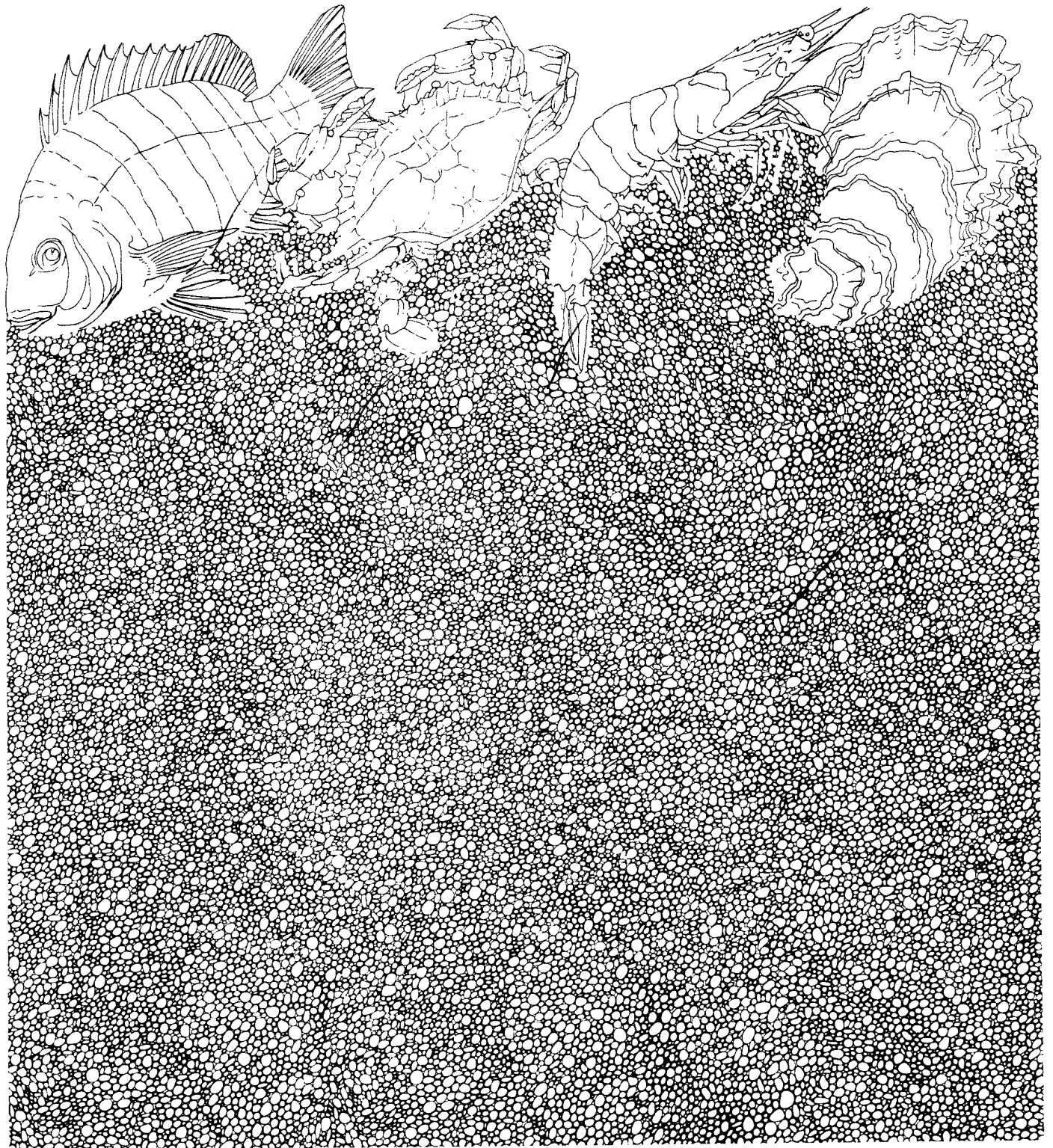


# Charterboat Fishermen Finfish Catch Statistics for Texas Marine Waters (May 1983 - May 1984)

by Hal R. Osburn and Maury O. Ferguson

Management Data Series Number 77  
1985

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

## ACKNOWLEDGEMENTS

We would like to thank the personnel of the Texas Parks and Wildlife Department who collected the data and the boat captains and crews who allowed us to accompany them on trips to gather necessary information. Thanks also go to Gary Saul and Al Green for reviewing the manuscript and to Chris Peabody and Vivian Alexander for typing and proofing it.

This study was jointly funded by the Texas Parks and Wildlife Department and the U.S. Department of interior, Fish and Wildlife Service, under D. J. 15.605, Project Number F-34-R.

CHARTERBOAT FISHERMEN FINFISH CATCH  
STATISTICS FOR TEXAS MARINE WATERS  
(MAY 1983-MAY 1984)

EXECUTIVE SUMMARY

From 15 May 1983 to 14 May 1984 headboat (>10 people) and party-boat ( $\leq$ 10 people) fishermen fishing in inshore and offshore marine waters of Texas and the adjacent U.S. Fishery Conservation Zone were surveyed. Estimates of total pressure, harvest, sizes of fishes landed and catch (landings) per effort were determined.

On randomly selected survey days, creel personnel were on board the headboats during the fishing trip. Party boats were surveyed when encountered during routine creel monitoring surveys at boat use areas.

From May 1983 to May 1984 charterboat fishermen spent over 748,000 man-hours to land 828,200 finfish from Texas marine waters. Party-boat fishing accounted for 51% of the pressure; however, headboats accounted for 63% of the harvest.

Eleven headboats fished exclusively in inshore bay and pass areas; 22 headboats fished offshore in the Texas Territorial Sea and the U.S. Fishery Conservation Zone. Inshore headboat fishermen spent 189,000 man-hours to land 131,300 fish, primarily sand seatrout and Atlantic croaker. Most of the pressure and harvest occurred in the bays during the high use season (15 May-20 November). Offshore headboat fishermen spent 198,300 man-hours to catch 392,000 fish, primarily red snapper. Less than 2% of the pressure and 1% of the harvest occurred in the Texas Territorial Sea. The majority of all headboat fishing occurred during the high use season although the highest catch rate occurred offshore (3.30 fish/man-h) during the low use season (21 November-14 May).

Fifty-two offshore and 184 inshore party-boat trips were surveyed. Inshore party-boat fishermen spent 248,100 man-hours to catch 258,800 fish, primarily spotted seatrout. Offshore party-boat fishermen fished 96,300 man-hours in the U.S. Fishery Conservation Zone and 40,200 man-hours in the Texas Territorial Sea. The offshore harvest was 46,100 fish, primarily king mackerel and red snapper. The offshore catch rate (0.34 fish/man-h) was lower than the inshore catch rate (1.04 fish/man-h). The majority of the pressure and harvest occurred in the bays during the high use season. No offshore party boats were intercepted during the low use season.

## ABSTRACT

From 15 May 1983-14 May 1984 headboat (>10 people) and party-boat (<10 people) fishermen fishing in inshore and offshore marine waters of Texas and the adjacent U.S. Fishery Conservation Zone were surveyed. During this period 236 party-boat and 242 headboat trips were surveyed.

Headboat and party-boat fishermen spent over 748,000 man-hours to land 828,200 finfish from Texas marine waters. Party-boat fishing accounted for 51% of the pressure; however, headboat fishing accounted for 63% of the harvest.

Reef fishes, mainly red snapper (Lutjanus campechanus), dominated offshore headboat catches; sand seatrout (Cynoscion arenarius) dominated the inshore headboat catches. King mackerel (Scomberomorus cavalla) and red snapper dominated offshore party-boat catches; spotted seatrout (C. nebulosus) dominated inshore party-boat catches.

Almost all of the offshore headboat pressure and harvest occurred in the U.S. Fishery Conservation Zone while most of the inshore headboat harvest and pressure occurred in Texas bays. Seventy-nine percent of the party-boat harvest and 60% of the pressure occurred in Texas bays with the remainder distributed between the passes, Texas Territorial Sea and the U.S. Fishery Conservation Zone. Eighty-six percent of the pressure and 83% of the harvest of the charterboat fishery occurred during the high use season (15 May-20 November).

## INTRODUCTION

The Texas marine charterboat fishery is an economically and biologically important segment of the total Texas coastal sport fishery. Approximately \$1.3 million were spent on party-boat fees alone in 1975 (Woods and Ditton 1979). Over 900,000 fish were landed by charter fishermen during September 1978-August 1979; 71% were taken offshore and 29% were taken inshore (McEachron and Matlock 1983). McEachron (1984) reported that the total Texas charterboat harvest may be 2 million fish per year.

The Texas Parks and Wildlife Department (TPWD) has surveyed various segments of the Gulf and bay charter fishery from September 1978 through May 1983 (McEachron 1983, 1984; McEachron and Matlock 1983; McEachron et al. 1984). Prior to 15 May 1983, charterboat surveys were not a part of the TPWD routine Creel Monitoring Program. Analysis of the 1978-82 headboat (carrying >10 fishermen) data by McEachron and Green (1984) indicated that headboat harvest could be estimated using the same seasons as in the routine creel monitoring program. Therefore, a comprehensive headboat survey including all Gulf and bay headboats was incorporated as a separate stratum in this program beginning 15 May 1983. Also beginning 15 May 1983, party boats (carrying  $\leq$ 10 fishermen) were incorporated in the private boat use stratum.

