.0	155.0	149.1	421.3	470.3	155.8	247.1	4151.5
1979-80										
Boat ramp	446.6	141.2	60.5	253.2	123.9	98.8	90.8	14.7	51.6	1281.3
Wade/bank	108.3	33.9	45.3	79.3	22.6	31.6	15.9	7.3	21.7	365.9
Lighted pier	100.7	12.8	19.5	6.0	5.1	25.4	19.7	4.0	11.3	204.5
GRAND TOTAL	655.6	187.9	125.3	338.5	151.6	155.8	126.4	26.0	84.6	1851.7

<sup>a</sup>Due to rounding of numbers these totals may not exactly equal individual totals.

Table 67. Total coastwide sport harvest (no/man-h) by season, species and strata (Sept. 1974-Aug. 1976 and Sept. 1979-Aug. 1980).

Season	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other	All species combined
High use										
1974-75 and 1975-76										
Boat ramp	0.46	0.03	0.02	0.01	0.01	0.23	0.17	0.02	0.04	0.99
Wade/bank	0.05	0.02	0.04	0.01	0.01	0.11	0.02	<.01	0.07	0.33
Lighted pier	0.31	<.01	0.03	0.01	<.01	0.07	0.23	<.01	0.11	0.77
Season total <sup>a</sup>	0.29	0.02	0.03	0.01	0.01	0.16	0.12	0.01	0.06	0.71
1979-80										
Boat ramp	0.18	0.03	0.02	0.07	0.02	0.12	0.10	<.01	0.04	0.56
Wade/bank	0.08	0.02	0.02	0.02	<.01	0.09	0.02	0.00	0.05	0.30
Lighted pier	0.08	0.01	<.01	0.01	<.01	0.08	0.05	<.01	0.04	0.26
Season total <sup>a</sup>	0.13	0.02	0.02	0.04	0.01	0.10	0.07	<.01	0.04	0.44
Low use										
1974-75 and 1975-76										
Boat ramp	0.31	0.04	0.02	0.04	0.04	0.11	0.14	0.01	0.04	0.75
Wade/bank	0.07	0.01	0.04	0.02	0.03	0.09	0.05	0.00	0.04	0.36
Lighted pier	0.15	<.01	0.03	<.01	<.01	0.05	0.04	0.01	0.04	0.32
Season total <sup>a</sup>	0.19	0.02	0.03	0.03	0.03	0.09	0.08	0.01	0.04	0.52
1979-80										
Boat ramp	0.18	0.04	0.03	0.02	0.02	0.13	0.06	<.01	0.03	0.50
Wade/bank	0.06	0.02	0.03	0.06	0.02	0.04	0.02	<.01	0.04	0.28
Lighted pier	0.26	<.01	0.02	<.01	0.01	0.03	0.02	<.01	0.02	0.36
Season total <sup>a</sup>	0.15	0.03	0.02	0.09	0.04	0.03	0.02	<.01	0.03	0.34

Table 67. (Cont'd).

Season	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other	Alla species combined
Annual <sup>a</sup>										
1974-75 and 1975-76										
Boat ramp	0.40	0.03	0.02	0.02	0.02	0.19	0.16	0.02	0.04	0.91
Wade/bank	0.06	0.02	0.04	0.01	0.02	0.10	0.03	<.01	0.06	0.34
Lighted pier	0.25	<.01	0.03	0.01	<.01	0.06	0.16	0.01	0.08	0.59
GRAND TOTAL	0.25	0.02	0.03	0.02	0.02	0.14	0.11	0.01	0.06	0.65
1979-80										
Boat ramp	0.18	0.03	0.02	0.09	0.03	0.09	0.08	<.01	0.04	0.56
Wade/bank	0.07	0.02	0.03	0.04	0.01	0.07	0.02	<.01	0.04	0.30
Lighted pier	0.13	0.01	0.01	0.01	<.01	0.07	0.04	<.01	0.03	0.29
GRAND TOTAL	0.14	0.02	0.02	0.06	0.02	0.07	0.06	<.01	0.04	0.43

<sup>a</sup>Due to rounding of numbers these totals may not exactly equal individual totals.

Table 68. Total coastwide mean weight (kg) by season, species and strata (Sept. 1974-Aug. 1976 and Sept. 1979-Aug. 1980).

Season	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other
High use									
1974-75 and 1975-76									
Boat ramp	0.51	1.08	0.72	0.78	0.78	0.20	0.28	1.03	0.36
Wade/bank	0.48	0.85	0.35	0.60	0.85	0.21	0.47	0.65	0.32
Lighted pier	0.38	0.67	0.55	0.55	0.42	0.25	0.23	1.10	0.20
Season mean	0.49	1.00	0.48	0.70	0.80	0.21	0.28	1.02	0.28
1979-80									
Boat ramp	0.46	0.87	0.41	0.57	0.66	0.21	0.21	0.97	0.28
Wade/bank	0.50	0.63	0.33	0.45	0.82	0.19	0.23	0.50	0.14
Lighted pier	0.35	1.28	1.81	0.45	0.66	0.17	0.20	1.22	0.14
Season mean	0.42	0.84	0.43	0.55	0.67	0.20	0.21	0.99	0.21
Low use									
1974-75 and 1975-76									
Boat ramp	0.52	0.84	2.54	0.52	0.70	0.19	0.29	1.59	0.39
Wade/bank	0.55	0.92	0.61	0.58	0.40	0.21	0.41	2.15	0.22
Lighted pier	0.45	1.98	2.00	0.41	0.61	0.25	0.26	1.13	0.28
Season mean	0.51	0.87	1.43	0.54	0.62	0.20	0.29	1.56	0.30
1979-80									
Boat ramp	0.51	0.64	1.45	0.48	0.75	0.13	0.27	1.63	0.22
Wade/bank	0.68	0.59	0.87	0.86	0.80	0.11	0.32	1.27	0.23
Lighted pier	0.37	0.58	1.38	0.70	0.67	0.22	0.28	1.07	0.24
Season mean	0.52	0.63	1.23	0.65	0.76	0.15	0.28	1.39	0.22

Table 68. (Cont'd).

Season	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish	Other
Annual									
1974-75 and 1975-76									
Boat ramp	0.51	0.98	1.49	0.63	0.74	0.20	0.28	1.19	0.37
Wade/bank	0.50	0.87	0.44	0.59	0.71	0.21	0.44	0.75	0.29
Lighted pier	0.41	1.22	1.08	0.51	0.53	0.25	0.25	1.11	0.22
GRAND MEAN	0.50	0.95	0.84	0.61	0.72	0.21	0.28	1.18	0.29
1979-80									
Boat ramp	0.47	0.79	0.66	0.55	0.72	0.20	0.22	1.10	0.25
Wade/bank	0.56	0.62	0.52	0.72	0.80	0.17	0.27	1.24	0.17
Lighted pier	0.35	1.06	1.47	0.48	0.67	0.18	0.21	1.16	0.15
GRAND MEAN	0.45	0.77	0.69	0.58	0.73	0.19	0.22	1.13	0.21

Table 69. Total coastwide mean length (mm) by season, species and strata (Sept. 1974-Aug. 1976 and Sept. 1979-Aug. 1980). Blanks = no data

Season	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish
High use								
1974-75 and 1975-76								
Boat ramp								
Wade/bank								
Lighted pier								
Season mean								
1979-80								
Boat ramp	367	434	311	353	342	248	269	504
Wade/bank	366	387	300	312	299	235	275	369
Lighted pier	336	448	349	334	310	236	250	414
Season mean	356	425	309	348	337	243	266	490
Low use								
1974-75 and 1975-76								
Boat ramp								
Wade/bank								
Lighted pier								
Season mean								
1979-80								
Boat ramp	368	403	395	329	318	241	274	536
Wade/bank	410	384	266	359	351	205	303	464
Lighted pier	343	386	465	328	311	251	290	457
Season mean	371	398	367	342	324	233	281	492

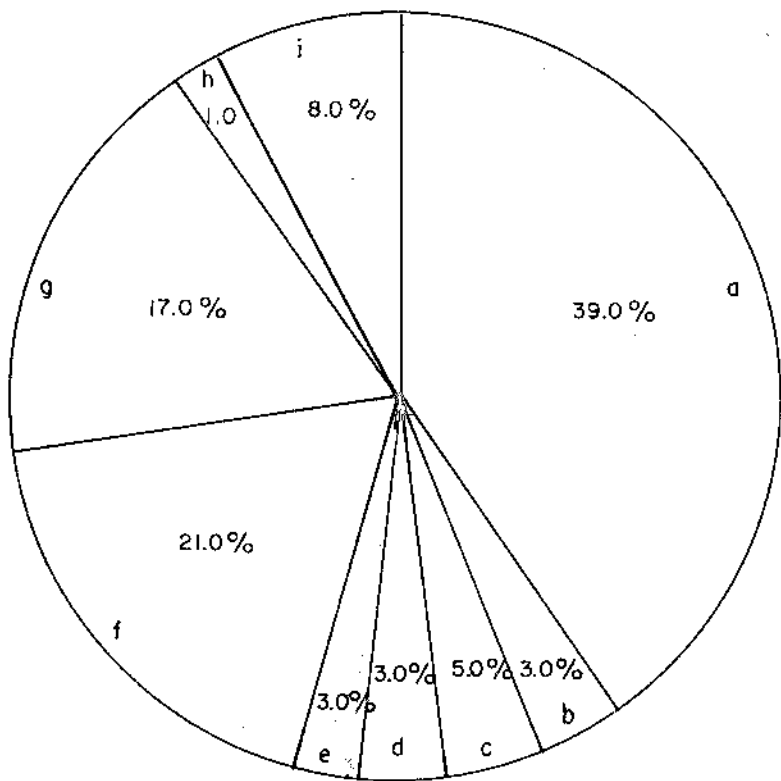


Table 69. (Cont'd).

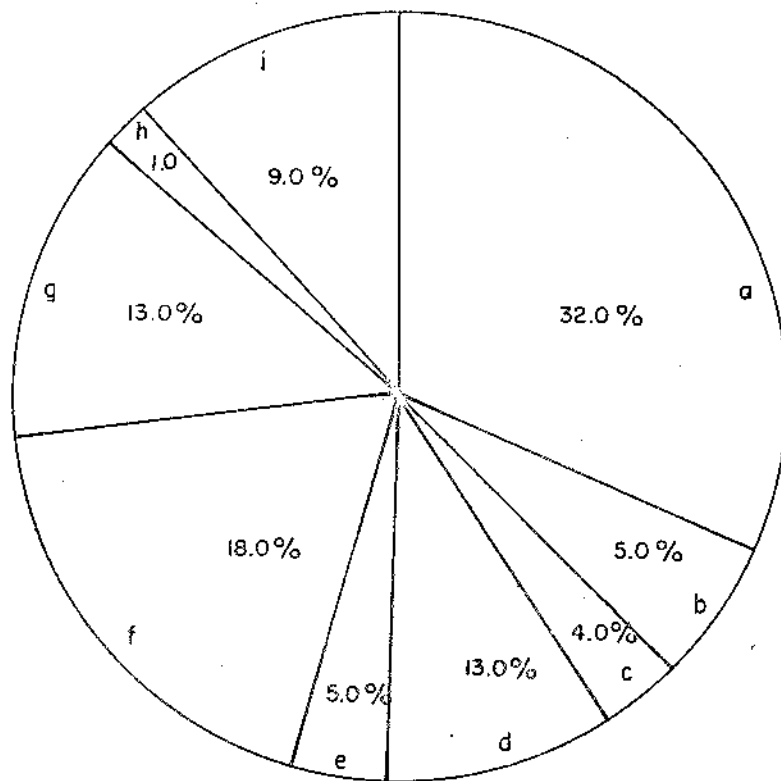
Season	Spotted seatrout	Red drum	Black drum	Southern flounder	Sheepshead	Atlantic croaker	Sand seatrout	Gafftopsail catfish
Annual								
1974-75 and 1975-76								
Boat ramp								
Wade/bank								
Lighted pier								
GRAND MEAN	352	425	323	368	281	241	281	464
1979-80								
Boat ramp	367	424	331	347	327	247	270	511
Wade/bank	381	386	288	343	343	228	288	461
Lighted pier	336	429	440	333	311	239	255	428
GRAND MEAN	356	416	328	346	329	241	269	491

Table 70. Percent of fishermen use and percent success by bait type in Texas bay systems (Sept. 1974-Aug. 1976 and Sept. 1979-Aug. 1980).

	Galveston Bay	Matagorda Bay	San Antonio Bay	Aransas Bay	Corpus Christi Bay	Upper Laguna Madre	Lower Laguna Madre
Fishermen Use							
1974-75 and 1975-76							
Live shrimp	33	34	45	22	25	31	34
Dead shrimp	59	31	17	44	57	56	31
Artificial	3	10	33	24	8	10	25
Other	5	25	5	10	10	3	10
1979-80							
Live shrimp	34	19	35	19	23	40	35
Dead shrimp	54	53	24	41	53	41	30
Artificial	3	20	27	23	10	7	15
Other	9	8	14	16	14	12	20
Fishermen Success							
1974-75 and 1975-76							
Live shrimp	60	65	70	61	69	67	65
Dead shrimp	36	42	61	24	40	40	42
Artificial	39	37	71	45	52	57	76
Other	38	76	79	35	36	55	37
1979-80							
Live shrimp	56	59	66	49	65	65	61
Dead shrimp	42	28	45	26	40	35	39
Artificial	46	48	65	58	55	49	84
Other	41	39	56	32	41	57	56



NUMBER (1974 - 1976)



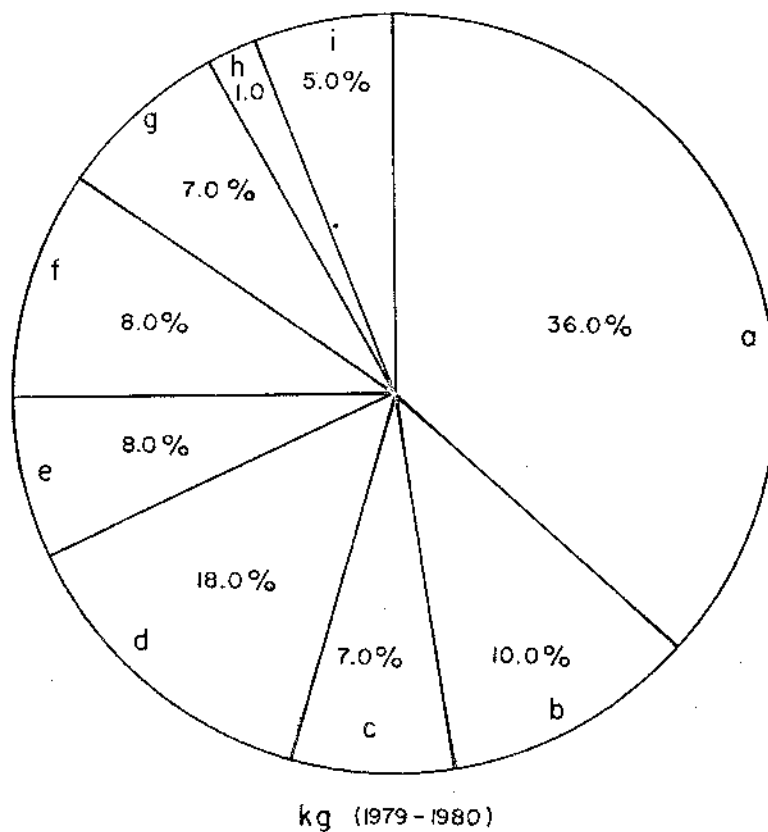
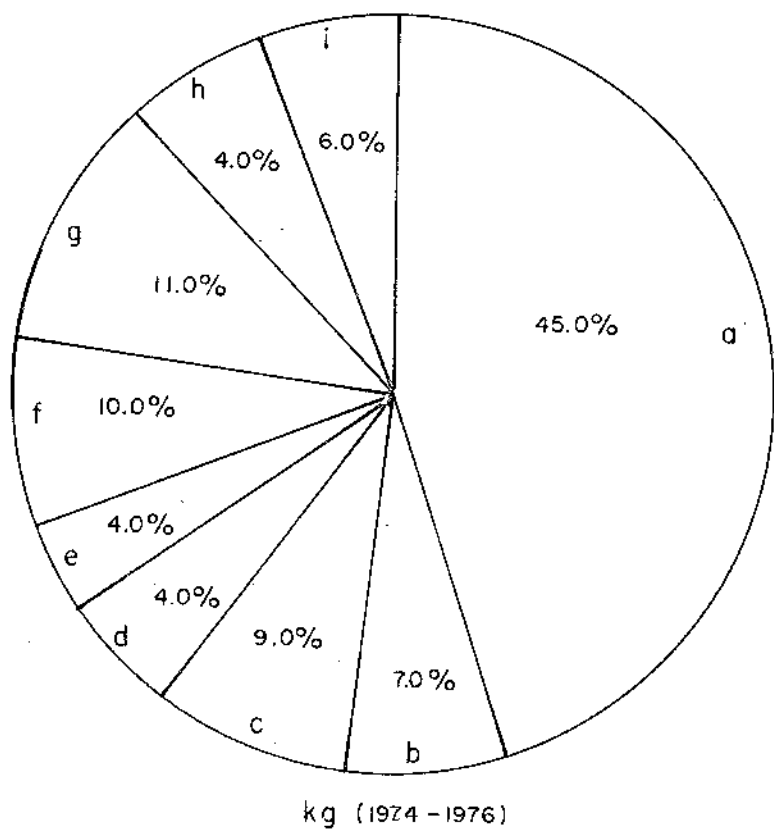
NUMBER (1979 - 1980)

a SPOTTED SEATROUT  
 b RED DRUM  
 c BLACK DRUM

d SOUTHERN FLOUNDER  
 e SHEEPSHEAD  
 f ATLANTIC CROAKER

g SAND SEATROUT  
 h GAFFTOPSAIL CATFISH  
 i OTHER

Figure 1. Catch composition of finfish caught by sportfishermen in Texas bay waters by percent of annual total number harvested (September 1974-August 1976 and September 1979-August 1980).



a SPOTTED SEATROUT  
 b RED DRUM  
 c BLACK DRUM

d SOUTHERN FLOUNDER  
 e SHEEPSHEAD  
 f ATLANTIC CROAKER

g SAND SEATROUT  
 h GAFFTOPSAIL CATFISH  
 i OTHER

Figure 2. Catch composition of finfish caught by sportfishermen in Texas bay waters by percent of annual total weight harvested (September 1974-August 1976 and September 1979-August 1980).