The objective of this survey was to determine the harvest, species composition, size and catch per effort of economically important finfishes caught by sport fishermen on charterboats in bay and pass areas, in the Texas Territorial Sea and in the U.S. Fishery Conservation Zone during 15 May 1983-14 May 1984.

## MATERIALS AND METHODS

The harvest and effort of charterboat fishermen were determined in the Galveston Bay/Freeport area (Galveston), Matagorda Bay/San Antonio Bay area (Matagorda), Aransas Bay/Corpus Christi Bay area (Corpus Christi), upper Laguna Madre area and lower Laguna Madre area of the Texas Coast (Figure 1).

The areas that charterboats fished were divided into:

1. Offshore:
  - A. U.S. Fishery Conservation Zone (FCZ): the Gulf of Mexico beyond 16.7 km offshore;
  - B. Texas Territorial Sea (TTS): the Gulf of Mexico from the surf line to 16.7 km offshore, excluding the 1.6 km area around passes open between the bays and the Gulf.
2. Inshore:

- A. Pass: within one of the specific pass areas defined in Appendix A; and
- B. Bay: that area shoreward of the barrier islands and pass entrances.

A headboat was defined as a boat, operated by a guide and crew, that carried >10 people for a fee. A party boat was defined as a boat, operated by a guide, that carried ≤10 people for a fee.

The project year was divided into a high use season (15 May-20 November) and a low use season (21 November-14 May) based on fishing pressure, harvest and catch rate analyses of sport-boat fishermen completing a fishing trip (McEachron et al. 1984).

#### Headboats

Headboats were inventoried using the TPWD Fish Guide License list and by personally contacting marinas, bait stands and commercial fishing guide services in each area of fishing activity (Appendix B). Eleven headboats fished exclusively inshore and 22 fished primarily offshore. From May 1983 to May 1984 both inshore and offshore headboats were randomly selected on 14 weekday days and 7 weekend days each during both the high and low use seasons in each of the Galveston, Corpus Christi and lower Laguna Madre areas.

Headboat surveys were conducted aboard the vessel. All fish retained were counted and identified (Gallaway et al. 1972, Hoese and Moore 1977, Robins et al. 1980). On each trip, the total length of up to 100 individuals of each species were measured to the nearest mm. The number of sport fishermen and fishing time (nearest 0.5h) were also recorded. On each survey day all headboat operators were contacted by phone to determine the total number of trips made that day. One gulf headboat operator refused to cooperate on the intercept portion of the survey but did provide information on the number of trips made.

The following equations were used to estimate harvest ( $\hat{H}$ ):

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

$$\text{where } \bar{h}_i = \frac{1}{n} \cdot \sum_{j=1}^n h_{ij} \cdot t_i / e_{ij}$$

The variable  $\bar{h}_i$  was the mean number of fish landed per day in the  $i$ th stratum (weekend or weekday, high and low use seasons) and  $D_i$  was the total number of days that occurred in the  $i$ th stratum. The mean number of fish landed per day in a coastal area within a stratum was estimated by adjusting the number of fish landed during a trip by the mean number of

trips per day ( $t_i$ ) by all boats in the  $i$ th stratum and by the estimated proportion of total fishing activity ( $e_{ij}$ ) for the headboat. The total number of days sampled was  $n$ .

The proportion of total fishing activity by headboat  $j$  ( $e_{ij}$ ) was estimated as:

$$e_{ij} = T_{ij} \cdot P_{ij} / \sum_{j=1}^k (T_{ij} \cdot P_{ij})$$

where the number of trips made ( $T_{ij}$ ) by headboat  $j$  on all surveyed days was adjusted by the mean number of people per trip ( $P_{ij}$ ) on headboat  $j$  in the  $i$ th stratum and was divided by the number of trips adjusted by mean number of people per trip made by all headboats in the  $i$ th stratum. Linear regression analysis found a positive correlation between fish landed and mean number of people per trip for all stratum except bay headboats during the low use season (Appendix C, Table C.1). When no data on mean number of people per trip were available it was estimated by adjusting that boat's legal passenger capacity by the ratio of number of people per trip to passenger capacity of all surveyed headboats in the  $i$ th stratum. Linear regression analysis showed a positive correlation between mean number of people per trip and passenger capacity for all strata except bay headboats (Appendix C, Table C.2). The correlation for bay headboats during the high use season was not significant at  $P = 0.05$  but would have been significant for  $P = 0.06$ .

The use of  $e_{ij}$  to adjust trip catch rates is valid for proportional sampling (Kish 1965). Although headboats were to be selected randomly, when a boat was contacted but was not making a trip on the survey day surveyors continued contacting all headboats until one making a trip was found. Thus more active headboats were surveyed more often, resulting in defacto proportional sampling.

Coastwide mean weights were calculated by weighting mean weights for each area by the estimated number of fish harvested in each area.

Headboat estimates in this report are roughly comparable to previous survey estimates. Equations used in this survey are based on mean daily catch rates. Previous estimates were made based on trip catch rates but did take into account the number of people per trip and mean number of trips per day (McEachron 1984). Previously the total number of trips made during a specified time period was determined by a census of headboat operators.

### Party Boats

During May 1983-May 1984 party boats were surveyed in the Galveston, Matagorda, Corpus Christi and lower Laguna Madre areas whenever they were encountered during the routine creel monitoring survey. The inclusion of shore-based boat use areas (e.g. marinas, boathouses, etc.) provided for interception of inshore and offshore party boats which were previously surveyed in special studies using same procedure as for headboats.



Interviewing and harvest estimation procedures were identical to those for private sport-boat fishermen described by Osburn and Ferguson (1985).

Coastwide mean finfish weights were calculated by weighting mean weights for each area by the estimated number of fish harvested in each area.

Party-boat estimates of harvest in this report may not be directly comparable to previous survey estimates. Time periods, sample selection and estimation procedures were different from previous methods. Inshore and offshore party-boat storage and launching areas were randomly selected on 8 days per month in all areas during the summers of 1979, 1981 and 1982, except that during 1982 only 4 days per month in the Matagorda area were surveyed. Trips were estimated on an annual basis but harvest was estimated for June-August only. In the May 1983-May 1984 survey, estimates were made on a high and low use season basis. In the May 1983-May 1984 survey, boat ramps and shore-based boat storage areas were sampled proportionately to their historical fishing activity (Osburn and Ferguson 1985). The historical fishing activity did not use party-boat data. If party-boat pressure is distributed in a different pattern by site from private sport-fishing pressure the precision of the estimates in this report will be biased. Estimation of harvest and pressure in this report relied on calculation of a mean daily catch rate based on the relative proportion of activity at a site. Earlier estimates multiplied catch rates in man-h by total trips, mean trip time, and mean number of people per trip.

## RESULTS

Charterboat fishermen spent over 748,000 man-h to land 828,200 finfish from Texas marine waters from May 1983 to May 1984. Headboat fishing accounted for 49% of the pressure but 63% of the harvest. Charters in Texas bays accounted for 49% of the pressure and 41% of the harvest; charters to the FCZ accounted for 39% of the pressure and 50% of the harvest. Charters to pass areas and the TTS accounted for 12% of the pressure and 8% of the harvest.

### Headboats

Headboat fishermen fished over 387,000 man-h and landed ~523,300 fish during 15 May 1983-14 May 1984. Headboats fishing in the FCZ accounted for 75% of all headboat landings. Bay landings comprised almost 20% of the total. Landings from the Texas Territorial Sea were negligible. Red snapper (Lutjanus campechanus) dominated offshore landings followed by vermilion snapper (Rhomboplites aurorubens). Sand seatrout (Cynoscion arenarius) and Atlantic croaker (Micropogonias undulatus) dominated bay and pass landings. Over 94% of the inshore landings and over 71% of the offshore landings were made during the high use season.

Almost 55% of the offshore headboats were located in the Galveston area and accounted for 73% of the offshore landings. Inshore headboats

were evenly distributed among the three coastal areas but those in the Galveston and Corpus Christi areas landed 49% and 38%, respectively, of the total inshore landings.

#### U.S. Fishery Conservation Zone

Over 195,600 man-h were spent fishing on headboats in the FCZ (Table 1). Eighty-two percent of the pressure was in the high use season. Galveston area headboats were responsible for 60% of the coastwide pressure followed by Corpus Christi headboats with 35% and lower Laguna Madre headboats with 4%.