Appendix A. Boat ramp, wade/bank and lighted pier access points.

Table 1. Boat ramp access points in each bay system (Sept. 1979-Aug. 1980).

Bay system	Boat ramp <sup>a</sup> code number	Boat ramp identification
Galveston	79	Cotton Lake Park
	2	Woodall's Bait Camp
	3	Crawley's Bait Camp
	77	Will's Bait Camp
	4	Thompson's Bait Camp
	5	Roseland City Park
	6	State Boat Ramp (Tabb's Bay)
	90	San Jacinto Bay Bridge
	7	Morgan's Point Bait Camp
	8	Sylvan Beach
	91	Shoreacres Boat Ramp
	85	Clear Lake Boat Ramp
	9	Oddo's Boat Ramp
	10	State Boat Ramp (Clear Creek Channel
	11	Galveston County Park (Baycliff)
	12	HL&P Galveston County Park
	13	San Leon Marina
	14	Eagle Point Camp
	15	April Fool Point Bait Camp
	87	Cotton's Bait Camp
	16	Marge's Bait Camp
	17	Fiesta Marina
	78	Dickinson Bayou Public Ramp
	18	Sweden's Bait Camp
		Simpson's Bait Camp
	20	Moses Lake Bait Camp
	84	The Fish Spot
	21	Mowle's Bait Camp
	86	Dollar Bait Camp
	22	C. C. Camp
	24	Ritlat's Bait Camp
		Dub's Bait Camp
	25	Curl's Bait Camp
	26	Public Ramp (Texas City Dike)
	27	Public Ramp (Texas City Dike)
	28	Public Ramp (Texas City Dike)
	29	Texas City Dike Marina
	30	State Boat Ramp (Jones Lake)
32	Terry's Lucky 7	
33	Pete's Bait Camp	
34	Louis' Bait Camp	
35	Hall's Bayou Bait Camp	
93	Hall's Bayou Bridge	
38	State Boat Ramp (Chocolate Bayou)	

Table 1. (Cont'd).

Bay system	Boat ramp <sup>a</sup> code number	Boat ramp identification
	37	Lute's Marina
	92	Tiger Marina
	39	Marlin Marina
	40	State Boat Ramp (Bastrop Bayou)
	41	Jack Booth's (Bastrop Marina)
	88	San Luis Pass Subdivision (Drum Bay)
	43	Shell Ramp (Christmas Bay)
	44	K.O.A. Campground
	45	San Luis Pass Shoreline (east side)
	46	San Luis Pass Bait Camp
	47	Bay Harbor subdivision
	48	Terramar Beach subdivision
	49	Sea Isle subdivision
	50	Jamaica Beach Marina
	51	Jamaica Beach Boat Ramp
	53	Pirate's Beach Marina
	54	Pirate's Beach Boat Ramp
	55	Andy's Bait Camp
	56	Galveston County Boat Ramp
	57	Galveston County Park (73rd St.)
	59	Galveston County Park (61st St.)
	59	Newell Marina
	60	M&M Camp
	61	Payco Marina
	62	Pleasure Island Bait Camp
	83	Galveston Yacht Basin
	80	South Galveston Jetty (1st ramp)
		Wilson's Bait Camp
	81	Waddell's Bait Camp
		Best's Bait Camp
	82	North Galveston Jetty Boat Ramp
	63	Jim Reid's Bait Camp
	64	Shirley's Cafeteria and Bait Camp
	66	Robin Seafood Bait Camp
	68	B&P Bait Camp
	70	Stingaree Marina
	72	Rollover Pass Boat Ramp
	89	State Boat Ramp (High Island)
	73	Van-et-un Bait Camp (Smith Point)
		Robbin's Park
	74	Chamber County Ramp
	75	Fort Anahuac Park

Table 1. (Cont'd).

Bay system	Boat ramp <sup>a</sup> code number	Boat ramp identification
Matagorda	1	Capt's Fishing Camp
	2	Port O'Connor Fishing Center
	3	Uncle Bill's (Port O'Connor)
	4	Indianola Fishing Center
	5	Magnolia Boat Ramp
	6	Chocolate Bayou Boat Ramp
	7	Harbor Refuge Boat Ramp
	8	Lavaca Causeway Boat Ramp
	9	Point Comfort Boat Ramp
	10	Olivia Boat Ramp
	11	Crescent V
	12	Last Chance Marina
	29	The Wharf
	13	Turtle Bridge Boat Ramp
	14	The Hill
	15	Palacios Bait Camp
	16	East Bay
	18	Palacios River
	19	River Bend
	27	Bulkhead Marina
	20	Al's
	22	Rawling's
	26	Bailey's
	23	U.F.O. Boat Ramp
	28	Chinquapin Boat Ramp
24	Bill & Effie's	
25	Hanna's	
San Antonio	1	Port O'Connor Fishing Center
	2	Capt's Fishing Camp
	3	Uncle Bill's (Port O'Connor)
	4	Fulgrum's
	5	Swan Point (Seadrift)
	6	Seadrift
	8	Hopper's Landing (Austwell)
Aransas	1	Little Bay
	25	Key Allegro Marina
	26	Key Allegro North Ramp
	2	Fulton Harbor
	24	Sandollar Marina
	27	Raquet Club
3	Copano Causeway	



Table 1. (Cont'd).

Bay system	Boat ramp <sup>a</sup> code number	Boat ramp identification
	4	Sea Gun Marina
	5	Goose Island State Park
	6	St. Charles Marina
	7	Holiday Beach
	8	Joe's Boat Basin
	21	Pouzee's
	9	Klein's (Rattlesnake Pt.)
	18	Port Bay Club
	10	Redfish Camp (Port Bay)
	11	Glenn's Marina (Bayside)
	22	Bayside Public Ramp
	12	Aransas Pass Boat Basin
	13	Louie's Bait Stand
	14	Fin & Feather Marina
	15	Billie & Gene's Bait Camp
	23	Hogan's Bait Camp
	20	Bait Hut
	16	Palm Harbor
	17	Cove Harbor
	19	Rockport Turning Basin
Corpus Christi	1	S. Nueces Causeway
	2	N. Nueces Causeway
	3	Ingleside Cove
	4	Bahia Mar
	5	Channel View Marina
	15	Sun Oil Co.
	7	Aransas Airport
	14	Causeway Bait Stand
	8	Fin & Feather Marina
	12	Port Aransas Public Ramp
	13	Woody's
	9	Wilson's Cut
	10	Oso Bridge Ramp
	11	L-Head Ramp
Upper Laguna Madre	1	Red's Place (Hap's Marina)
	2	Jerry's
	3	Coburn's
	4	Marina Madre
	5	Toll Gate
	6	Whitt's
	7	Fisherman's Folly
	8	Graham's

Table 1. (Cont'd).

Bay system	Boat ramp <sup>a</sup> code number	Boat ramp identification
	9	B. G.'s
	10	Rainbow
	11	Black's
	12	Billing's
	13	P. I. V.
	14	Boat Hole
	15	Naval Ramp
	16	Kaufer Park
	17	Kratz's
	18	Williamson's
	19	Bird Island Basin
Lower Laguna Madre	1	Wiley's
	2	Jim's
	3	Sea Ranch
	4	Jetties
	7	White Sands
	8	San Martin
	9	Laguna Vista
	10	Arroyo Colorado (State Ramp)
	11	Sanchez
	12	Al's Place
	13	Marlin Marina
	14	Port Mansfield (State Ramp)
	15	Redfish
	16	South Padre Marina

<sup>a</sup>boat ramp code numbers that have been deleted from the master list as of September 1979 are not included.

Table 2. Wade/bank access points in each bay system (Sept. 1979-Aug. 1980).

Bay system	Wade/bank <sup>a</sup> code number	Wade/bank identification
Galveston	2	McCollum Park (Trinity Bay)
	67	Woodall's Bait Camp to Crawley's Bait Camp (Trinity Bay)
	6	Ash Point (Trinity Bay)
	68	Cedar Bayou Intake Channel
	69	Roseland Park (Baytown)
	70	State Boat Ramp Area (Tabb's Bay)
	71	Black Duck Bay Bridge (East side of Baytown Tunnel)
	72	San Jacinto Bay Bridge (West side of Baytown Tunnel)
	7	Morgan's Point
	9	Sylvan Beach Park and Pier
	73	Houston Yacht Club to Fairfield Ave.
	99	Taylor Lake Bridge
	11	Seabrook Marina Lab to Meyer Road
	74	Bridge on 2nd St. (Seabrook)
	12	Clear Lake County Park & Pier and Bridge
	13	Clear Lake Cooling Canal
	75	Clear Lake (Upper Bay Road near Balboa Apts.)
	76	Clear Lake (Park at end of Upper Bay Road)
	18	Seabrook Marine Lab to Seabrook Point
	78	Bridge on 10th St. (Seabrook)
	79	Hwy 146 (from NASA Road I to Kemah Bridge)
	19	Clear Creek Channel (Kemah)
	14	Clear Lake (Queen St.)
	15	Clear Lake (Narcissus St.)
	16	Clear Lake (Glen Cove Rd.)
	77	Clear Lake (Bridge near end of Seminole Rd.)
	17	Clear Lake (Lakeside Dr.)
	23	HL&P County Park (Baycliff)
	81	April Fool Point Bait Camp (San Leon)
	82	Marge's Bait Camp (San Leon)
	24	HL&P Outflow Channel (San Leon)
	37	Moses Lake (Ave. 18 & 19)
	34	Texas City Levee (Moses Lake Gate, halfway to Dollar Point)
	35	Texas City Levee (halfway from Dollar Point to Dollar Point)

Table 2. (Cont'd).

Bay system	Wade/bank <sup>a</sup> code number	Wade/bank identification
	36	Texas City Levee (Dollar Point to Dollar Bay Bait Camp)
	38	Texas City Dike (levee to Curl's Bait Camp-0.7 mi.)
	39	Texas City Dike (from Curl's Bait Camp for 0.3 mi.)
	40	Texas City Dike (Next 0.5 mi.)
	41	Texas City Dike (Next 0.5 mi.)
	42	Texas City Dike (Next 0.5 mi.)
	43	Texas City Dike (Next 0.5 mi.)
	44	Texas City Dike (Next 0.5 mi.)
	45	Texas City Dike (Next 0.5 mi.)
	46	Texas City Dike (Next 0.5 mi.)
	47	Texas City Dike (Next 0.5 mi.)
	48	Texas City Dike (Last 0.5 mi. to end of road)
	49	Jones Lake State Boat Ramp area
	83	Highland Bayou (around Pete's and Louis Bait Camp)
	95	Chocolate Bay Boat Ramp area
	66	Drum Bay
	93	Christmas Bay
	63	Cold Pass
	62	San Luis Pass (West side)
	61	San Luis Pass (East side)
	60	West Bay Fishing Camp area
	92	West Bay (San Jacinto Dr. to Concho Key Rd.)
	91	West Bay (Bob Smith Rd.)
	59	West Bay (Sportsman Rd.)
	52	Offatt's Bayou (73rd St. Park)
	51	Offatt's Bayou (61st St. Park)
	50	Offatt's Bayou (61st St. Exit)
	85	Offatt's Bayou (Teichman Rd.)
	84	Interstate 45 Bridge area (81st St.)
	96	Pelican Island (outside Seawolf Park)
	53	Pelican Island (Seawolf Park not including pier)
	56	South Galveston Jetty (end of Seawall Blvd.)
	86	South Galveston Jetty (Seawall Blvd. to small bridge)
	87	South Galveston Jetty (small bridge to Best's ramp)

Table 2. (Cont'd).

Bay system	Wade/bank <sup>a</sup> code number	Wade/bank identification
	97	South Galveston Jetty (Best's ramp to end of paved road)
	55	South Galveston Jetty (Sand Bar in channel)
	88	Bolivar Peninsula (ferry landing)
	57	Bolivar Peninsula (Galveston Channel)
	58	Bolivar Peninsula (entrance to GIWW)
	89	Bolivar Peninsula
	90	Rollover Pass (West side)
	98	Rollover Pass (East side)
	100	Dickinson Bayou (under bridge)
	101	Bastrop Bayou (under bridge on CR 227A)
	102	Pirate's Beach Marina
Matagorda Bay	1	Port O'Connor Beach
	2	Powderhorn Bayou on Hwy 1289
	25	Mouth of Powderhorn Lake
	26	From Mouth of Powderhorn Lake to Blind Bayou
	27	From Blind Bayou to Indian Point
	28	From Indian Point to Magnolia Boat Ramp
	29	Chocolate Bayou Boat Ramp area
	4	Boat refuge area
	24	Port Lavaca Boat Harbor
	5	Southwest end of Causeway
	30	South of Causeway on Northeast end of Causeway
	31	North of Causeway on Northeast end of Causeway
	7	Alcoa Ship Harbor & CPL intake
	8	Olivia park area
	32	South beach of Port Alto
	33	North beach of Port Alto
	10	Crescent V area and Carancahua Bay Bridge
	11	Aplin Point area
	12	Jensen's Point area
	13	Turtle Bayou Bridge area
	14	Palacios Turning Basin (West end)
	15	East Jetty of Palacios Turning Basin to Palacios Bait Camp
	16	Palacios Bait Camp to and including Baptist Camp

Table 2. (Cont'd).

Bay system	Wade/bank <sup>a</sup> code number	Wade/bank identification
	17	East Bay pier to Allan's pier
	18	Grassy Point to yellow windmill
	19	Tres Palacios River
	20	Oyster Lake Mouth
	21	Mouth of Colorado River
	34	From Bailey's to 1/2 way to Parker's Cut on Colorado River
	35	1/2 way to Parker's Cut to Rawling's Bait Camp
	36	Matagorda Swing Bridge on GIWW
	37	UFO Boat Ramp to old Gulf
	22	Chinquapin along GIWW
	23	Caney Swing Bridge to GIWW
San Antonio	1	Port O'Connor Jetty
	4	Fulgum's Boat Ramp area
	5	Swan Point
	6	Seadrift bayfront
	8	Hopper's Landing area
Aransas	20	Old Ferry Landing
	17	End of #20 West to Cumming's Cut
	2	Cumming's Cut to GIWW
	3	Aransas Pass Boat Basin to GIWW
	4	Palm Harbor area
	5	Cove Harbor area
	6	Shell Ridge Road
	7	South Rockport Beach
	19	Rockport harbor bulkhead to Navigation Bldg.
	8	Little Bay
	9	Fulton Beach "A"
	21	Fulton Beach "B"
	18	Tin Can Point
	11	Goose Island to Hail Point
	12	Hail Point to Big Tree area
	13	North Copano Causeway to Newcom Point to Shell Point
	14	South Copano Causeway to Copano T-head
	15	Hannibal Point
	16	Lone Tree Point to Rattlesnake Point
	22	Key Allegro
	23	Redfish Camp

Table 2. (Cont'd).

Bay system	Wade/bank <sup>a</sup> code number	Wade/bank identification
Corpus Christi	1	S. Nueces Causeway
	2	N. Nueces Causeway
	3	Indian Pt. Pier area
	4	Sunset Lake
	39	Portland "A"
	40	Portland "B"
	56	West Portland
	41	Kinney Bayou
	6	Ingleside Cove
	42	McGloin's Bluff
	7	Channelview pier area
	43	Aransas Basin
	8	West Aransas Pass Road
	9	Fin & Feather Boat Ramp area
	51	Cumming's Cut to across from Bait Hut
	52	Bait Hut to Harbor Island
	11	Ferry Landing
	55	Port Aransas Public Ramp wade/bank
	12	Pier west of Federal Lab
	54	Station Street Pier
	53	UT Channel midway down south jetty
	44	Midway down south jetty to surfline
	13	Northwest Fish Pass
	14	Northeast Fish Pass
	15	Southwest Fish Pass
	16	Southeast Fish Pass
	17	Padre Island Bridge
	57	NAS wade/bank
	45	NAS halfway to Oso bridge
	46	Halfway from NAS to Oso bridge
	47	Oso bridge halfway to Oso pier
48	Halfway from Oso bridge up to Oso pier	
20	Oso pier area	
21	Poenish Park	
22	Palmetto Park	
23	Swantner Park	
24	Canta Mar pier area	
25	Doddridge Park	
26	Cole Park south (south of pier)	
27	Cole Park north (north of pier)	
28	Glasscock Fill	
29	South Rocks	
30	L-head and steps to McGee Beach	
31	Middle T-head and steps to L-head	

Table 2. (Cont'd).