Headboat fishermen fishing the FCZ landed over 391,200 fish (Table 2). Red snapper constituted 66% of the landings followed by vermilion snapper (19%), Atlantic sharpnose shark (Rhizoprionodon terraenovae) (~2%), and sand seatrout and king mackerel (Scomberomorus cavalla) with ~1% each. Landings by headboats in the Galveston area accounted for 73% of all finfish, 74% of all red snapper, 79% of all vermilion snapper, 55% of all king mackerel and 41% of all Atlantic sharpnose shark. Corpus Christi headboat landings comprised 20% of coastwide landings with 16% of all red snapper, 21% of all vermilion snapper, 57% of all Atlantic sharpnose shark and 45% of all king mackerel. Lower Laguna Madre headboats accounted for 7% of the FCZ landings. Red snapper landings were 96% of the total lower Laguna Madre headboat landings and 10% of coastwide red snapper landings. Species included in the "other" category landed by headboat fishermen are listed in Appendix D, Table D.1.

Mean catch rates were generally higher during the low use season for the 3 coastal areas (Table 3). Galveston headboat fishermen in the low use season had the highest catch rate for red snapper (3.79 fish/man-h), although lower Laguna Madre headboat fishermen had the highest annual red snapper catch rate (3.46 fish/man-h). Corpus Christi headboat fishermen had the lowest red snapper catch rates in both seasons and on an annual basis. Vermilion snapper catch rates were highest off Galveston during the low use season (1.20 fish/man-h) and decreased from Galveston south to the lower Laguna Madre. Annual king mackerel and Atlantic sharpnose shark catch rates were highest for Corpus Christi headboat fishermen (0.02 and 0.05 fish/man-h, respectively) and lowest for the lower Laguna Madre headboats (<0.01 and 0.01 fish/man-h, respectively).

The annual mean weight for red snapper was highest for Corpus Christi headboats (0.66 kg/fish) and lowest for Galveston area headboats (0.40 kg/fish) (Table 4). Vermilion snapper increased in annual mean weight from Galveston (0.15 kg/fish) south to the lower Laguna Madre (0.37 kg/fish). King mackerel were largest off Galveston (8.04 kg/fish) and smallest off the lower Laguna Madre (6.72 kg/fish). Atlantic sharpnose shark were largest off Corpus Christi (6.57 kg/fish) and the lower Laguna Madre (6.53 kg/fish).

## Texas Territorial Sea

Less than 3,000 man-h were spent fishing on headboats in the TTS (Table 5) with less than 1,000 fish landed (Table 6). Only 2 trips in the Corpus Christi area out of 37 trips surveyed coastwide were made to the TTS. No TTS trips were made by Galveston and lower Laguna Madre headboats.

King mackerel and Atlantic sharpnose shark were the dominant species landed. Catch rates were 0.02 fish/man-h for both species (Table 7). "Other" species landed are listed in Appendix D, Table D.2. The mean weight for king mackerel (11.63 kg/fish) (Table 8) was higher than the mean weight for king mackerel caught in the FCZ by headboats (Table 4).

## Pass

Headboat fishermen spent 32,500 man-h fishing in pass areas, or 8% of all headboat pressure (Table 9). Over 81% of the pressure occurred in the high use season. Headboats based in the Galveston and lower Laguna Madre areas fished in pass areas; Corpus Christi headboats did not. About 30,000 fish were landed on headboats fishing in passes or 6% of the coastwide headboat landings (Table 10). Sand seatrout was the primary species caught (17,300 fish) followed by Atlantic croaker (1000 fish). "Other" species landed are listed in Appendix D, Table D.3.

High use season mean catch rates for all species combined were highest for Galveston headboats (1.10 fish/man-h); low use season catch rates were highest for lower Laguna Madre headboats (0.50 fish/man-h) (Table 11). Catch rates were highest for sand seatrout (0.26-0.65 fish/man-h); catch rates for all other species were <0.05 fish/man-h.

Annual mean weights were highest for black drum (*Pogonias cromis*) (5.45 kg/fish) followed by gafftopsail catfish (0.75 kg/fish) (Table 12).

## Bay

Headboat fishermen spent ~156,500 man-h fishing in Texas bays during 15 May 1983-14 May 1984 (Table 13). This was about 40% of all headboat pressure. Eighty-five percent of the pressure occurred during the high use season. On an annual basis lower Laguna Madre headboats had about half as much pressure as either Galveston or Corpus Christi headboats even though the number of inshore headboats was the same in all three areas.

Sand seatrout dominated bay headboat landings with 58,600 fish (58% of the landings) followed by Atlantic croaker with 22,800 fish (23% of the landings) (Table 14). Sand seatrout were the dominant species landed by Corpus Christi headboat fishermen (81% of Corpus Christi landings and 69% of coastwide sand seatrout landings). Atlantic croaker were the dominant

species for Galveston headboats (53% of Galveston landings and 94% of coastwide Atlantic croaker landings). "Other" species landed are listed in Appendix D, Table D.4.

Annual mean catch rates were highest for all species combined in the Galveston bay system (0.83 fish/man-h) and lowest in the lower Laguna Madre (0.39 fish/man-h) (Table 15). Sand seatrout catch rates were highest for Corpus Christi headboats (0.50 fish/man-h) while Atlantic croaker catch rates were highest in Galveston bay (0.44 fish/man-h).

Annual mean weights for sand seatrout (0.23-0.25 kg/fish) were similar in all 3 areas (Table 16). Atlantic croaker were smallest in the Galveston area (0.12 kg/fish) and largest in the lower Laguna Madre area (0.27 kg/fish). Black drum were largest in the low use season (8.08 kg/fish) and were largest on an annual basis in the Corpus Christi area (7.66 kg/fish).

#### Party Boats

Party-boat fishermen fished over 384,500 man-h and landed nearly 305,000 fish from May 1983-May 1984. Almost 67% (255,600 man-h) of the pressure and 85% (258,800 fish) of the harvest occurred inshore with spotted seatrout (Cynoscion nebulosus) and Atlantic croaker dominating the catch in bays and passes, respectively. King mackerel and red snapper were the principal species landed by offshore party-boat fishermen. The high use season accounted for 88% of the annual fishing pressure and 92% of the annual harvest. The Corpus Christi area had 62% of the offshore landings and 30% of the inshore landings.

#### U.S. Fishery Conservation Zone

Party-boat fishing in the FCZ accounted for 25% (96,300 man-h) of the pressure (Table 17) and 9% (27,800 fish) of the harvest (Table 18) of all party boats. All pressure occurred during the high use season. The Corpus Christi area had 84% (80,500 man-h) of the pressure and 77% (21,400 fish) of the harvest. King mackerel accounted for 40% (11,000 fish) and "other" species for 46% (12,700 fish) of the FCZ harvest. "Other" species landed are listed in Appendix D, Table D.1. Lower Laguna Madre party boats had the highest annual mean catch rate (0.72 fish/man-h) while Matagorda party boats had the lowest (0.04 fish/man-h) (Table 19). King mackerel and red snapper were largest in the Matagorda FCZ area (Table 20).

#### Texas Territorial Sea

Party-boat fishing in the TTS accounted for 10% (40,200 man-h) of the pressure (Table 21) and 6% (18,300 fish) of the harvest (Table 22) of all party boats. All of the pressure and harvest occurred in the high use

season. The Corpus Christi area had 48% (19,200 man-h) of the pressure while the lower Laguna Madre area had 48% (8,700 fish) of the harvest. No data were available for fish landed by Galveston party boats. King mackerel accounted for 41% (7,500 fish) and red snapper 40% (7,300 fish) of the TTS harvest. The Matagorda area had the highest mean annual catch rate (0.66 fish/man-h) (Table 23). Cobia had the highest annual TTS mean weight (19.50 kg/fish) and red snapper the lowest (0.31 kg/fish) (Table 24). "Other" species landed are listed in Appendix D, Table D.2.

#### Pass

Party-boat fishing in passes accounted for 4% (15,800 man-h) of the pressure (Table 25) and 6% (18,800 fish) of the harvest (Table 26) of all party boats. The lower Laguna Madre area had 46% (7,200 man-h) of the pressure and 61% (11,500 fish) of the pass harvest. Spotted seatrout accounted for 64% (12,100 fish) and Atlantic croaker 28% (5,200 fish) of the pass harvest. The Corpus Christi area had the highest mean annual catch rate (2.50 fish/man-h) while the Matagorda area had the lowest (0.18 fish/man-h) (Table 27). Red drum had the highest annual pass mean weight (1.07 kg/fish) and sand seatrout the lowest (0.44 kg/fish) (Table 28). "Other" species landed are listed in Appendix D, Table D.3.

#### Bay

Party-boat fishing in bays accounted for 60% (232,300 man-h) of the pressure (Table 29) and 79% (240,000 fish) of the harvest (Table 30) of all party boats. Eighty-two percent of the pressure and 94% of the bay harvest occurred in the high use season. The lower Laguna Madre bay system had the highest annual pressure and harvest (90,300 man-h and 75,400 fish) and the upper Laguna Madre bay system had the lowest (400 man-h and no fish). Spotted seatrout accounted for 75% (180,600 fish) of the bay harvest. The Aransas Bay system had the highest annual mean catch rate (1.43 fish/man-h) and the upper Laguna Madre bay system had the lowest (0.00 fish/man-h) (Table 31). Annual mean weights of the harvested species varied among areas (Table 32). "Other" species landed are listed in Appendix D, Table D.4.

## DISCUSSION

Only recently have harvest and effort data for charterboat fishermen been routinely collected (McEachron and Matlock 1983). Various difficulties in surveying charterboat fishermen, such as high mobility and seasonality of the operators and owner noncooperation, have been noted by Fraser et al. (1977) and McEachron (1984). The charter industry, however, has become a significant component of the total sport fishery in Texas and can no longer be ignored (Ditton et al. 1978). Charterboat fishermen have been estimated to land up to 2 million fish annually in Texas (McEachron 1984, Trent 1976, National Marine Fisheries Service 1980). The total

harvest estimated by this survey was 828,200 fish. Catch rates of charterboat fishermen are appreciably greater than those reported for non-charter fishermen (McEachron 1984, Osburn and Ferguson 1985, Trent 1976) principally due to the fish guides' greater knowledge of "good" fishing areas (Caillouet and Higman 1978). The demonstrated success of the charter fishery coupled with the increasing number of boats in the industry emphasizes the need to continue monitoring the harvest and effort of charterboat fishermen.

The principal species landed in the present study were identical to those reported in McEachron (1984) for similar fishermen categories: red snapper for offshore headboat fishermen, sand seatrout for inshore headboat fishermen, king mackerel for offshore party-boat fishermen and spotted seatrout for inshore party-boat fishermen.

Offshore headboat fishermen in our study (1983-84) had lower annual fishing pressure, total harvest, and total catch per effort than reported for 1981-82 in McEachron (1984). Inshore headboat fishermen for 1983-84 had higher annual fishing pressure but lower total harvest and total catch per effort than reported for 1981-82. Offshore and inshore party-boat fishermen in 1983-84 had similar annual fishing pressure but lower total harvest and total catch per effort than reported for their respective categories for 1981-82. Methods reported by McEachron (1984) for obtaining annual headboat estimates were similar to those used in the present study. Methods for obtaining annual party-boat fishermen estimates, however, were markedly different between the two studies. McEachron (1984) conducted surveys only during June-August, then expanded harvest and effort for the year based on the percentage of annual boat trips reportedly made during the summer. Our study indicates lower catch per effort during the low use season, suggesting that the estimated annual party-boat harvests reported in McEachron (1984) may be overestimated. Mean catch rates are listed in Appendix E for selected finfish species retained by charterboat fishermen for time periods and areas similar to those reported by McEachron (1984).

The cost in personnel man-h and expenditures for the TPWD Finfish Program was reported by Hegen et al. (1983). It is recommended that a similar effort be undertaken to determine the cost of the Creel Program as presently structured. The present study indicates that if budgetary constraints dictate program reductions, the present creel monitoring program could continue monitoring all party boats and inshore headboats for information on fishing in marine waters under Texas management jurisdiction. Surveys of offshore headboats could be discontinued since <2% of the fishing pressure and <1% of the harvest of offshore headboats occurs in the Texas Territorial Sea.

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Table 1. Total pressure estimates in man-h (x 1000) for sport fishing on headboats in the U.S. Fishery Conservation Zone off Texas (May 1983-May 1984).

Area	Season		Annual total <sup>a</sup>
	High use	Low use	
Galveston	103.5	14.9	118.4
Corpus Christi	53.5	15.9	69.4
Lower Laguna Madre	4.0	3.8	7.8
Coastwide total <sup>a</sup>	160.9	34.6	195.6

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

Table 2. Estimated harvest of fishes (no. x 1000) by species, season and coastal area caught in the U.S. Fishery Conservation Zone off Texas by sport fishermen on headboats (May 1983-May 1984).

Species	Season	Galveston	Corpus Christi	Lower Laguna Madre	Coastwide total <sup>a</sup>
Sand seatrout	High use	3.4	<.1	0.0	3.4
	Low use	0.1	0.6	0.1	0.7
	Annual	3.4	0.6	0.1	4.1
Red drum	High use	0.0	0.0	0.0	0.0
	Low use	0.0	0.1	0.0	0.1
	Annual	0.0	0.1	0.0	0.1
Atlantic croaker	High use	0.2	0.1	0.0	0.2
	Low use	0.0	0.6	<.1	0.6
	Annual	0.2	0.7	<.1	0.9
King mackerel	High use	1.7	1.4	<.1	3.1
	Low use	0.0	0.0	0.0	0.0
	Annual	1.7	1.4	<.1	3.1
Spanish mackerel	High use	0.3	0.0	0.0	0.3
	Low use	0.0	0.0	0.0	0.0
	Annual	0.3	0.0	0.0	0.3
Cobia	High use	0.2	<.1	0.0	0.3
	Low use	0.0	<.1	0.0	<.1
	Annual	0.2	<.1	0.0	0.3
Red snapper	High use	134.2	28.6	14.5	177.2
	Low use	56.6	11.7	12.5	80.7
	Annual	190.7	40.3	27.0	258.0
Vermilion snapper	High use	41.2	14.0	0.1	55.3
	Low use	17.9	1.7	0.1	19.6
	Annual	59.0	15.7	0.2	74.9
Atlantic sharpnose shark	High use	1.5	3.0	0.0	4.5
	Low use	1.0	0.5	0.1	1.6
	Annual	2.5	3.5	0.1	6.1
Other	High use	24.3	7.6	0.4	33.0
	Low use	2.6	8.0	0.2	11.0
	Annual	26.9	15.6	0.6	44.0
All species combined <sup>a</sup>	High use	207.0	54.8	15.0	276.9
	Low use	78.2	23.2	13.0	114.3
	Annual	285.2	77.9	28.0	391.2

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

Table 3. Mean catch rate of fishes (No./man-h) by species, season and coastal area caught in the U.S. Fishery Conservation Zone off Texas by sport fishermen on headboats (May 1983-May 1984).

Species	Season	Galveston	Corpus Christi	Lower Laguna Madre	Coastwide total
Sand seatrout	High use	0.03	0.00	0.00	0.02
	Low use	<.01	0.04	0.01	0.02
	Annual	0.03	0.01	0.01	0.02
Red drum	High use	0.00	0.00	0.00	0.00
	Low use	0.00	0.01	0.00	<.01
	Annual	0.00	<.01	0.00	<.01
Atlantic croaker	High use	<.01	<.01	0.00	<.01
	Low use	0.00	0.04	<.01	0.01
	Annual	<.01	0.01	<.01	0.01
King mackerel	High use	0.02	0.03	0.01	0.02
	Low use	0.00	0.00	0.00	0.00
	Annual	0.01	0.02	<.01	0.02
Spanish mackerel	High use	<.01	0.00	0.00	<.01
	Low use	0.00	0.00	0.00	0.00
	Annual	<.01	0.00	0.00	<.01
Cobia	High use	<.01	<.01	0.00	<.01
	Low use	0.00	<.01	0.00	<.01
	Annual	<.01	<.01	0.00	<.01
Red snapper	High use	1.30	0.54	3.60	1.10
	Low use	3.79	0.73	3.32	2.33
	Annual	1.61	0.58	3.46	1.32
Vermilion snapper	High use	0.40	0.26	0.03	0.34
	Low use	1.20	0.11	0.02	0.57
	Annual	0.50	0.23	0.03	0.38
Atlantic sharpnose shark	High use	0.02	0.06	0.00	0.03
	Low use	0.07	0.03	0.03	0.05
	Annual	0.02	0.05	0.01	0.03
Other	High use	0.23	0.14	0.08	0.20
	Low use	0.18	0.49	0.07	0.32
	Annual	0.24	0.22	0.08	0.22
All species combined <sup>a</sup>	High use	2.00	1.03	3.72	1.72
	Low use	5.24	1.45	3.45	3.30
	Annual	2.41	1.12	3.59	2.00

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

Table 4. Mean weight of fishes (kg/fish) by species, season and coastal area caught in the U.S. Fishery Conservation Zone off Texas by sport fishermen on headboats (May 1983-May 1984). Blanks = no fish weighed.

Species	Season	Galveston	Corpus Christi	Lower Laguna Madre	Coastwide total
Sand seatrout	High use	0.28	0.48		0.28
	Low use	0.33	0.35	0.87	0.39
	Annual	0.28	0.35	0.87	0.30
Red drum	High use				
	Low use		2.54		2.54
	Annual		2.54		2.54
Atlantic croaker	High use	0.48	0.53		0.49
	Low use		0.34	0.35	0.34
	Annual	0.48	0.34	0.35	0.37
King mackerel	High use	8.04	7.94	6.72	7.98
	Low use				
	Annual	8.04	7.94	6.72	7.98
Spanish mackerel	High use	1.00			1.00
	Low use				
	Annual	1.00			1.00
Cobia	High use	9.96	8.16		9.82
	Low use		9.13		9.13
	Annual	9.96	8.89		9.81
Red snapper	High use	0.42	0.56	0.45	0.44
	Low use	0.38	0.79	0.59	0.47
	Annual	0.40	0.66	0.54	0.45
Vermilion snapper	High use	0.16	0.37	0.30	0.21
	Low use	0.14	0.32	0.45	0.16
	Annual	0.15	0.36	0.37	0.20
Atlantic sharpnose shark	High use	4.05	6.13		5.43
	Low use	4.98	6.85	6.53	5.67
	Annual	4.51	6.57	6.53	5.72
All species combined	High use	0.54	0.95	0.45	0.62
	Low use	0.41	0.95	0.66	0.55
	Annual	0.48	0.95	0.58	0.58

Table 5. Total pressure estimates in man-h (x 1000) for sport fishing on headboats in the Texas Territorial Sea (May 1983-May 1984).