Bay system	Wade/bank <sup>a</sup> code number	Wade/bank identification
	32	Peoples St. T-head and steps up to middle T-head
	33	City docks and steps up to Peoples St. T-head
	35	Harbor Bridge
	36	North Beach rocks
	38	Rincon Pt. reef
	49	West side of Indian Pt. to Gunderland Marine
	50	Gunderland Marine to Northeast corner of Nueces Bay
Upper Laguna Madre	4	Padre section
	5	Nueces Park
	6	Packery Channel
	7	Newport Pass
	8	Powerlines
	9	Deadman's Hole
	10	NAS, Corpus Christi
	11	Kaufer Park
	12	Riviera Pier area
	13	End of FM 2510
	14	Bird Island Basin
	15	Humble Bridge North
	16	Humble Bridge South
	17	Humble Bridge to halfway to GIWW North
	18	Humble Bridge to halfway to GIWW South
	19	Halfway to GIWW to GIWW North
	20	Halfway to GIWW to GIWW South
Lower Laguna Madre	1	Andy Bowie Park 1
	2	Andy Bowie Park 2
	3	Andy Bowie Park 3
	4	Andy Bowie Park 4
	5	Andy Bowie Park 5
	6	Padre Island (pier) 1
	7	Padre Island (pier) 2
	8	Padre Island (pier) 3
	9	Padre Island (pier) 4
	10	Padre Island (pier) 5
	43	Palm Bay



Table 2. (Cont'd).

Bay system	Wade/bank <sup>a</sup> code number	Wade/bank identification
	11	Holiday Inn
	12	Queen Isabella Causeway
	13	Coast Guard
	14	Purdy's
	44	Jetty wade/bank
	42	Tarpon Hole
	16	Brownsville Ship Channel 2
	40	Brownsville Ship Channel 6
	41	Brownsville Ship Channel 7
	18	Brownsville Ship Channel 4
	19	Brownsville Ship Channel 5
	20	Laguna Heights
	21	Laguna Vista
	22	Holly Beach
	35	Circle X 1
	36	Circle X 2
	37	Circle X 3
	38	Circle X 4
	39	Circle X 5
	23	Arroyo City 1
	24	Arroyo City 2
	25	Arroyo City 3
	26	Arroyo City 4
	27	Arroyo City 5
	28	Arroyo City 6
	29	Arroyo Colorado East
	30	Arroyo Colorado West
	31	Port Mansfield South
	32	Redfish Motel
	33	Port Mansfield North (pier)
	34	Port Mansfield North

<sup>a</sup>Wade/bank code numbers that have been deleted from the master list as of September 1979 are not included.

Table 3. Commercial bay lighted pier access points in each bay system (Sept. 1979-Aug. 1980).

Bay system	Lighted pier <sup>a</sup> code number	Lighted pier identification
Galveston	1	Eighteenth St. Pier (San Leon)
	2	Eagle Point Pier (San Leon)
	3	4-D International Pier (San Leon)
	4	Texas City Dike Pier
	5	Seawolf Park Pier (Pelican Island)
	6	Bolivar Pier
	7	West Bay Pier
	8	San Luis Pass Pier
Matagorda	1	Lavaca Causeway
	2	Palacios Pavilion
	3	Palacios East Bay Pier
Aransas	1	North Copano Causeway
	2	South Copano Causeway
	3	Goose Island Pier
Corpus Christi	1 <sup>b</sup>	Indian Pt. Pier
	3 <sup>b</sup>	Fin & Feather Pier
	5 <sup>b</sup>	Oso Pier
	6 <sup>b</sup>	Canta Mar Pier
	7 <sup>b</sup>	Cole Park Pier
Upper Laguna Madre	1	Parkers Pier
	2	Whitt's Pier
	3	Snoopy's Pier
	5 <sup>b</sup>	Kaufer Park
	6 <sup>b</sup>	Riviera Pier
	7 <sup>b</sup>	Fisherman's Folly
	Lower Laguna Madre	1 <sup>b</sup>
2 <sup>b</sup>		Padre Island 2
3 <sup>b</sup>		Padre Island 3
4 <sup>b</sup>		Padre Island 4
5 <sup>b</sup>		Padre Island 5
17 <sup>b</sup>		Palm Bay Pier
6 <sup>b</sup>		Queen Isabella Causeway
7 <sup>b</sup>		Purdy's Pier
16 <sup>b</sup>		Tarpon Hole Pier
18 <sup>b</sup>		Circle X 1
19 <sup>b</sup>		Circle X 2
20 <sup>b</sup>		Circle X 3

Table 3. (Cont'd).

Bay system	Lighted pier <sup>a</sup> code number	Lighted pier identification
	21 <sup>b</sup>	Circle X 4
	22 <sup>b</sup>	Circle X 5
	8 <sup>b</sup>	Arroyo City 1
	9 <sup>b</sup>	Arroyo City 2
	10 <sup>b</sup>	Arroyo City 3
	11 <sup>b</sup>	Arroyo City 4
	12 <sup>b</sup>	Arroyo City 5
	13 <sup>b</sup>	Arroyo City 6
	14 <sup>b</sup>	Redfish Motel Pier
	15 <sup>b</sup>	Port Mansfield North (pier)

<sup>a</sup>Lighted pier code numbers that have been deleted from the master list as of September 1979 are not included.

<sup>b</sup>Pier was destroyed by Hurricane Allen on 10 August.

Appendix B. Area maps of boat ramps, wade/bank and lighted pier access points.

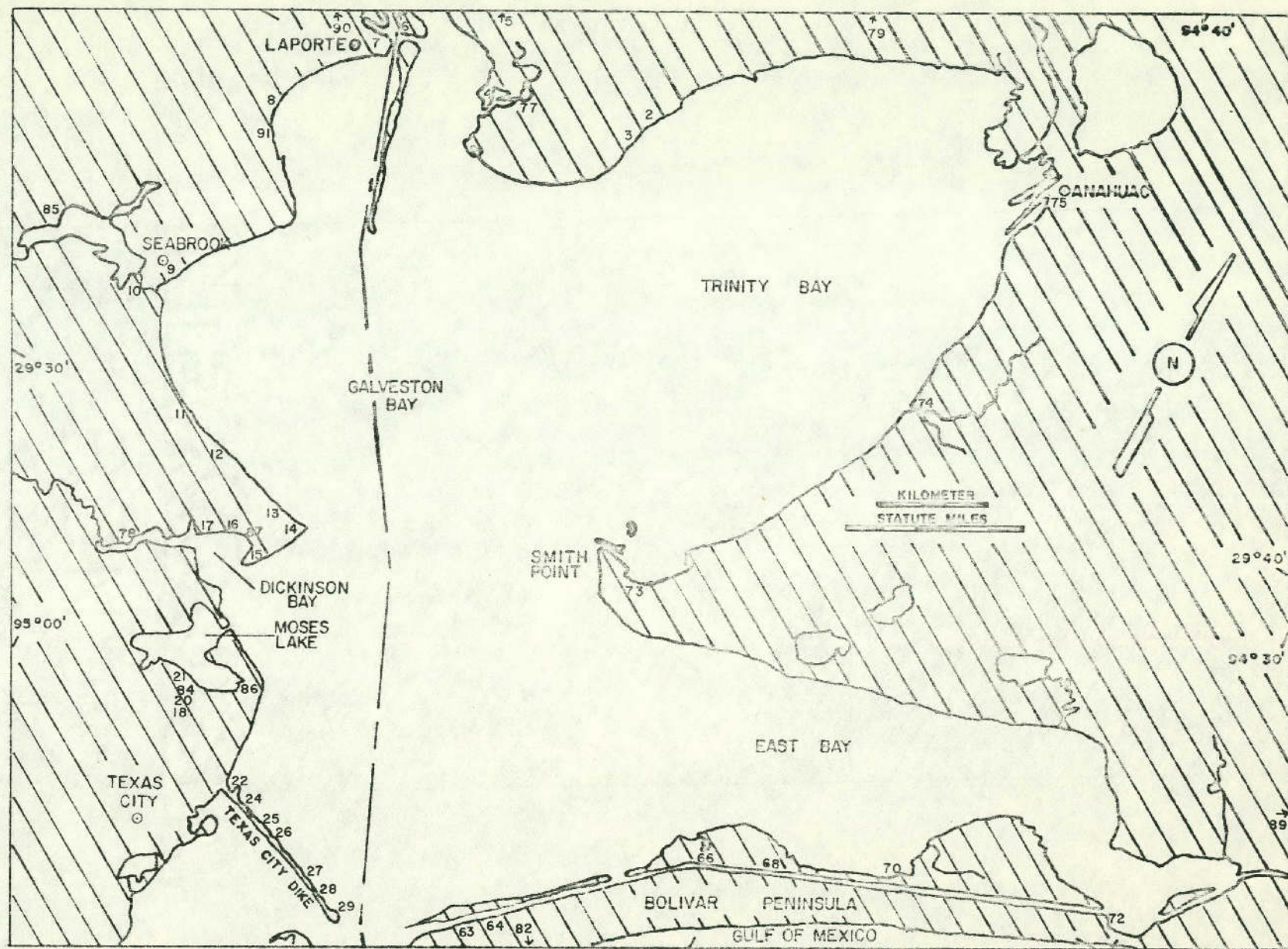


Figure 1. Boat ramp access points in the Galveston Bay system (Sept. 1979-Aug. 1980).



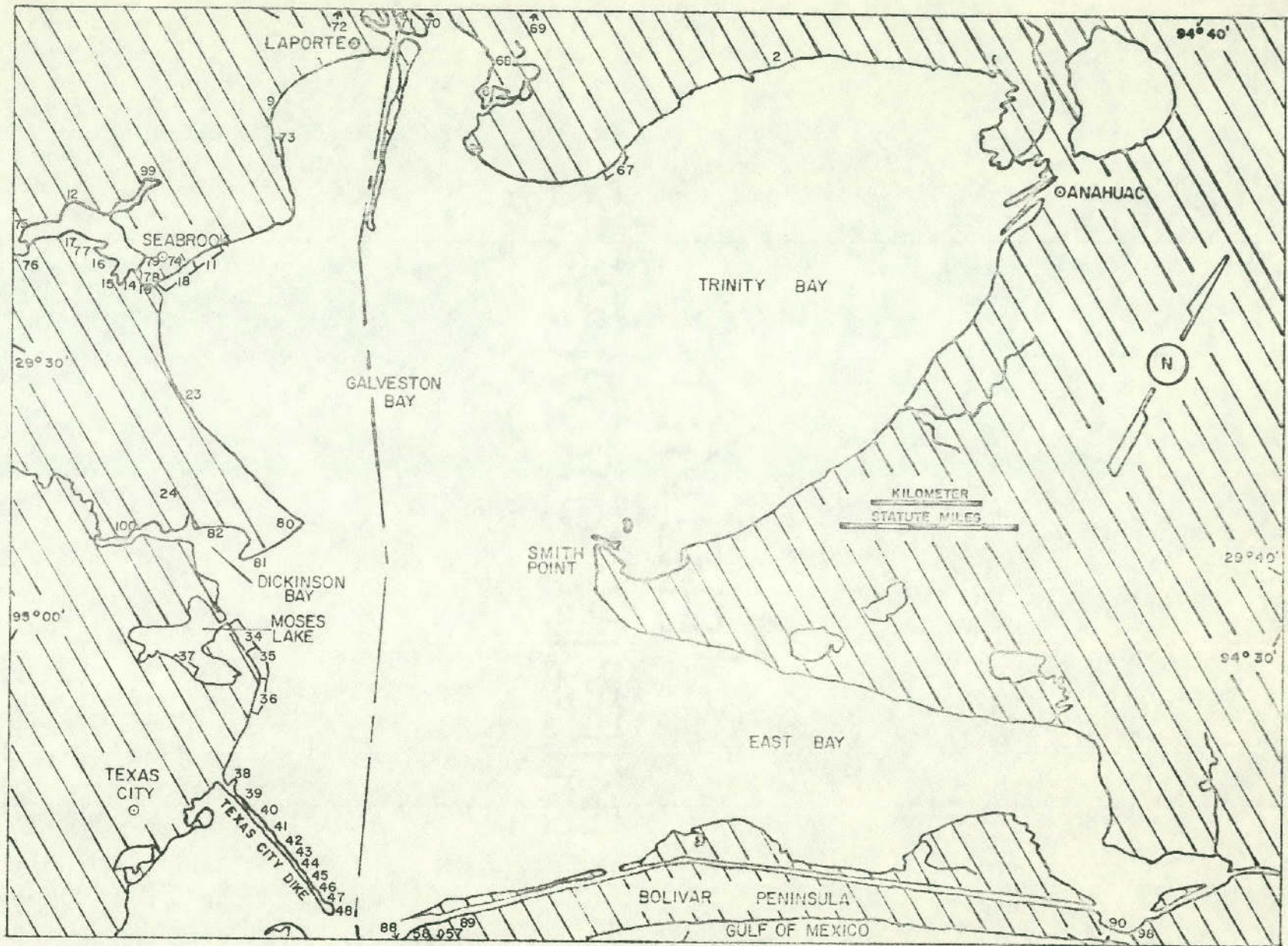


Figure 3. Wade/bank access points in the Galveston Bay system (Sept. 1979-Aug. 1980).

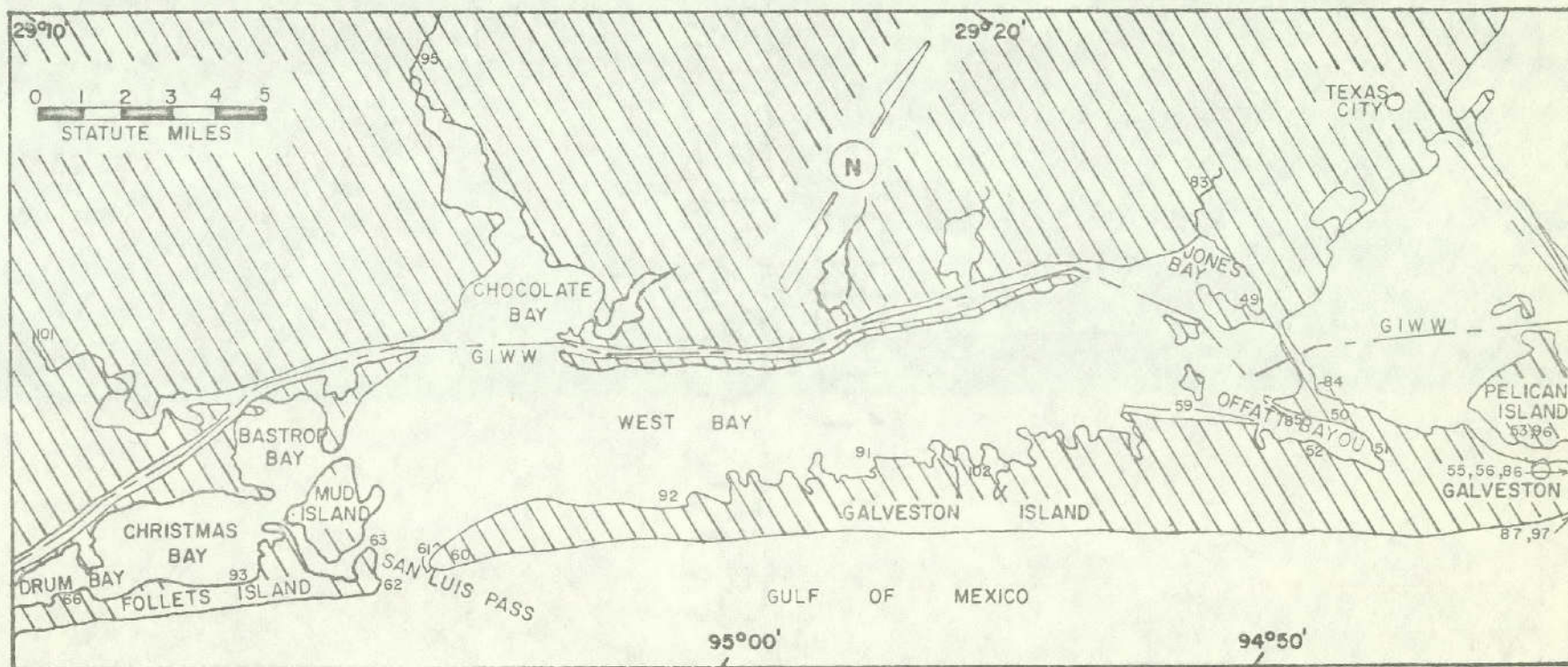


Figure 4. Wade/bank access points in the Galveston Bay system (Sept. 1979-Aug. 1980).