Area	Season		Annual total <sup>a</sup>
	High use	Low use	
Galveston	0.0	0.0	0.0
Corpus Christi	2.7	0.0	2.7
Lower Laguna Madre	0.0	0.0	0.0
Coastwide total <sup>a</sup>	2.7	0.0	2.7

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

Table 6. Estimated harvest of fishes (No. x 1000) by species, season and coastal area caught in the Texas Territorial Sea by sport fishermen on headboats (May 1983-May 1984).

Species	Season	Galveston	Corpus Christi	Lower Laguna Madre	Coastwide total <sup>a</sup>
Spotted seatrout	High use	0.0	0.0	0.0	0.0
	Low use	0.0	0.0	0.0	0.0
	Annual	0.0	0.0	0.0	0.0
Red drum	High use	0.0	0.0	0.0	0.0
	Low use	0.0	0.0	0.0	0.0
	Annual	0.0	0.0	0.0	0.0
Black drum	High use	0.0	0.0	0.0	0.0
	Low use	0.0	0.0	0.0	0.0
	Annual	0.0	0.0	0.0	0.0
King mackerel	High use	0.0	0.1	0.0	0.1
	Low use	0.0	0.0	0.0	0.0
	Annual	0.0	0.1	0.0	0.1
Spanish mackerel	High use	0.0	0.0	0.0	0.0
	Low use	0.0	0.0	0.0	0.0
	Annual	0.0	0.0	0.0	0.0
Cobia	High use	0.0	0.0	0.0	0.0
	Low use	0.0	0.0	0.0	0.0
	Annual	0.0	0.0	0.0	0.0
Red snapper	High use	0.0	0.0	0.0	0.0
	Low use	0.0	0.0	0.0	0.0
	Annual	0.0	0.0	0.0	0.0
Atlantic sharpnose shark	High use	0.0	0.1	0.0	0.1
	Low use	0.0	0.0	0.0	0.0
	Annual	0.0	0.1	0.0	0.1
Other	High use	0.0	0.6	0.0	0.6
	Low use	0.0	0.0	0.0	0.0
	Annual	0.0	0.6	0.0	0.6
All species combined <sup>a</sup>	High use	0.0	0.8	0.0	0.8
	Low use	0.0	0.0	0.0	0.0
	Annual	0.0	0.8	0.0	0.8

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

Table 7. Mean catch rate of fishes (No./man-h) by species, season and coastal area caught in the Texas Territorial Sea by sport fishermen on headboats (May 1983-May 1984).

Species	Season	Galveston	Corpus Christi	Lower Laguna Madre	Coastwide total
Spotted seatrout	High use	0.00	0.00	0.00	0.00
	Low use	0.00	0.00	0.00	0.00
	Annual	0.00	0.00	0.00	0.00
Red drum	High use	0.00	0.00	0.00	0.00
	Low use	0.00	0.00	0.00	0.00
	Annual	0.00	0.00	0.00	0.00
Black drum	High use	0.00	0.00	0.00	0.00
	Low use	0.00	0.00	0.00	0.00
	Annual	0.00	0.00	0.00	0.00
King mackerel	High use	0.00	0.02	0.00	0.02
	Low use	0.00	0.00	0.00	0.00
	Annual	0.00	0.02	0.00	0.02
Spanish mackerel	High use	0.00	0.00	0.00	0.00
	Low use	0.00	0.00	0.00	0.00
	Annual	0.00	0.00	0.00	0.00
Cobia	High use	0.00	0.00	0.00	0.00
	Low use	0.00	0.00	0.00	0.00
	Annual	0.00	0.00	0.00	0.00
Red snapper	High use	0.00	0.00	0.00	0.00
	Low use	0.00	0.00	0.00	0.00
	Annual	0.00	0.00	0.00	0.00
Atlantic sharpnose shark	High use	0.00	0.02	0.00	0.02
	Low use	0.00	0.00	0.00	0.00
	Annual	0.00	0.02	0.00	0.02
Other	High use	0.00	0.24	0.00	0.24
	Low use	0.00	0.00	0.00	0.00
	Annual	0.00	0.24	0.00	0.24
All species combined <sup>a</sup>	High use	0.00	0.28	0.00	0.28
	Low use	0.00	0.00	0.00	0.00
	Annual	0.00	0.28	0.00	0.28

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

Table 8. Mean weight of fishes (kg/fish) by species, season and coastal area caught in the Texas Territorial Sea by sport fishermen on headboats (May 1983-May 1984). Blanks = no fish weighed.

Species	Season	Galveston	Corpus Christi	Lower Laguna Madre	Coastwide
Spotted seatrout	High use				
	Low use				
	Annual				
Red drum	High use				
	Low use				
	Annual				
Black drum	High use				
	Low use				
	Annual				
King mackerel	High use		11.63		11.63
	Low use				
	Annual		11.63		11.63
Spanish mackerel	High use				
	Low use				
	Annual				
Cobia	High use				
	Low use				
	Annual				
Red snapper	High use				
	Low use				
	Annual				
Atlantic sharpnose shark	High use		5.53		5.53
	Low use				
	Annual		5.53		5.53
All species combined	High use		9.41		9.41
	Low use				
	Annual		9.41		9.41



Table 9. Total pressure estimates in man-h (x 1000) for sport fishing on headboats in passes (May 1983-May 1984).

Area	Season		Annual total <sup>a</sup>
	High use	Low use	
Galveston	21.2	3.2	24.4
Corpus Christi	0.0	0.0	0.0
Lower Laguna Madre	5.4	2.7	8.0
Coastwide total <sup>a</sup>	26.6	5.9	32.5

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

Table 10. Estimated harvest of fishes (No. x 1000) by species, season and coastal area caught in passes by sport fishermen on headboats (May 1983-May 1984).

Species	Season	Galveston	Corpus Christi	Lower Laguna Madre	Coastwide total <sup>a</sup>
Spotted seatrout	High use	0.0	0.0	<.1	<.1
	Low use	0.0	0.0	0.0	0.0
	Annual	0.0	0.0	<.1	<.1
Red drum	High use	0.0	0.0	0.0	0.0
	Low use	0.0	0.0	0.0	0.0
	Annual	0.0	0.0	0.0	0.0
Black drum	High use	0.1	0.0	0.0	0.1
	Low use	0.1	0.0	0.0	0.1
	Annual	0.3	0.0	0.0	0.3
Southern flounder	High use	0.0	0.0	0.0	0.0
	Low use	<.1	0.0	0.0	<.1
	Annual	<.1	0.0	0.0	<.1
Sheepshead	High use	0.0	0.0	<.1	<.1
	Low use	0.0	0.0	<.1	<.1
	Annual	0.0	0.0	<.1	<.1
Atlantic croaker	High use	0.7	0.0	0.2	1.0
	Low use	<.1	0.0	0.0	<.1
	Annual	0.8	0.0	0.2	1.0
Sand seatrout	High use	13.8	0.0	2.8	16.6
	Low use	0.0	0.0	0.7	0.7
	Annual	13.8	0.0	3.5	17.3
Gafftopsail catfish	High use	0.5	0.0	0.0	0.5
	Low use	0.1	0.0	0.0	0.1
	Annual	0.6	0.0	0.0	0.6
Other	High use	8.0	0.0	2.0	10.0
	Low use	0.2	0.0	0.6	0.8
	Annual	8.2	0.0	2.6	10.8
All species combined <sup>a</sup>	High use	23.3	0.0	5.0	28.3
	Low use	0.4	0.0	1.3	1.7
	Annual	23.7	0.0	6.3	30.0

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

Table 11. Mean catch rate of fishes (No./man-h) by species, season and coastal area caught in passes by sport fishermen on headboats (May 1983-May 1984).

Species	Season	Galveston	Corpus Christi	Lower Laguna Madre	Coastwide total
Spotted seatrout	High use	0.00	0.00	0.01	<.01
	Low use	0.00	0.00	0.00	0.00
	Annual	0.00	0.00	<.01	<.01
Red drum	High use	0.00	0.00	0.00	0.00
	Low use	0.00	0.00	0.00	0.00
	Annual	0.00	0.00	0.00	0.00
Black drum	High use	0.01	0.00	0.00	0.01
	Low use	0.04	0.00	0.00	0.02
	Annual	0.01	0.00	0.00	0.01
Southern flounder	High use	0.00	0.00	0.00	0.00
	Low use	<.01	0.00	0.00	<.01
	Annual	<.01	0.00	0.00	<.01
Sheepshead	High use	0.00	0.00	0.01	<.01
	Low use	0.00	0.00	0.01	<.01
	Annual	0.00	0.00	0.01	<.01
Atlantic croaker	High use	0.04	0.00	0.04	0.04
	Low use	0.01	0.00	0.00	0.01
	Annual	0.03	0.00	0.03	0.03
Sand seatrout	High use	0.65	0.00	0.53	0.63
	Low use	0.00	0.00	0.26	0.12
	Annual	0.57	0.00	0.44	0.53
Gafftopsail catfish	High use	0.02	0.00	0.00	0.02
	Low use	0.04	0.00	0.00	0.02
	Annual	0.03	0.00	0.00	0.02
Other	High use	0.38	0.00	0.34	0.38
	Low use	0.03	0.00	0.23	0.12
	Annual	0.33	0.00	0.31	0.33
All species combined <sup>a</sup>	High use	1.10	0.00	0.93	1.07
	Low use	0.12	0.00	0.50	0.30
	Annual	0.97	0.00	0.79	0.97

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

Table 12. Mean weight of fishes (kg/fish) by species, season and coastal area caught in passes by sport fishermen on headboats (May 1983-May 1984). Blanks = no fish weighed.

Species	Season	Galveston	Corpus Christi	Lower Laguna Madre	Coastwide
Spotted seatrout	High use			0.38	0.38
	Low use				
	Annual			0.38	0.38
Red drum	High use				
	Low use				
	Annual				
Black drum	High use	3.75			3.75
	Low use	5.67			5.67
	Annual	5.45			5.45
Southern flounder	High use				
	Low use	0.12			0.12
	Annual	0.12			0.12
Sheepshead	High use			0.67	0.67
	Low use			0.65	0.65
	Annual			0.66	0.66
Atlantic croaker	High use	0.10		0.23	0.13
	Low use	0.10			0.10
	Annual	0.10		0.23	0.13
Sand seatrout	High use	0.21		0.30	0.22
	Low use			0.31	0.31
	Annual	0.21		0.30	0.23
Gafftopsail catfish	High use	0.30			0.30
	Low use	1.21			1.21
	Annual	0.75			0.75
All species combined	High use	0.64		0.34	0.58
	Low use	3.62		0.30	1.04
	Annual	0.89		0.32	0.77

Table 13. Total pressure estimates in man-h (x 1000) for sport fishing on headboats in Texas bays (May 1983-May 1984).

Area	Season		Annual total <sup>a</sup>
	High use	Low use	
Galveston	42.1	7.0	49.0
Corpus Christi	68.0	2.7	50.2
Lower Laguna Madre	23.1	3.2	26.3
Coastwide total <sup>a</sup>	133.1	23.4	156.5

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

Table 14. Estimated harvest of fishes (No. x 1000) by species, season and coastal area caught in Texas bays by sport fishermen on headboats (May 1983-May 1984).

Species	Season	Galveston	Corpus Christi	Lower Laguna Madre	Coastwide total <sup>a</sup>
Spotted seatrout	High use	0.0	4.5	0.1	4.6
	Low use	0.0	0.0	0.0	0.0
	Annual	0.0	4.5	0.1	4.6
Red drum	High use	<.1	0.0	0.0	<.1
	Low use	0.0	0.0	0.0	0.0
	Annual	<.1	0.0	0.0	<.1
Black drum	High use	2.2	0.1	<.1	2.3
	Low use	0.1	0.2	0.0	0.3
	Annual	2.3	0.3	<.1	2.6
Southern flounder	High use	0.1	<.1	0.0	0.1
	Low use	0.0	0.0	0.0	0.0
	Annual	0.1	<.1	0.0	0.1
Sheepshead	High use	<.1	0.0	0.1	0.2
	Low use	<.1	0.0	0.1	0.1
	Annual	0.1	0.0	0.2	0.3
Atlantic croaker	High use	20.5	0.6	0.6	21.8
	Low use	1.0	0.0	0.1	1.1
	Annual	21.5	0.6	0.7	22.8
Sand seatrout	High use	11.8	38.4	5.2	55.4
	Low use	1.1	2.0	0.1	3.2
	Annual	12.9	40.4	5.3	58.6
Gafftopsail catfish	High use	<.1	0.8	0.0	0.8
	Low use	<.1	0.1	0.0	0.1
	Annual	0.1	0.9	0.0	0.9
Other	High use	4.0	3.1	4.0	11.1
	Low use	0.1	0.4	0.2	0.7
	Annual	4.1	3.5	4.2	11.8
All species combined <sup>a</sup>	High use	38.5	47.5	9.9	95.9
	Low use	2.3	2.7	0.4	5.4
	Annual	40.9	50.2	10.3	101.3

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

Table 15. Mean catch rate of fishes (No./man-h) by species, season and coastal area caught in Texas bays by sport fishermen on headboats (May 1983-May 1984).

Species	Season	Galveston	Corpus Christi	Lower Laguna Madre	Coastwide total
Spotted seatrout	High use	0.00	0.07	0.01	0.04
	Low use	0.00	0.00	0.00	0.00
	Annual	0.00	0.06	0.01	0.03
Red drum	High use	<.01	0.00	0.00	<.01
	Low use	0.00	0.00	0.00	0.00
	Annual	<.01	0.00	0.00	<.01
Black drum	High use	0.05	<.01	<.01	0.02
	Low use	0.02	0.01	0.00	0.01
	Annual	0.05	<.01	<.01	0.02
Southern flounder	High use	<.01	<.01	0.00	<.01
	Low use	0.00	0.00	0.00	0.00
	Annual	<.01	<.01	0.00	<.01
Sheepshead	High use	<.01	0.00	0.01	<.01
	Low use	<.01	0.00	0.03	0.01
	Annual	<.01	0.00	0.01	<.01
Atlantic croaker	High use	0.49	0.01	0.03	0.16
	Low use	0.14	0.00	0.02	0.05
	Annual	0.44	0.01	0.03	0.15
Sand seatrout	High use	0.28	0.57	0.23	0.42
	Low use	0.16	0.15	0.02	0.14
	Annual	0.26	0.50	0.20	0.37
Gafftopsail catfish	High use	<.01	0.01	0.00	0.01
	Low use	<.01	0.01	0.00	0.01
	Annual	<.01	0.01	0.00	0.01
Other	High use	0.09	0.04	0.16	0.07
	Low use	0.01	0.04	0.07	0.02
	Annual	0.06	0.04	0.15	0.07
All species combined <sup>a</sup>	High use	0.91	0.70	0.43	0.72
	Low use	0.33	0.21	0.11	0.23
	Annual	0.83	0.62	0.39	0.65

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

Table 16. Mean weight of fishes (kg/fish) by species, season and coastal area caught in Texas bays by sport fishermen on headboats (May 1983-May 1984). Blank = no fish weighed.

Species	Season	Galveston	Corpus Christi	Lower Laguna Madre	Coastwide
Spotted seatrout	High use		0.34	0.41	0.34
	Low use				
	Annual		0.34	0.41	0.34
Red drum	High use	0.71			0.71
	Low use				
	Annual	0.71			0.71
Black drum	High use	0.67	1.63	0.46	0.70
	Low use	6.47	9.00		8.08
	Annual	1.53	7.66	0.46	2.14
Southern flounder	High use	0.62	0.56		0.61
	Low use				
	Annual	0.62	0.56		0.61
Sheepshead	High use	1.03		0.64	0.75
	Low use	1.41		0.51	0.68
	Annual	1.15		0.54	0.68
Atlantic croaker	High use	0.12	0.20	0.27	0.13
	Low use	0.08		0.23	0.09
	Annual	0.12	0.20	0.27	0.12
Sand seatrout	High use	0.25	0.24	0.22	0.24
	Low use	0.23	0.31	0.26	0.29
	Annual	0.25	0.24	0.23	0.24
Gafftopsail catfish	High use	0.53	1.27		1.25
	Low use	0.93	1.90		1.69
	Annual	0.80	1.44		1.40
All species combined	High use	0.27	0.30	0.30	0.29
	Low use	1.14	0.97	0.43	1.01
	Annual	0.35	0.36	0.32	0.35



Table 17. Total pressure estimates in man-h (x 1000) for party-boat fishing by season in the U.S. Fishery Conservation Zone off Texas (May 1983-May 1984).

Area	Season		Annual <sup>a</sup> total
	High use	Low use	
Galveston	8.3	0.0	8.3
Matagorda	1.6	0.0	1.6
Corpus Christi	80.5	0.0	80.5
Lower Laguna Madre	6.0	0.0	6.0
Coastwide total <sup>a</sup>	96.3	0.0	96.3

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

Table 18. Estimated harvest (No. x 1000) of fishes by species, season, and area caught by party-boat fishermen in the U.S. Fishery Conservation Zone (May 1983-May 1984).