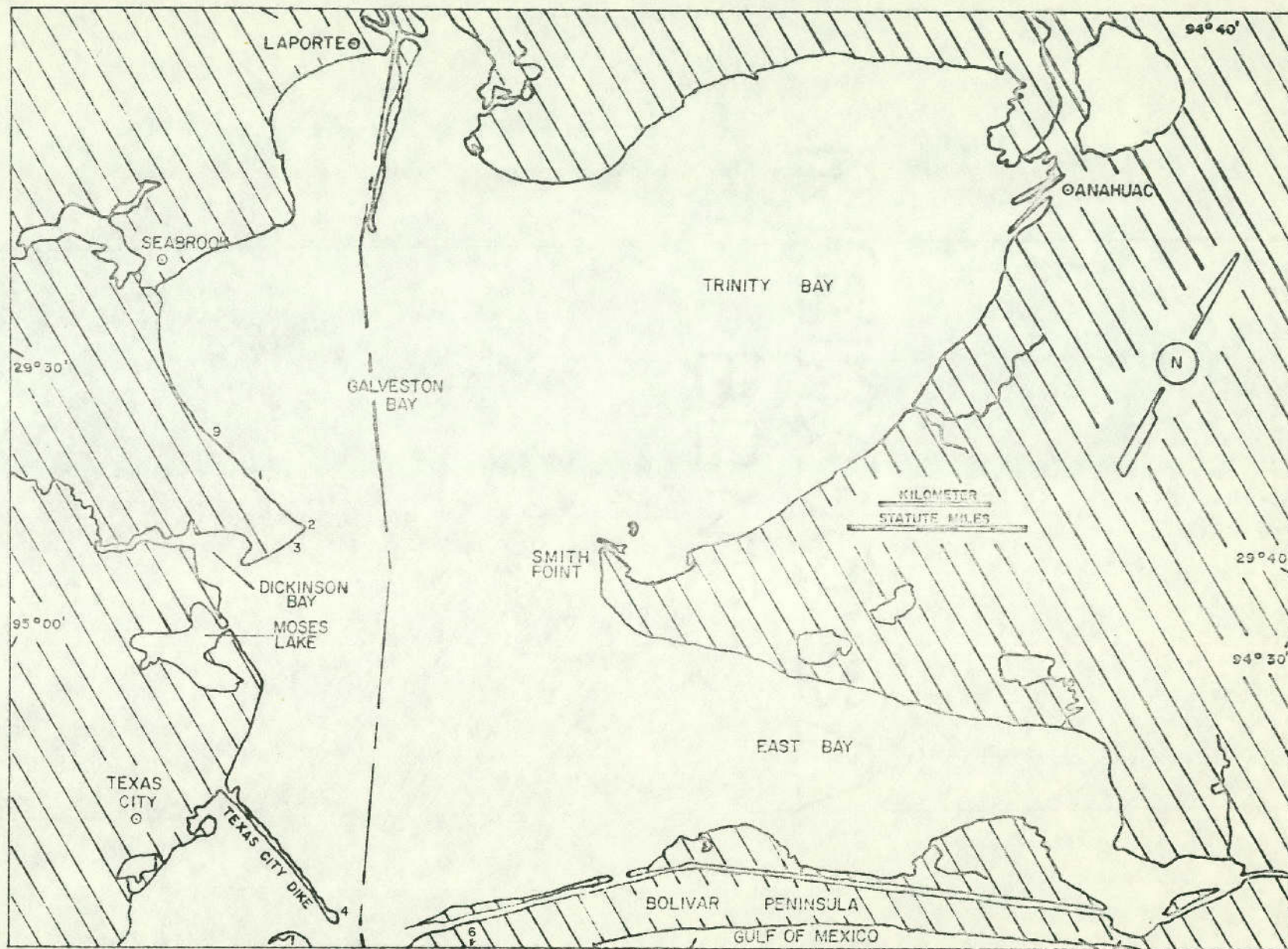


Figure 5. Lighted pier access points in the Galveston Bay system (Sept. 1979-Aug. 1980).

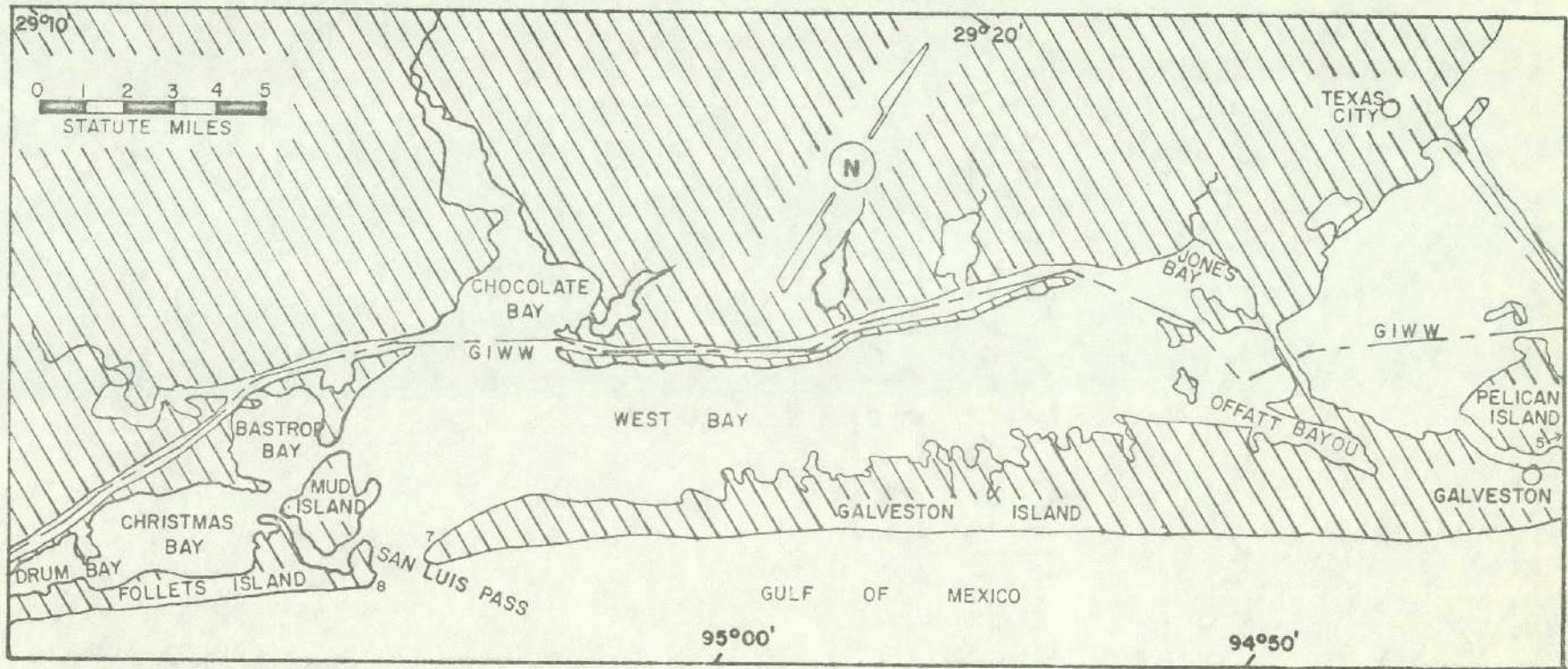


Figure 6. Lighted pier access points in the Galveston Bay system (Sept. 1979-Aug. 1980).

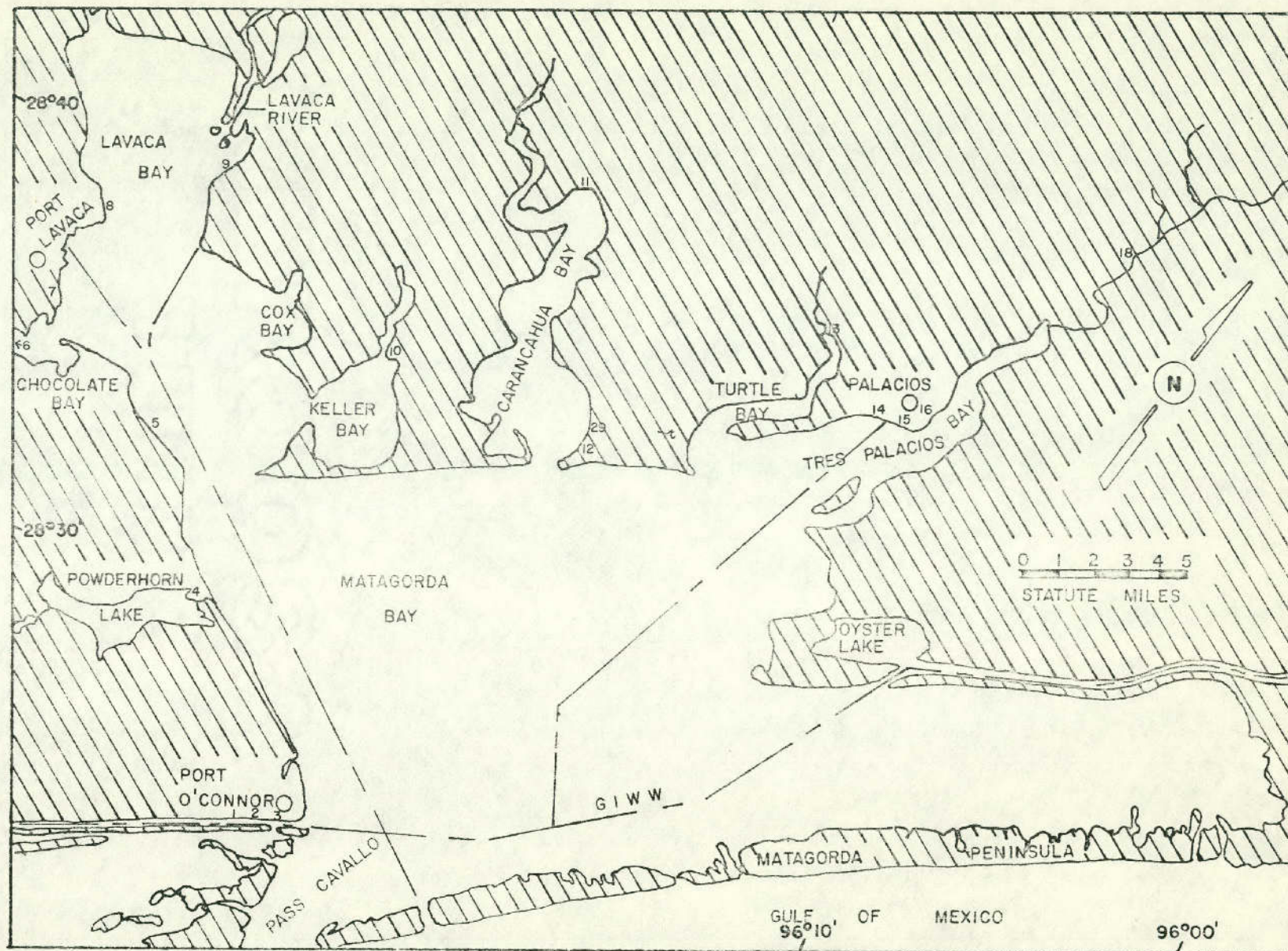


Figure 7. Boat ramp access points in the Matagorda Bay system (Sept. 1979-Aug. 1980).

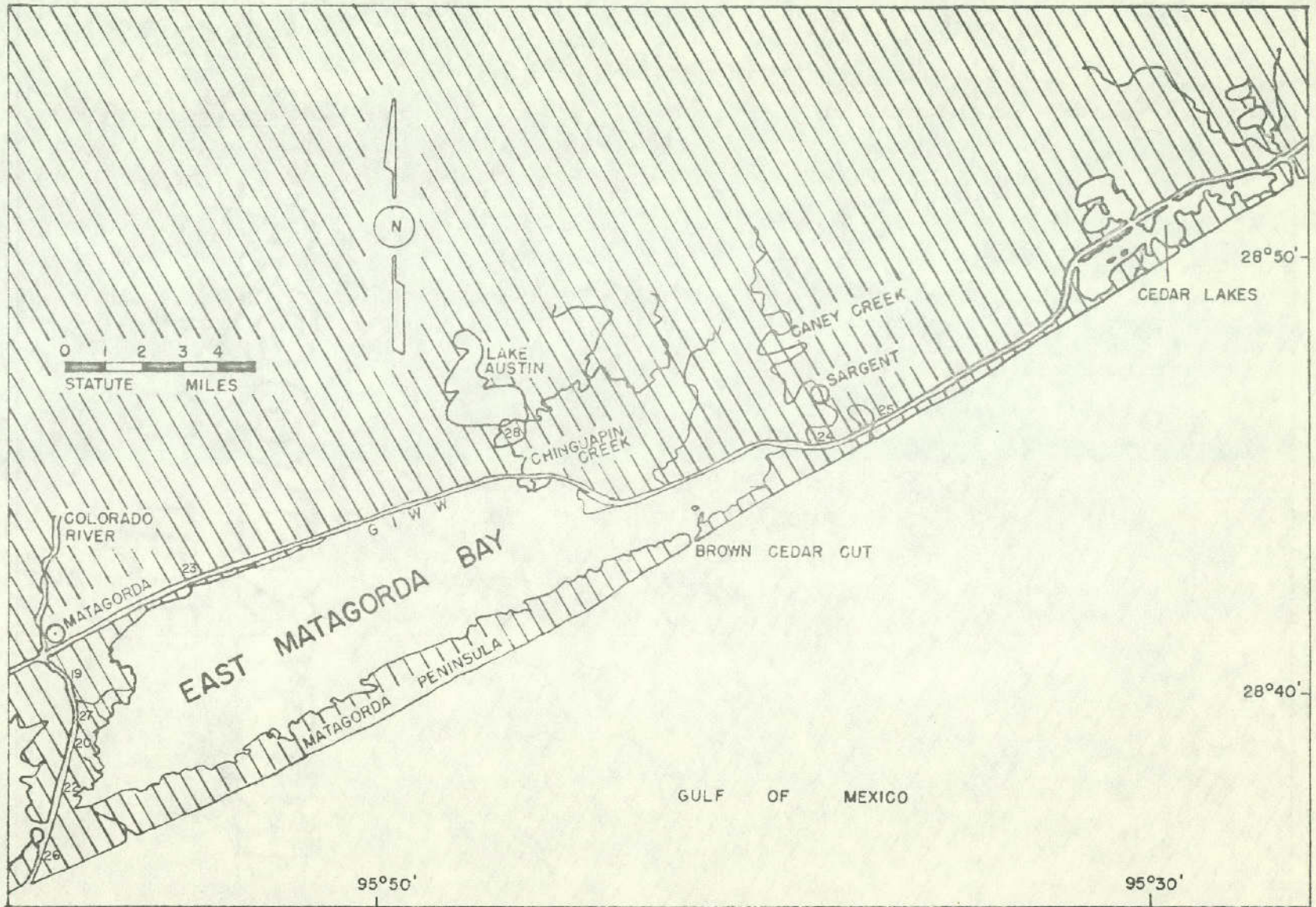


Figure 8. Boat ramp access points in the Matagorda Bay system (Sept. 1979-Aug. 1980).