Species	Season	Galveston	Matagorda	Corpus Christi	Lower Laguna Madre	Coastwide total <sup>a</sup>
Sand seatrout	High use	0.0	0.0	0.0	0.0	0.0
	Low use	0.0	0.0	0.0	0.0	0.0
	Annual	0.0	0.0	0.0	0.0	0.0
Red drum	High use	0.0	0.0	0.0	0.0	0.0
	Low use	0.0	0.0	0.0	0.0	0.0
	Annual	0.0	0.0	0.0	0.0	0.0
Atlantic croaker	High use	0.0	0.0	0.0	0.0	0.0
	Low use	0.0	0.0	0.0	0.0	0.0
	Annual	0.0	0.0	0.0	0.0	0.0
King mackerel	High use	1.6	<.1	9.2	0.2	11.0
	Low use	0.0	0.0	0.0	0.0	0.0
	Annual	1.6	<.1	9.2	0.2	11.0
Spanish mackerel	High use	0.3	0.0	0.2	0.0	0.5
	Low use	0.0	0.0	0.0	0.0	0.0
	Annual	0.3	0.0	0.2	0.0	0.5
Cobia	High use	0.0	0.0	0.0	0.0	0.0
	Low use	0.0	0.0	0.0	0.0	0.0
	Annual	0.0	0.0	0.0	0.0	0.0
Red snapper	High use	0.0	<.1	0.0	3.3	3.3
	Low use	0.0	0.0	0.0	0.0	0.0
	Annual	0.0	<.1	0.0	3.3	3.3
Vermilion snapper	High use	0.0	0.0	0.0	0.0	0.0
	Low use	0.0	0.0	0.0	0.0	0.0
	Annual	0.0	0.0	0.0	0.0	0.0
Atlantic sharpnose shark	High use	0.0	0.0	0.3	0.0	0.3
	Low use	0.0	0.0	0.0	0.0	0.0
	Annual	0.0	0.0	0.3	0.0	0.3
Other	High use	0.2	<.1	11.7	0.8	12.7
	Low use	0.0	0.0	0.0	0.0	0.0
	Annual	0.2	<.1	11.7	0.8	12.7
All species combined <sup>a</sup>	High use	2.1	0.1	21.4	4.3	27.8
	Low use	0.0	0.0	0.0	0.0	0.0
	Annual	2.1	0.1	21.4	4.3	27.8

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

Table 19. Mean catch rate of fishes (No./man-h) by species, season, and area caught by party-boat fishermen in the U.S. Fishery Conservation Zone off Texas (May 1983-May 1984).

Species	Season	Galveston	Matagorda	Corpus Christi	Lower Laguna Madre	Coastwide total
Sand seatrout	High use	0.00	0.00	0.00	0.00	0.00
	Low use	0.00	0.00	0.00	0.00	0.00
	Annual	0.00	0.00	0.00	0.00	0.00
Red drum	High use	0.00	0.00	0.00	0.00	0.00
	Low use	0.00	0.00	0.00	0.00	0.00
	Annual	0.00	0.00	0.00	0.00	0.00
Atlantic croaker	High use	0.00	0.00	0.00	0.00	0.00
	Low use	0.00	0.00	0.00	0.00	0.00
	Annual	0.00	0.00	0.00	0.00	0.00
King mackerel	High use	0.19	0.03	0.11	0.03	0.11
	Low use	0.00	0.00	0.00	0.00	0.00
	Annual	0.19	0.03	0.11	0.03	0.11
Spanish mackerel	High use	0.04	0.00	<.01	0.00	0.01
	Low use	0.00	0.00	0.00	0.00	0.00
	Annual	0.04	0.00	<.01	0.00	0.01
Cobia	High use	0.00	0.00	0.00	0.00	0.00
	Low use	0.00	0.00	0.00	0.00	0.00
	Annual	0.00	0.00	0.00	0.00	0.00
Red snapper	High use	0.00	<.01	0.00	0.55	0.03
	Low use	0.00	0.00	0.00	0.00	0.00
	Annual	0.00	<.01	0.00	0.55	0.03
Vermilion snapper	High use	0.00	0.00	0.00	0.00	0.00
	Low use	0.00	0.00	0.00	0.00	0.00
	Annual	0.00	0.00	0.00	0.00	0.00
Atlantic sharpnose shark	High use	0.00	0.00	<.01	0.00	<.01
	Low use	0.00	0.00	0.00	0.00	0.00
	Annual	0.00	0.00	<.01	0.00	<.01
Other	High use	0.03	<.01	0.15	0.14	0.13
	Low use	0.00	0.00	0.00	0.00	0.00
	Annual	0.03	<.01	0.15	0.14	0.13
All species combined <sup>a</sup>	High use	0.26	0.04	0.27	0.72	0.29
	Low use	0.00	0.00	0.00	0.00	0.00
	Annual	0.26	0.04	0.27	0.72	0.29

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

Table 20. Mean weight of fishes (kg/fish) by species, season, and area by party-boat fishermen in the U.S. Fishery Conservation Zone off Texas (May 1983-May 1984). Blank = no fish weighed.

Species	Season	Galveston	Matagorda	Corpus Christi	Lower Laguna Madre	Coastwide total
Sand seatrout	High use					
	Low use					
	Annual					
Red drum	High use					
	Low use					
	Annual					
Atlantic croaker	High use					
	Low use					
	Annual					
King mackerel	High use	9.33	14.24	9.55	5.49	9.47
	Low use					
	Annual	9.33	14.24	9.55	5.49	9.47
Spanish mackerel	High use	1.01		1.12		1.06
	Low use					
	Annual	1.01		1.12		1.06
Cobia	High use					
	Low use					
	Annual					
Red snapper	High use		2.12		0.68	0.69
	Low use					
	Annual		2.12		0.68	0.69
Vermilion snapper	High use					
	Low use					
	Annual					
Atlantic sharpnose shark	High use					
	Low use					
	Annual					
All species combined	High use	7.20	12.50	15.17	1.56	12.46
	Low use					
	Annual	7.20	12.50	15.17	1.56	12.46

Table 21. Total pressure estimates in man-h (x 1000) for party-boat fishing by season in the Texas Territorial Sea (May 1983-May 1984).

Area	Season		Annual <sup>a</sup> total
	High use	Low use	
Galveston	2.1	0.0	2.1
Matagorda	3.5	0.0	3.5
Corpus Christi	19.2	0.0	19.2
Lower Laguna Madre	15.3	0.0	15.3
Coastwide total <sup>a</sup>	40.2	0.0	40.2

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

Table 22. Estimated harvest (No. x 1000) of fishes by species, season, and area caught by party-boat fishermen in the Texas Territorial Sea (May 1983-May 1984).

Species	Season	Galveston <sup>b</sup>	Matagorda	Corpus Christi	Lower Laguna Madre	Coastwide total <sup>a</sup>
Spotted seatrout	High use	0.0	0.9	0.0	0.0	0.9
	Low use	0.0	0.0	0.0	0.0	0.0
	Annual	0.0	0.9	0.0	0.0	0.9
Red drum	High use	0.0	0.3	0.0	0.0	0.3
	Low use	0.0	0.0	0.0	0.0	0.0
	Annual	0.0	0.3	0.0	0.0	0.3
Black drum	High use	0.0	0.2	0.0	0.0	0.2
	Low use	0.0	0.0	0.0	0.0	0.0
	Annual	0.0	0.2	0.0	0.0	0.2
King mackerel	High use	0.0	0.0	6.5	0.9	7.5
	Low use	0.0	0.0	0.0	0.0	0.0
	Annual	0.0	0.0	6.5	0.9	7.5
Spanish mackerel	High use	0.0	0.0	0.3	0.0	0.3
	Low use	0.0	0.0	0.0	0.0	0.0
	Annual	0.0	0.0	0.3	0.0	0.3
Cobia	High use	0.0	0.0	<.1	0.0	<.1
	Low use	0.0	0.0	0.0	0.0	0.0
	Annual	0.0	0.0	<.1	0.0	<.1
Red snapper	High use	0.0	0.0	0.0	7.3	7.3
	Low use	0.0	0.0	0.0	0.0	0.0
	Annual	0.0	0.0	0.0	7.3	7.3
Atlantic sharpnose shark	High use	0.0	0.0	0.0	0.0	0.0
	Low use	0.0	0.0	0.0	0.0	0.0
	Annual	0.0	0.0	0.0	0.0	0.0
Other	High use	0.0	0.9	0.3	0.5	1.7
	Low use	0.0	0.0	0.0	0.0	0.0
	Annual	0.0	0.9	0.3	0.5	1.7
All species combined <sup>a</sup>	High use	0.0	2.3	7.2	8.7	18.3
	Low use	0.0	0.0	0.0	0.0	0.0
	Annual	0.0	2.3	7.2	8.7	18.3

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

<sup>b</sup> No data were available for fish landed in the Galveston area.

Table 23. Mean catch rate of fishes (No./man-h) by species, season, and area caught by party-boat fishermen in the Texas Territorial Sea (May 1983-May 1984).