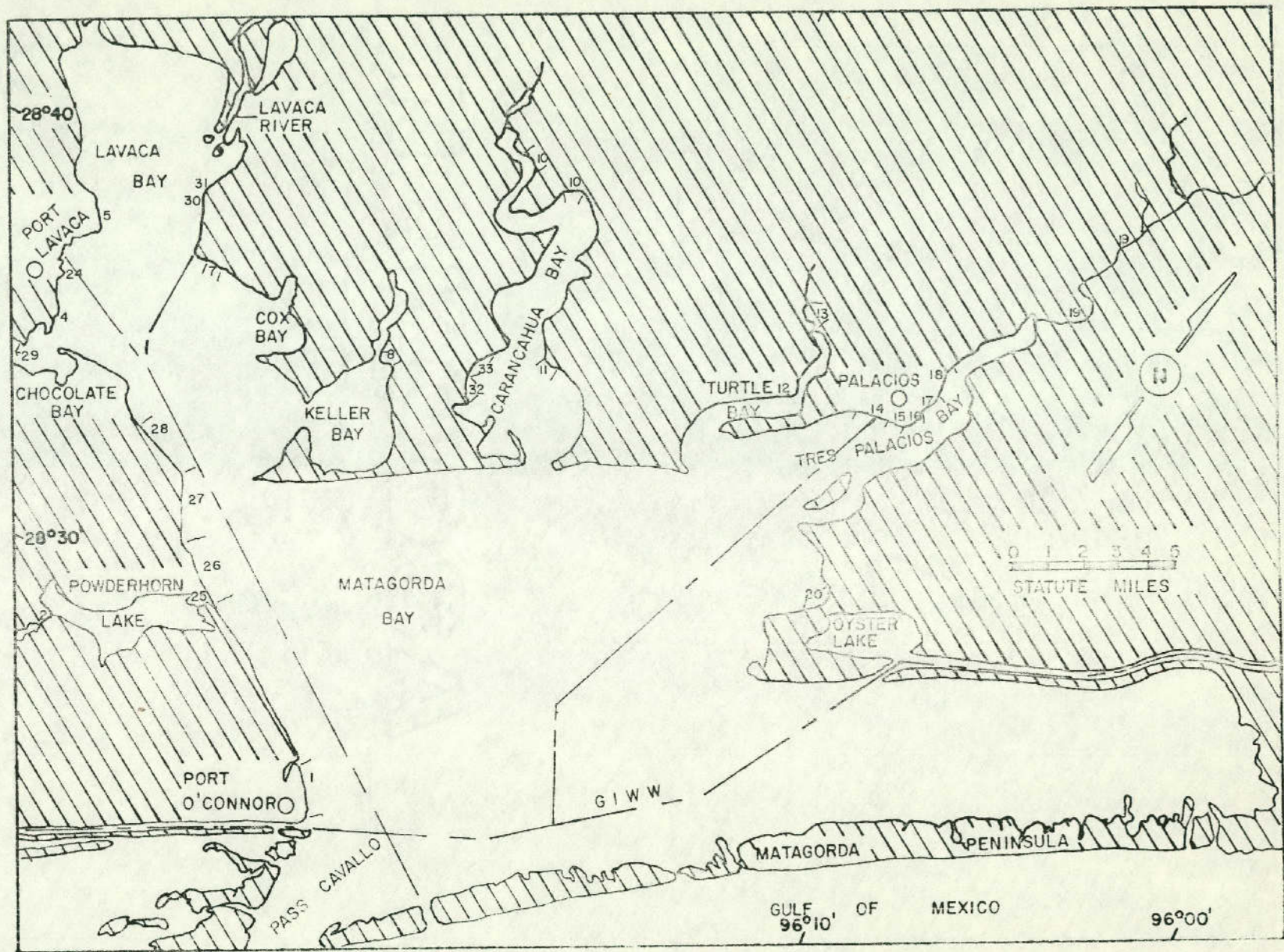


Figure 9. Wade/bank access points in the Matagorda Bay system (Sept. 1979-Aug. 1980).

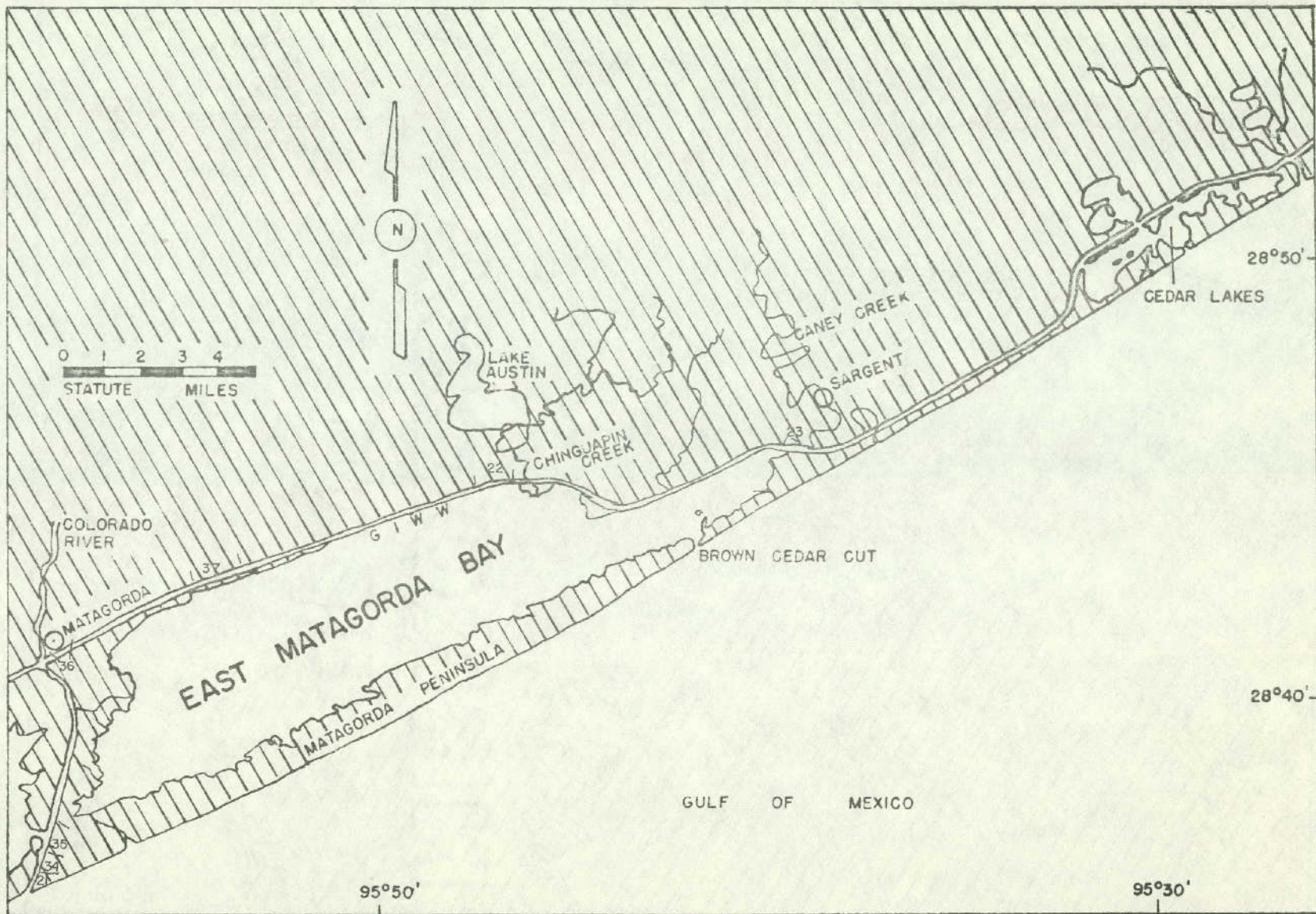


Figure 10. Wade/bank access points in the Matagorda Bay system (Sept. 1979-Aug. 1980).

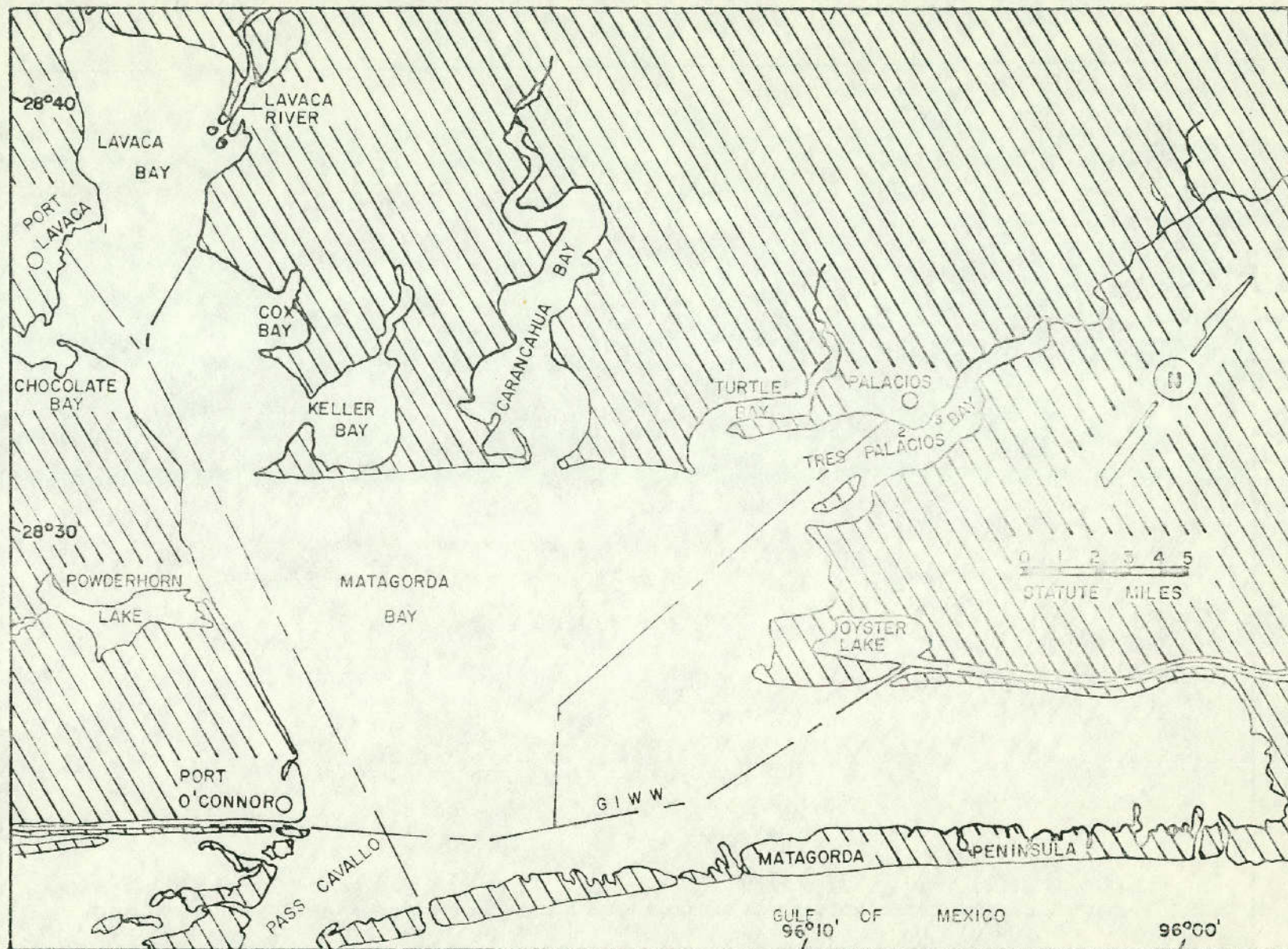


Figure 11. Lighted pier access points in the Matagorda Bay system (Sept. 1979-Aug. 1980).

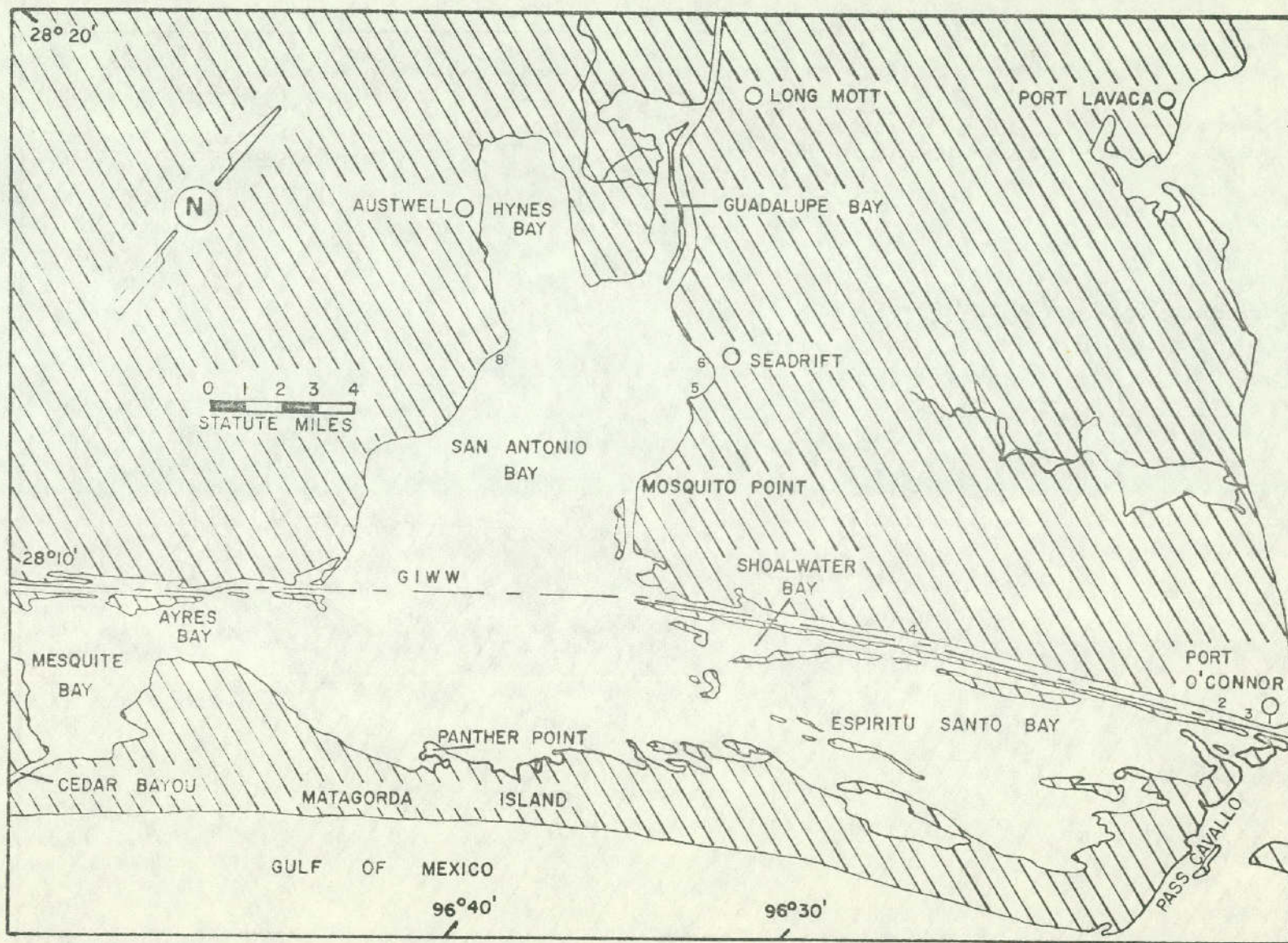


Figure 12. Boat ramp access points in the San Antonio Bay system (Sept. 1979-Aug. 1980).



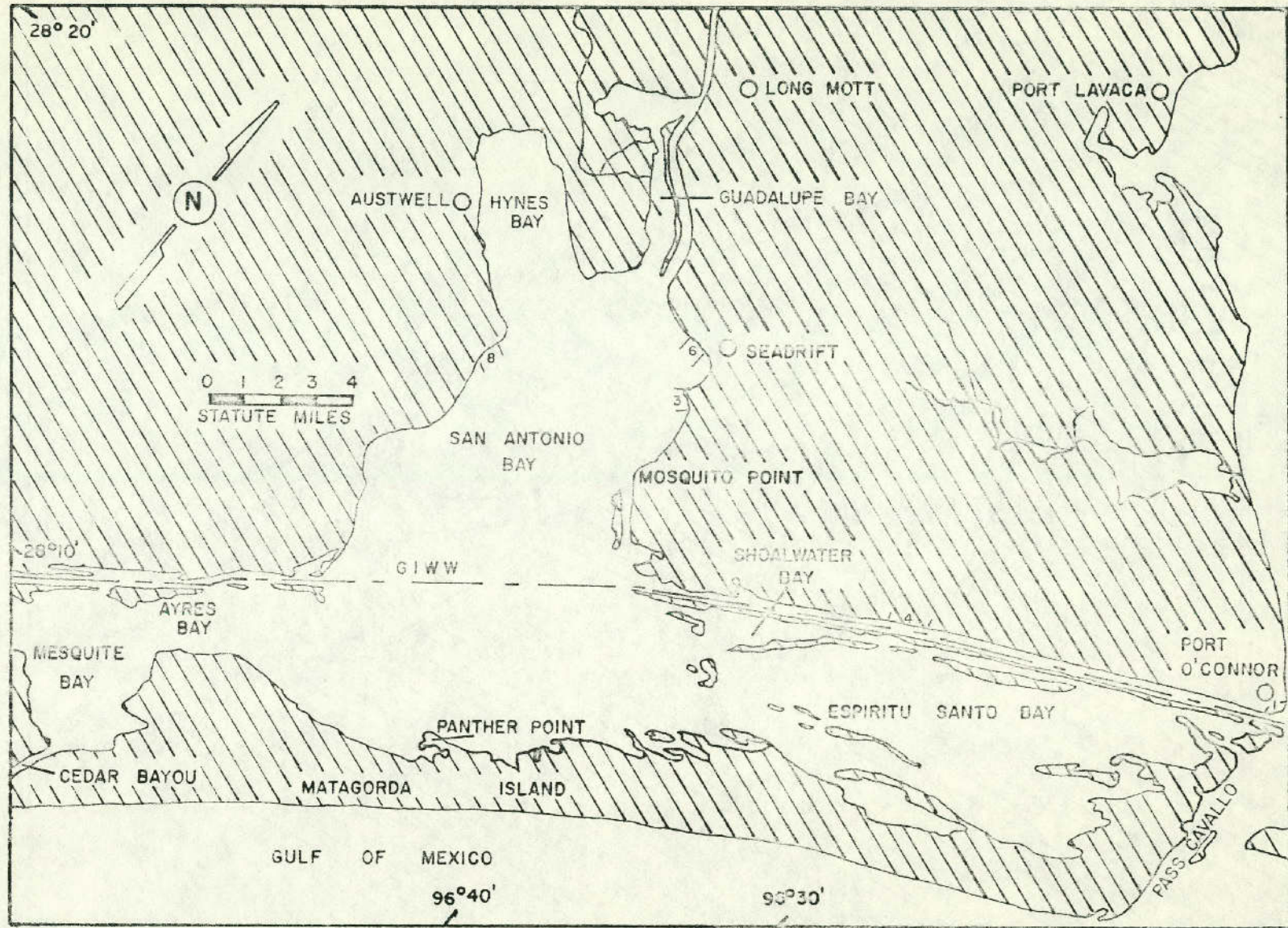


Figure 13. Wade/bank access points in the San Antonio Bay system (Sept. 1979-Aug. 1980).

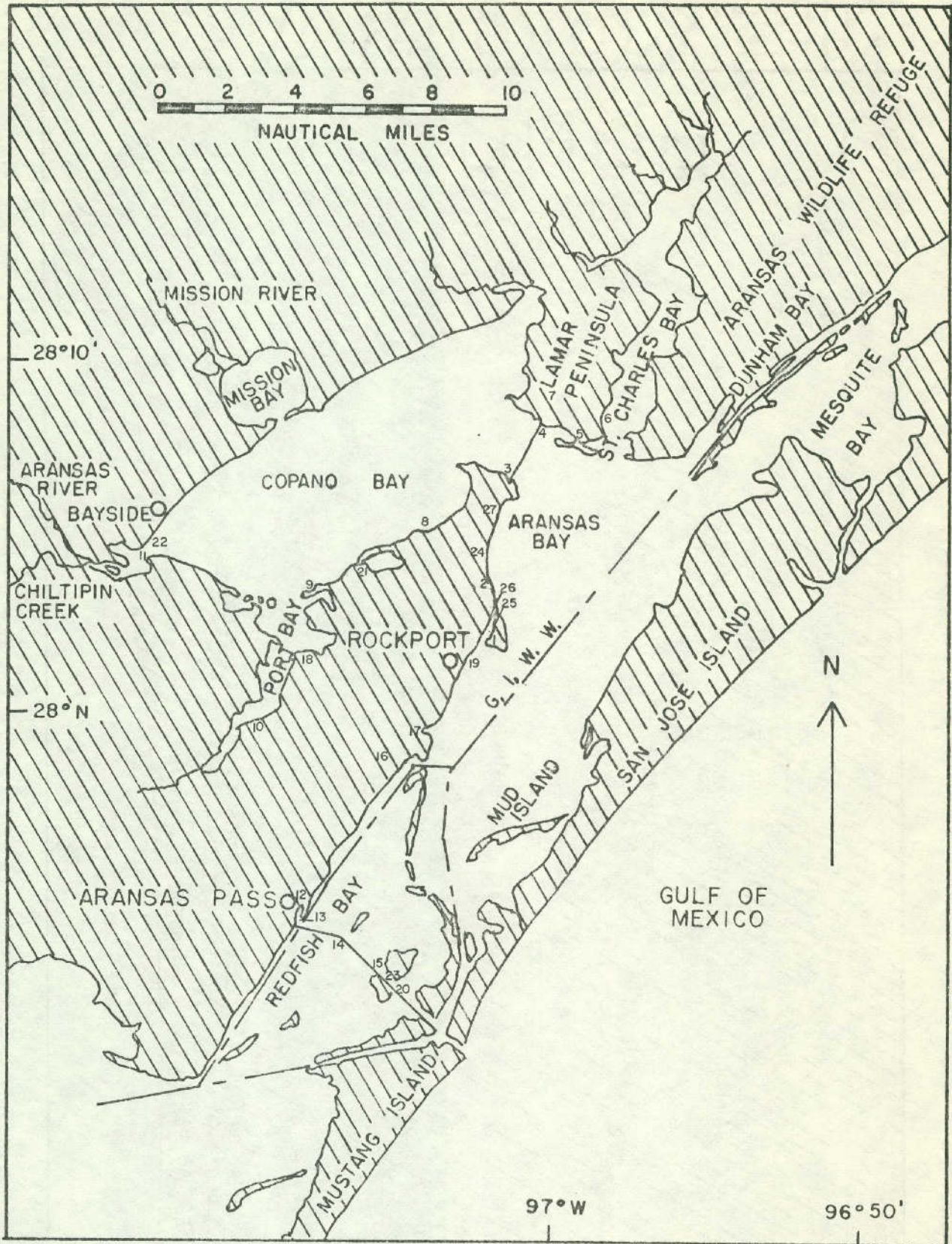


Figure 14. Boat ramp access points in the Aransas Bay system (Sept. 1979-Aug. 1980)

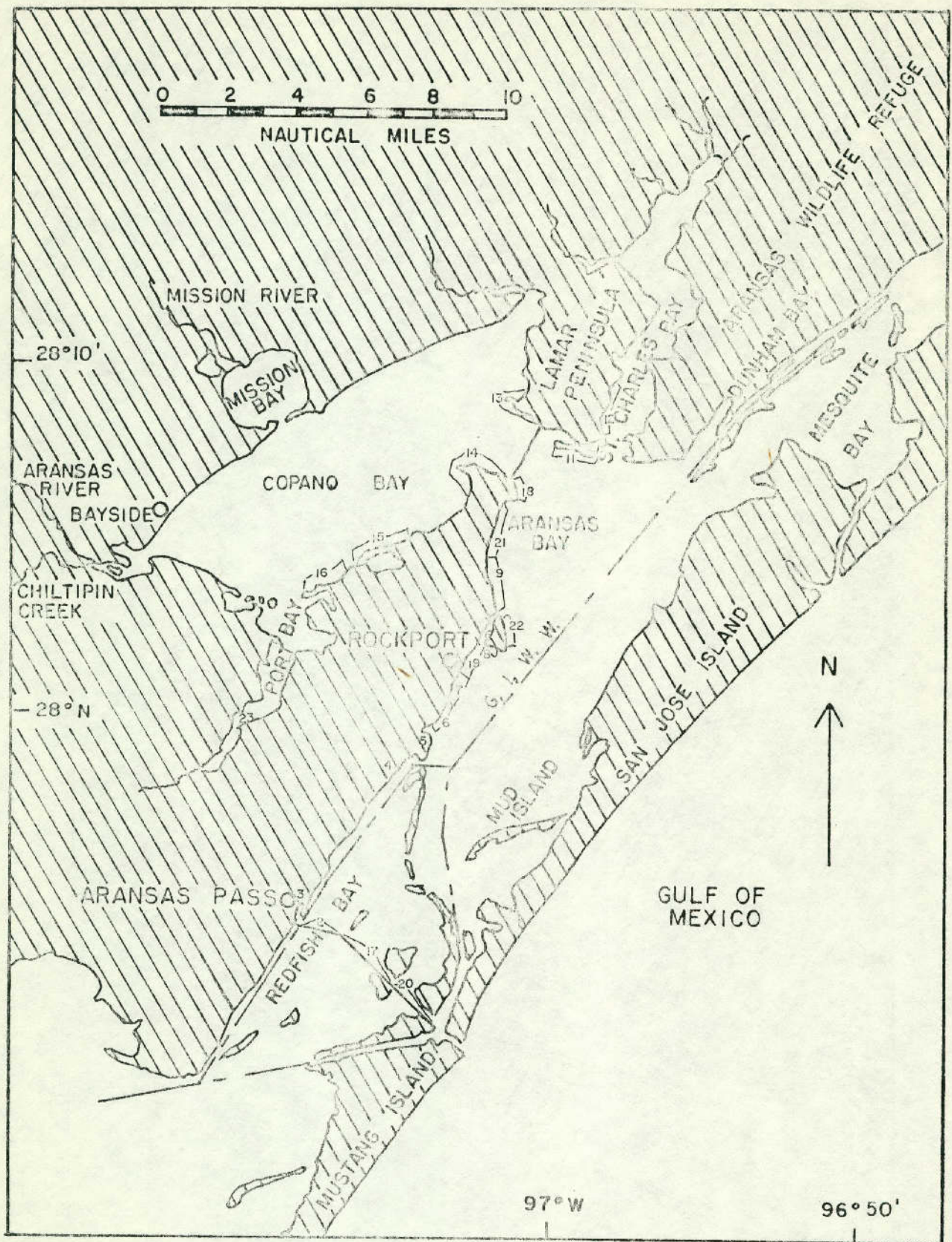


Figure 15. Wade/bank access points in the Aransas Bay system (Sept. 1979-Aug. 1980).

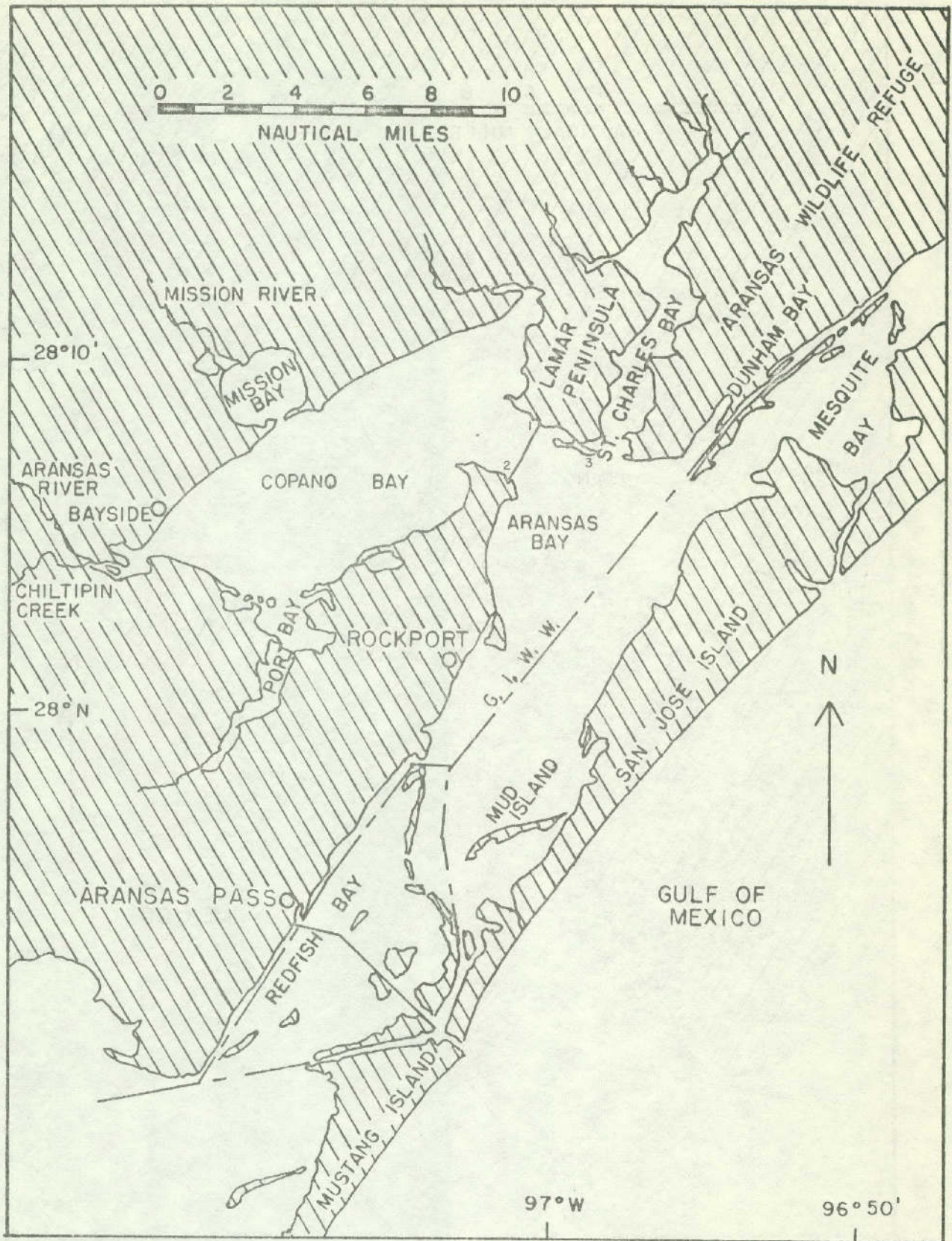


Figure 16. Lighted pier access points in the Aransas Bay system (Sept. 1979-Aug. 1980).

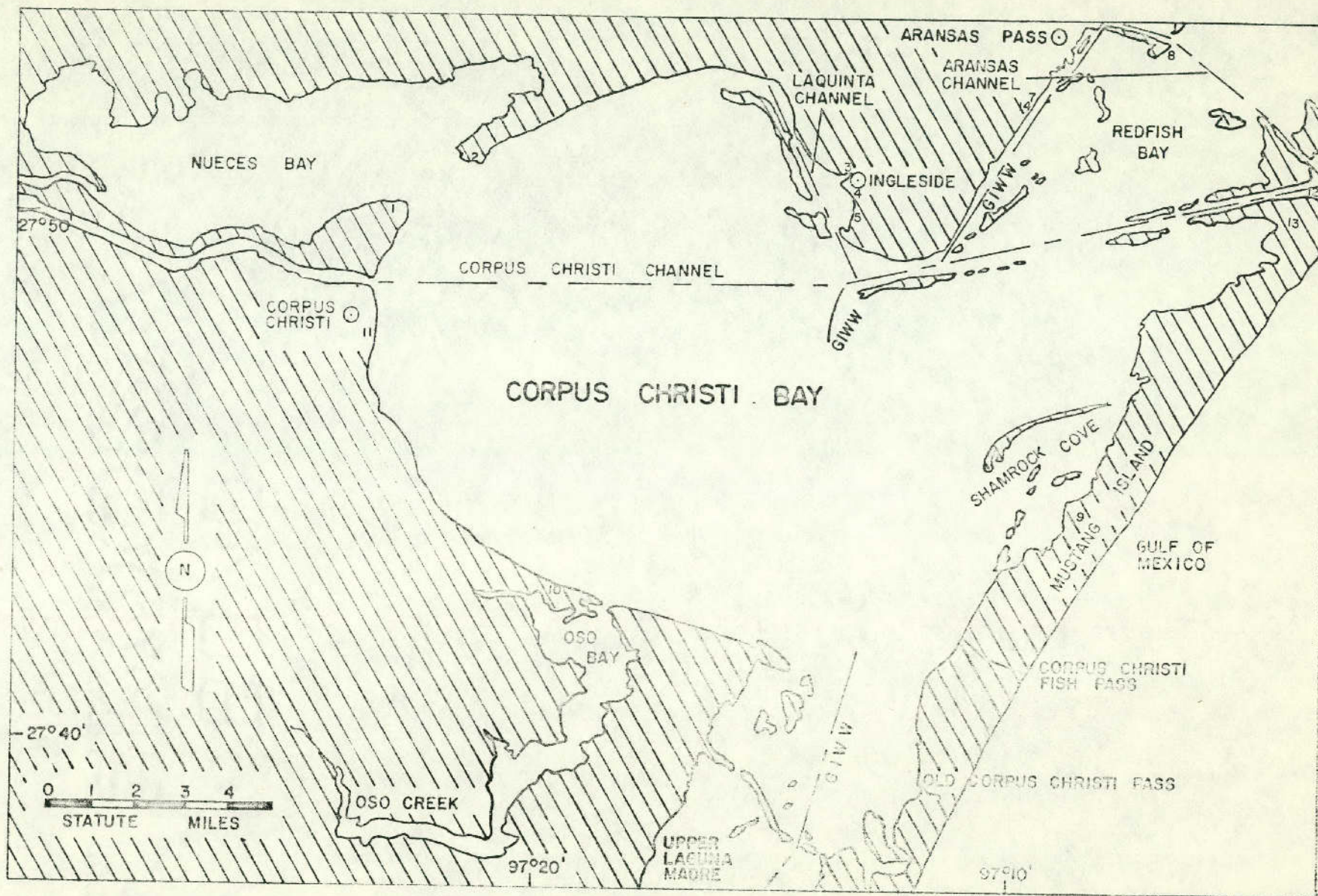


Figure 17. Boat ramp access points in the Corpus Christi Bay system (Sept. 1979-Aug. 1980).

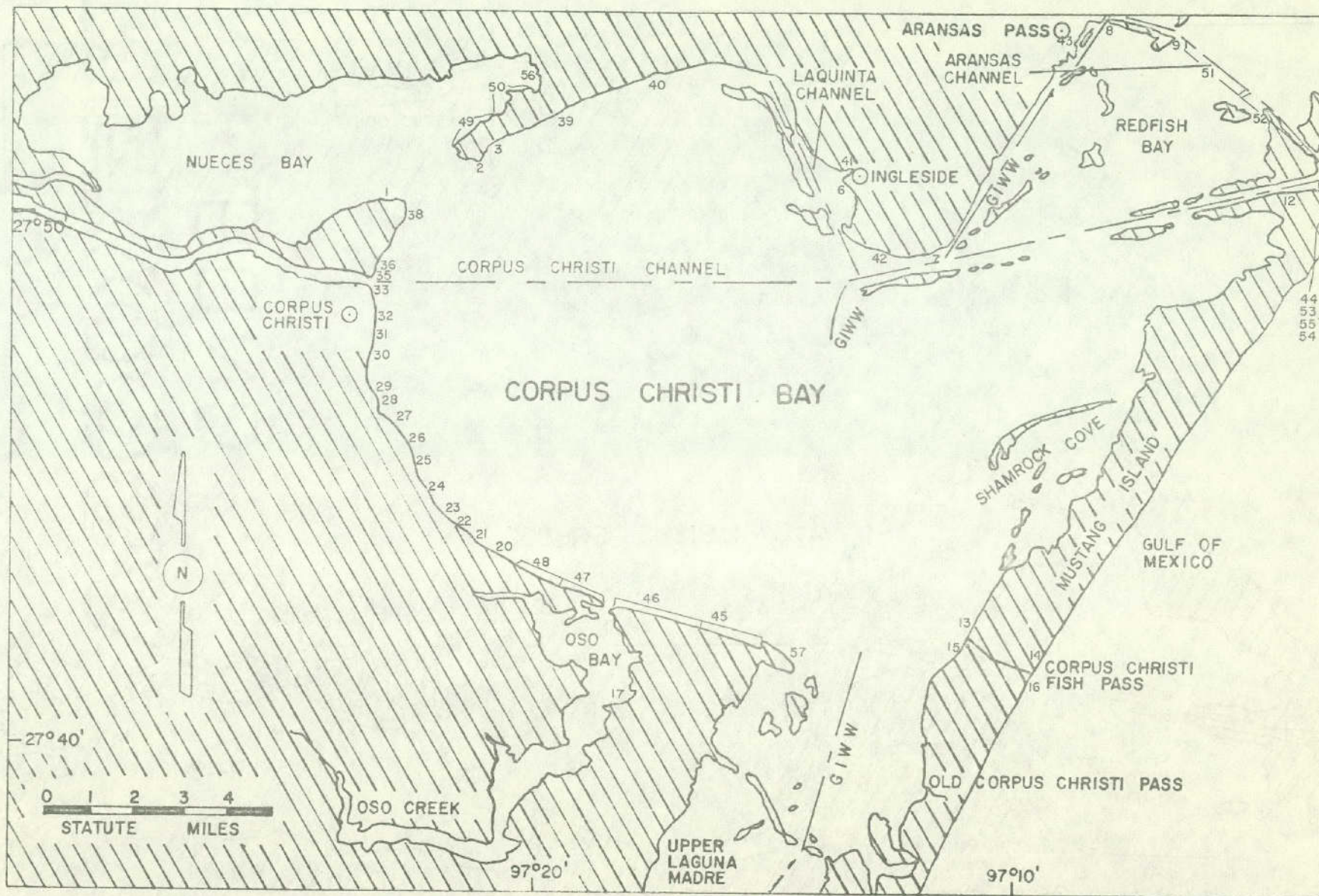


Figure 18. Wade/bank access points in the Corpus Christi Bay system (Sept. 1979-Aug. 1980).

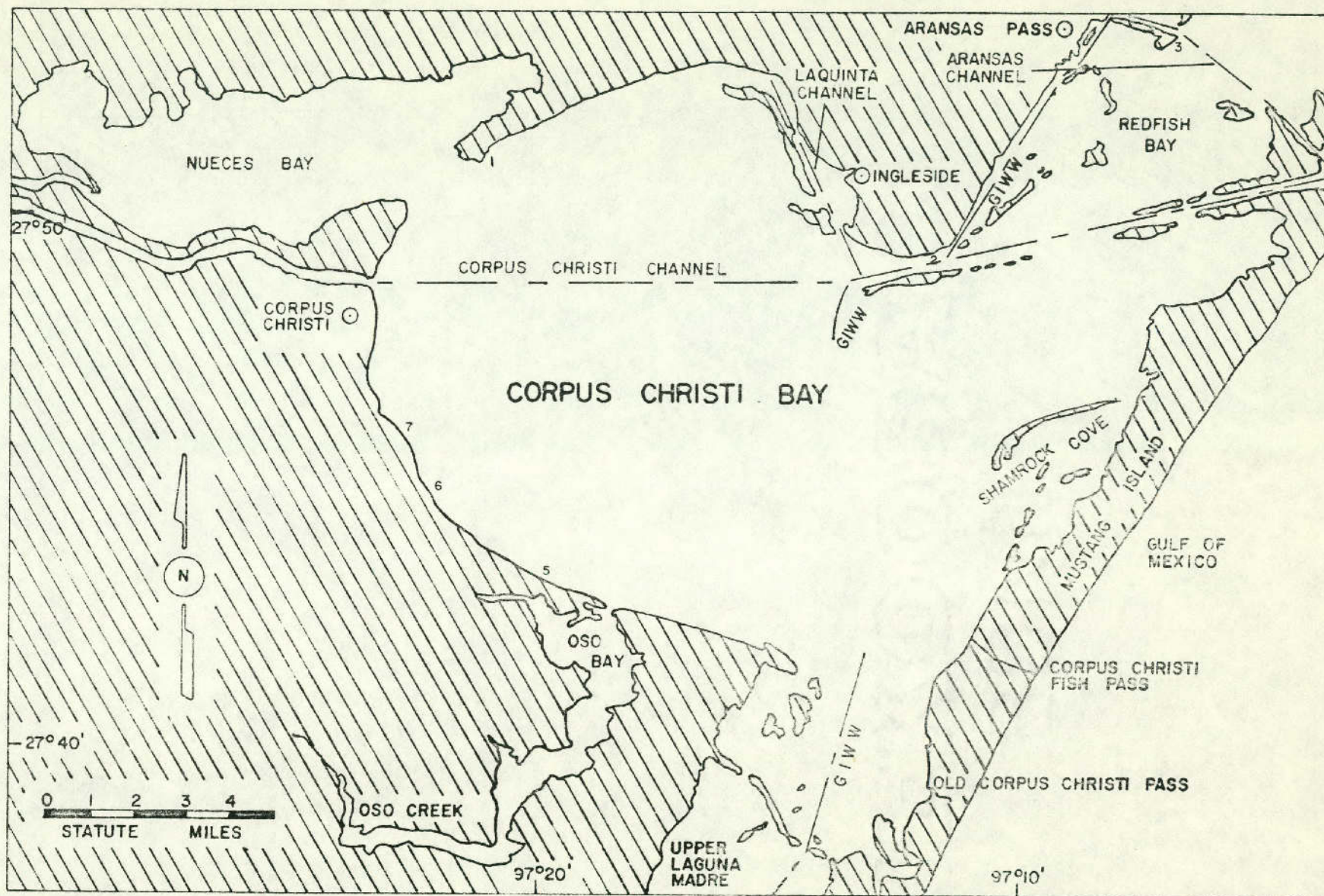


Figure 19. Lighted pier access points in the Corpus Christi Bay system (Sept. 1979-Aug. 1980).

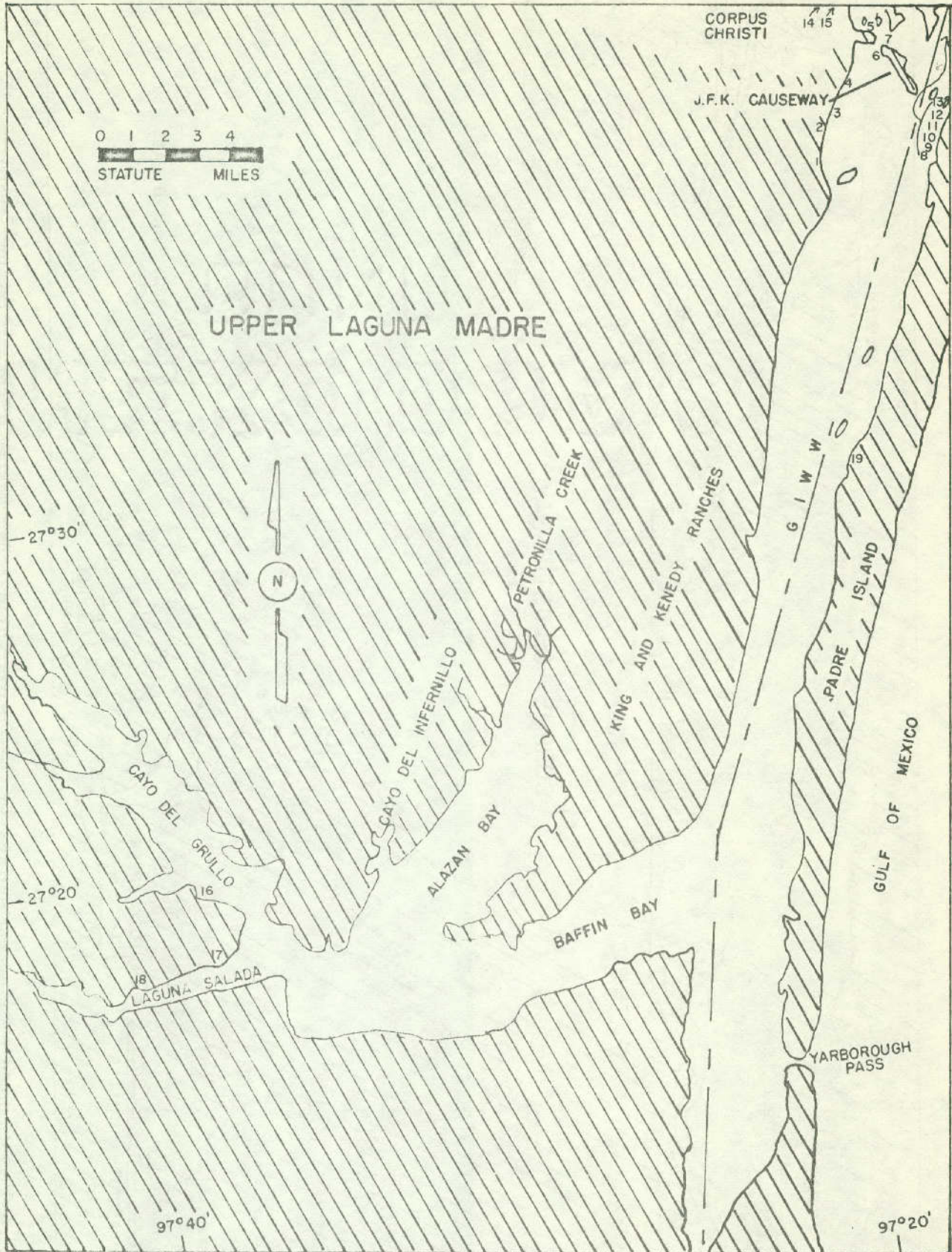


Figure 20. Boat ramp access points in the upper Laguna Madre Bay system (Sept. 1979-Aug. 1980).



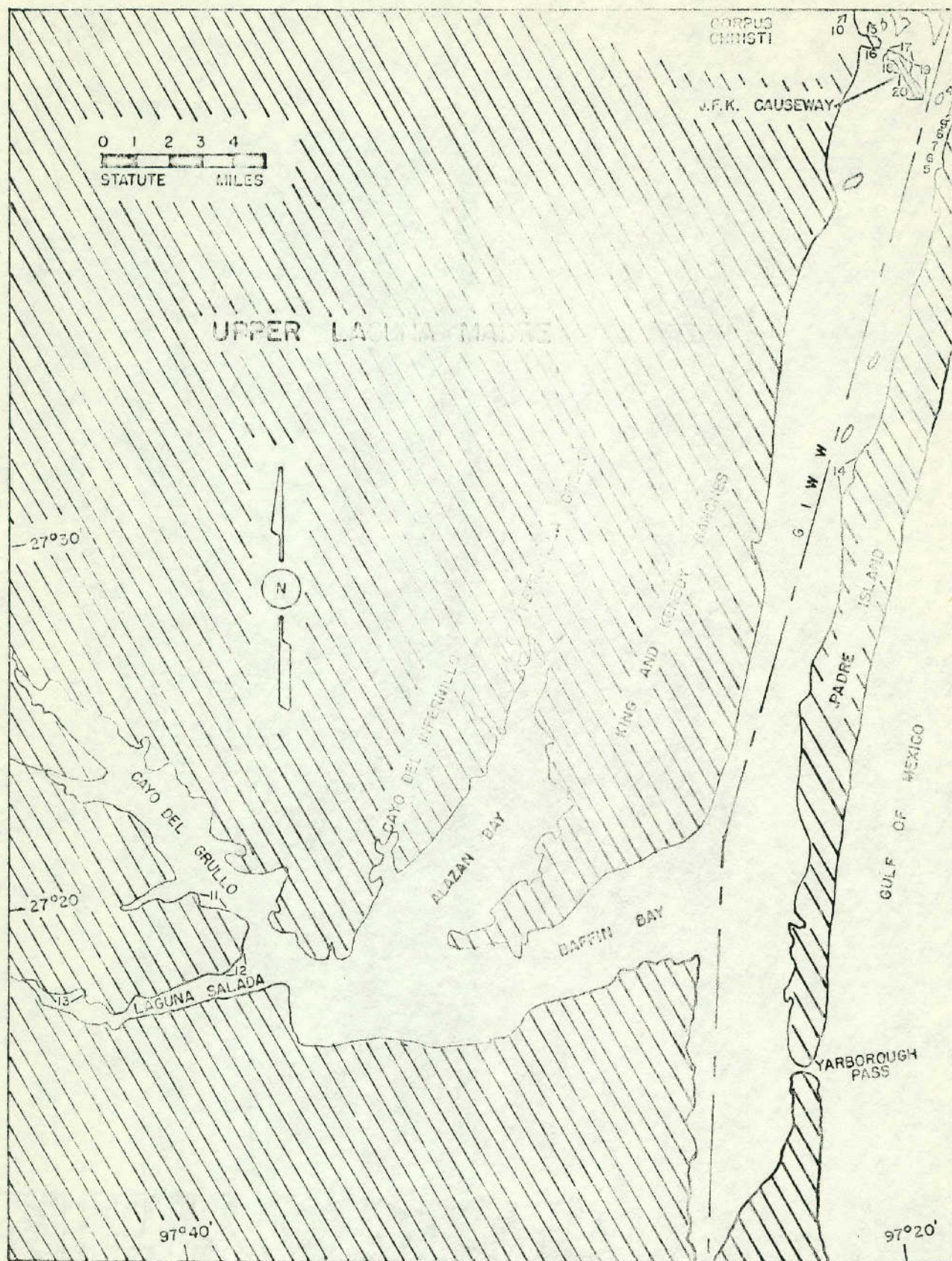


Figure 21. Wade/bank access points in the upper Laguna Madre Bay system (Sept. 1979-Aug. 1980).

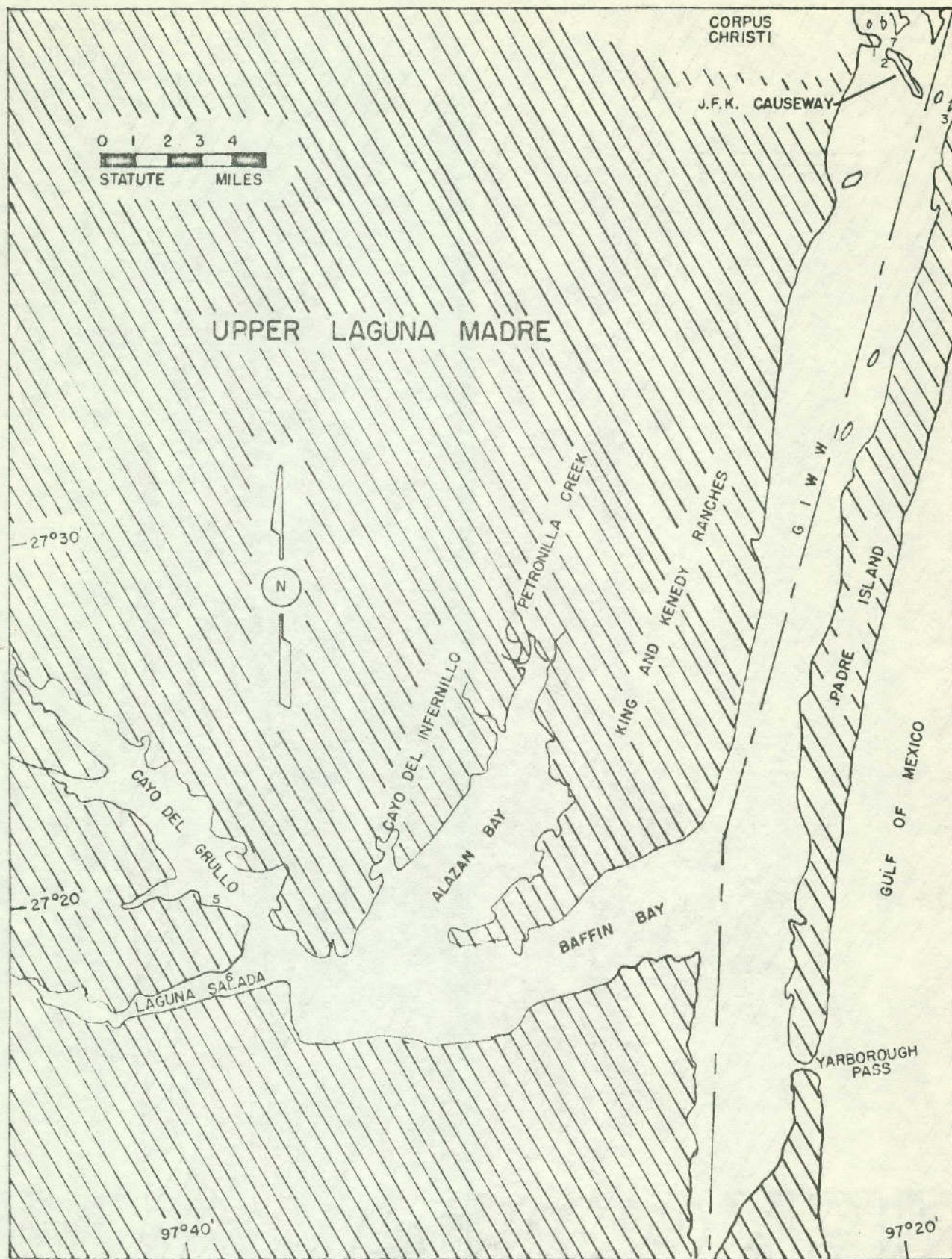


Figure 22. Lighted pier access points in the upper Laguna Madre Bay system (Sept. 1979-Aug. 1980).

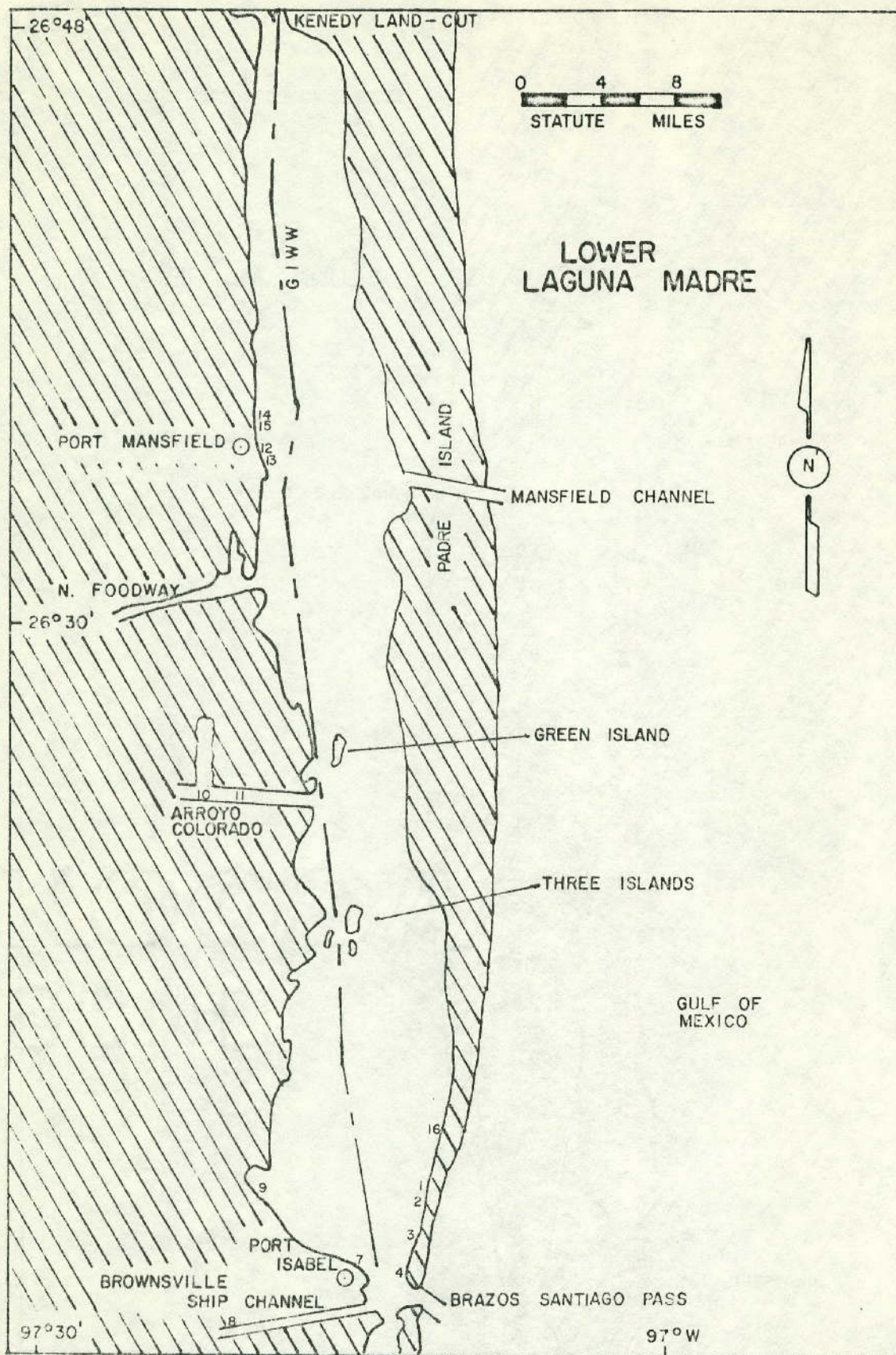


Figure 23. Boat ramp access points in the lower Laguna Madre Bay system (Sept. 1979-Aug. 1980).

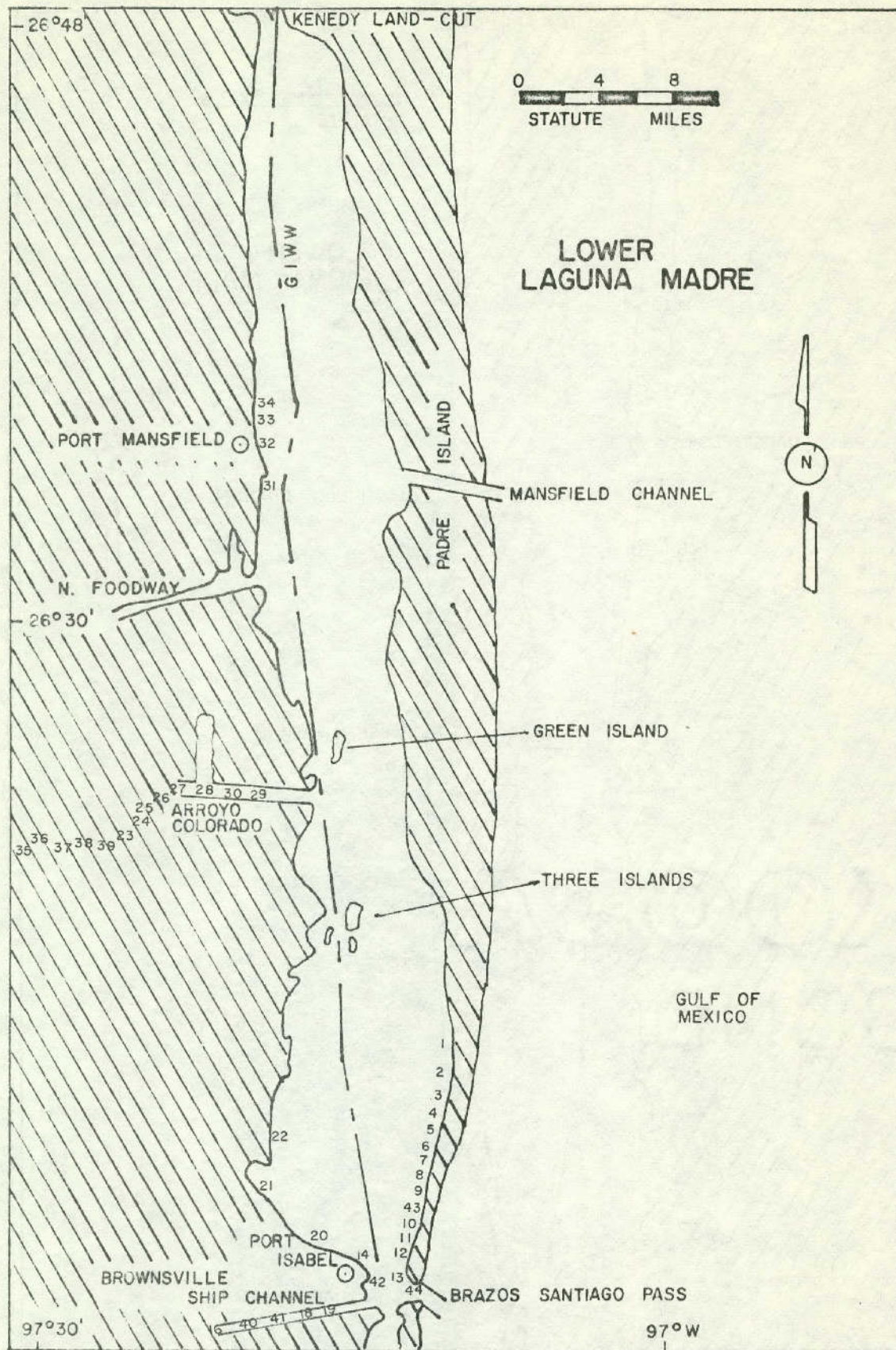


Figure 24. Wade/bank access points in the lower Laguna Madre Bay system (Sept. 1979-Aug. 1980).

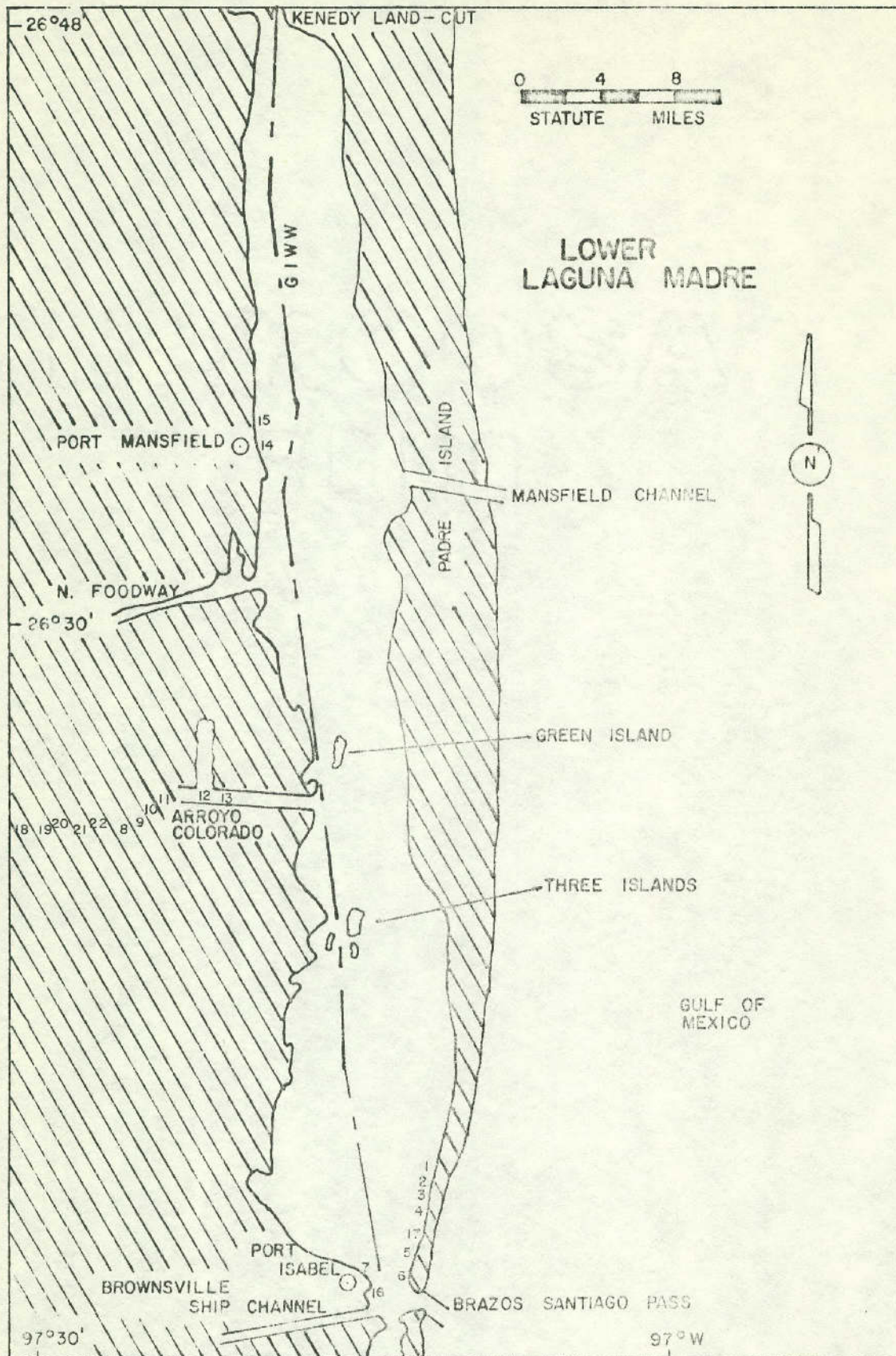


Figure 25. Lighted pier access points in the lower Laguna Madre Bay system (Sept. 1979-Aug. 1980).

Appendix C. Area descriptions.

## AREA DESCRIPTIONS

Descriptions of each bay system except the East Matagorda Bay system were reproduced from Matlock et al. (1978).

## 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 (Fig. 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 predominately 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 roemerianus), seashore saltgrass (Distichlis spicata) and saltwort (Batis maritima)--and 18,095 acres of submergent seagrasses--widgeon grass (Ruppia maritima) and Holodule beaudettei--in Galveston Bay. McEachron, Shaw and Moffett (1977) reported Halophilla engelmanni and turtle grass (Thalassia testudinum) in Christmas and Bastrop Bays.

The bay receives an average 2642 billion gal of fresh water annually, 90% of which comes from 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 (Fig. 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 beaudettii*.

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 comprises 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 (Fig. 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 Powderhorn 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 (3,500 people) is located on the northern shoreline. Turtle Bay, with 1280 acres and 2.6 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 Intracoastal 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 1975 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 1975 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 Espiritu Santo and the secondary bays Hynes, Guadalupe and Shoalwater (Fig. 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 mud-shell 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 filamentosa, 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 4,000 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 (Fig. 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 fresh-water 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 compliment 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 8403 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 (Sesuvium portulacastrum) and seashore saltgrass--and 4,124 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 throughout 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 Hodgpath 1950). The average tidal range for 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 6,000.

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  $97^{\circ} 02'$  and  $97^{\circ} 32'$  W and latitude  $27^{\circ} 41'$  and  $27^{\circ} 55'$  N (Fig. 6). It is bordered on the northeast by upper Redfish Bay, on the east by Mustang Island and 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 Hodgpath 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 Bay, 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 northeast. 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  $27^{\circ} 10'$  and  $27^{\circ} 41'$  the upper Laguna Madre system consists of the upper Laguna Madre and the Baffin Bay system (Fig. 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 Intra-coastal 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 Intra-coastal 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, Breuer 1962a), with salinities of 50-60 o/oo common. The Intra-coastal Waterway provides for limited water exchange at both ends of the lagoon. Since the dredging of the Intra-coastal 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 (Breuer 1957). The dry sand on Padre Island absorbs rain very rapidly and the very gradual slope of the lagoon's western shore makes 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 Svs., 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 and 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 and 1972); while water in Baffin Bay is often turbid and at times becomes a dark brown (Breuer 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 rangeland 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 (Fig. 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 Island) 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 dismantling plants, two oil loading docks and an oil rig construction company are located.

Appendix D. Total number of sport fishermen  
interviewed and counted.

Table 1. Total number of sport fishermen interviewed and counted for each strata during 1974-76 and 1979-80 in Texas bays. NS = no sample.

	Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre	Total
<u>Interviewed</u>								
1974-76								
Boat ramp	570	179	888	243	297	385	367	2,929
Wade/bank	1,143	196	50	278	239	254	337	2,497
Lighted pier	287	245	NS	414	184	262	440	1,832
Total	2,000	620	938	935	720	901	1,144	7,258
1979-80								
Boat ramp	451	470	801	183	416	477	431	3,229
Wade/bank	342	147	30	257	253	143	257	1,429
Lighted pier	245	242	NS	395	244	119	311	1,556
Total	1,038	859	831	835	913	739	999	6,214
<u>Counted</u>								
1974-76								
Boat ramp	1,458	232	2,297	624	744	1,000	959	7,314
Wade/bank	2,244	443	88	571	454	531	848	5,179
Lighted pier	650	559	NS	931	404	564	1,080	4,188
Total	4,352	1,234	2,385	2,126	1,602	2,095	2,887	16,681

Table 1. (Cont'd.)

	Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre	Total
1979-80								
Boat ramp	1,203	617	2,147	482	1,086	1,252	1,119	7,906
Wade/bank	671	320	52	505	461	294	589	2,892
Lighted pier	570	512	NS	931	462	244	689	3,408
Total	2,444	1,449	2,199	1,918	2,009	1,790	2,397	14,206





PWD Report 3000-114  
September 1981