Species	Season	Galveston <sup>b</sup>	Matagorda	Corpus Christi	Lower Laguna Madre	Coastwide total
Spotted seatrout	High use	0.00	0.25	0.00	0.00	0.02
	Low use	0.00	0.00	0.00	0.00	0.00
	Annual	0.00	0.25	0.00	0.00	0.02
Red drum	High use	0.00	0.09	0.00	0.00	0.01
	Low use	0.00	0.00	0.00	0.00	0.00
	Annual	0.00	0.00	0.00	0.00	0.01
Black drum	High use	0.00	0.06	0.00	0.00	<.01
	Low use	0.00	0.00	0.00	0.00	0.00
	Annual	0.00	0.06	0.00	0.00	<.01
King mackerel	High use	0.00	0.00	0.34	0.06	0.18
	Low use	0.00	0.00	0.00	0.00	0.00
	Annual	0.00	0.00	0.34	0.06	0.18
Spanish mackerel	High use	0.00	0.00	0.02	0.00	0.01
	Low use	0.00	0.00	0.00	0.00	0.00
	Annual	0.00	0.00	0.02	0.00	0.01
Cobia	High use	0.00	0.00	<.01	0.00	<.01
	Low use	0.00	0.00	0.00	0.00	0.00
	Annual	0.00	0.00	<.01	0.00	<.01
Red snapper	High use	0.00	0.00	0.00	0.48	0.18
	Low use	0.00	0.00	0.00	0.00	0.00
	Annual	0.00	0.00	0.00	0.48	0.18
Atlantic sharpnose shark	High use	0.00	0.00	0.00	0.00	0.00
	Low use	0.00	0.00	0.00	0.00	0.00
	Annual	0.00	0.00	0.00	0.00	0.00
Other	High use	0.00	0.32	0.02	0.03	0.05
	Low use	0.00	0.00	0.00	0.00	0.00
	Annual	0.00	0.32	0.02	0.03	0.05
All species combined <sup>a</sup>	High use	0.00	0.66	0.38	0.57	0.46
	Low use	0.00	0.00	0.00	0.00	0.00
	Annual	0.00	0.66	0.38	0.57	0.46

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

<sup>b</sup> No data were available for fish landed in the Galveston area.

Table 24. Mean weight of fishes (kg/fish) by species, season, and area by party-boat fishermen in the Texas Territorial Sea (May 1983-May 1984).  
Blank = no fish weighed.

Species	Season	Galveston <sup>a</sup>	Matagorda	Corpus Christi	Lower Laguna Madre	Coastwide total
Spotted seatrout	High use		0.95			0.95
	Low use					
	Annual		0.95			0.95
Red drum	High use		2.97			2.97
	Low use					
	Annual		2.97			2.97
Black drum	High use		0.85			0.85
	Low use					
	Annual		0.85			0.85
King mackerel	High use			9.04	9.10	9.05
	Low use					
	Annual			9.04	9.10	9.05
Spanish mackerel	High use			1.55		1.55
	Low use					
	Annual			1.55		1.55
Cobia	High use			19.50		19.50
	Low use					
	Annual			19.50		19.50
Red snapper	High use				0.31	0.31
	Low use					
	Annual				0.31	0.31
Atlantic sharpnose shark	High use					
	Low use					
	Annual					
All species combined	High use		1.02	8.86	4.21	5.65
	Low use					
	Annual		1.02	8.86	4.21	5.65

<sup>a</sup> No data were available for fish landed in the Galveston area.



Table 25. Total pressure estimates in man-h (x 1000) for party-boat fishing by season in passes (May 1983-May 1984).

Area	Season		Annual <sup>a</sup> total
	High use	Low use	
Galveston	0.4	0.0	0.4
Matagorda	5.8	0.0	5.8
Corpus Christi	2.4	0.0	2.4
Lower Laguna Madre	4.0	3.2	7.2
Coastwide total <sup>a</sup>	12.6	3.2	15.8

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

Table 26. Estimated harvest (No. x 1000) of fishes by species, season, and area caught by party-boat fishermen in passes (May 1983-May 1984).

Species	Season	Galveston	Matagorda	Corpus Christi	Lower Laguna Madre	Coastwide total <sup>a</sup>
Spotted seatrout	High use	0.3	0.7	0.0	3.6	4.6
	Low use	0.0	0.0	0.0	7.5	7.5
	Annual	0.3	0.7	0.0	11.1	12.1
Red drum	High use	0.0	0.2	0.0	0.1	0.3
	Low use	0.0	0.0	0.0	0.0	0.0
	Annual	0.0	0.2	0.0	0.1	0.3
Black drum	High use	0.0	0.0	0.0	0.0	0.0
	Low use	0.0	0.0	0.0	0.0	0.0
	Annual	0.0	0.0	0.0	0.0	0.0
Southern flounder	High use	0.0	0.0	0.0	0.3	0.3
	Low use	0.0	0.0	0.0	0.0	0.0
	Annual	0.0	0.0	0.0	0.3	0.3
Sheepshead	High use	0.0	0.0	0.3	0.0	0.3
	Low use	0.0	0.0	0.0	0.0	0.0
	Annual	0.0	0.0	0.3	0.0	0.3
Atlantic croaker	High use	0.0	0.0	5.2	0.0	5.2
	Low use	0.0	0.0	0.0	0.0	0.0
	Annual	0.0	0.0	5.2	0.0	5.2
Sand seatrout	High use	0.0	0.0	0.1	0.0	0.1
	Low use	0.0	0.0	0.0	0.0	0.0
	Annual	0.0	0.0	0.1	0.0	0.1
Gafftopsail catfish	High use	0.0	0.0	0.0	0.0	0.0
	Low use	0.0	0.0	0.0	0.0	0.0
	Annual	0.0	0.0	0.0	0.0	0.0
Other	High use	0.0	0.2	0.3	0.0	0.3
	Low use	0.0	0.0	0.0	0.0	0.0
	Annual	0.0	0.2	0.3	0.0	0.3
All species combined <sup>a</sup>	High use	0.3	1.0	5.9	4.0	11.3
	Low use	0.0	0.0	0.0	7.5	7.5
	Annual	0.3	1.0	5.9	11.5	18.8

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

Table 27. Mean catch rate of fishes (No./man-h) by species, season, and area caught by party-boat fishermen in passes (May 1983-May 1984).

Species	Season	Galveston	Matagorda	Corpus	Lower	Coastwide
				Christi	Laguna Madre	total
Spotted seatrout	High use	0.83	0.12	0.00	0.91	0.37
	Low use	0.00	0.00	0.00	2.35	2.35
	Annual	0.83	0.12	0.00	1.55	0.77
Red drum	High use	0.00	0.03	0.00	0.03	0.02
	Low use	0.00	0.00	0.00	0.00	0.00
	Annual	0.00	0.03	0.00	0.02	0.02
Black drum	High use	0.00	0.00	0.00	0.00	0.00
	Low use	0.00	0.00	0.00	0.00	0.00
	Annual	0.00	0.00	0.00	0.00	0.00
Southern flounder	High use	0.00	0.00	0.00	0.07	0.02
	Low use	0.00	0.00	0.00	0.00	0.00
	Annual	0.00	0.00	0.00	0.04	0.02
Sheepshead	High use	0.00	0.00	0.13	0.00	0.02
	Low use	0.00	0.00	0.00	0.00	0.00
	Annual	0.00	0.00	0.13	0.00	0.02
Atlantic croaker	High use	0.00	0.00	2.19	0.00	0.41
	Low use	0.00	0.00	0.00	0.00	0.00
	Annual	0.00	0.00	2.19	0.00	0.33
Sand seatrout	High use	0.00	0.00	0.06	0.00	0.01
	Low use	0.00	0.00	0.00	0.00	0.00
	Annual	0.00	0.00	0.06	0.00	0.01
Gafftopsail catfish	High use	0.00	0.00	0.00	0.00	0.00
	Low use	0.00	0.00	0.00	0.00	0.00
	Annual	0.00	0.00	0.00	0.00	0.00
Other	High use	0.00	0.03	0.13	0.00	0.04
	Low use	0.00	0.00	0.00	0.00	0.00
	Annual	0.00	0.03	0.13	0.00	0.03
All species combined <sup>a</sup>	High use	0.83	0.18	2.50	1.01	0.90
	Low use	0.00	0.00	0.00	2.35	2.35
	Annual	0.83	0.18	2.50	1.61	1.20

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

Table 28. Mean weight of fishes (kg/fish) by species, season, and area caught by party-boat fishermen in passes (May 1983-May 1984). Blank = no fish weighed.

Species	Season	Galveston	Matagorda	Corpus Christi	Lower Laguna Madre	Coastwide total
Spotted seatrout	High use		0.56		0.79	0.76
	Low use				1.12	1.12
	Annual		0.56		0.95	0.93
Red drum	High use		1.10		1.04	1.07
	Low use					
	Annual		1.10		1.04	1.07
Black drum	High use					
	Low use					
	Annual					
Southern flounder	High use				0.65	0.65
	Low use					
	Annual				0.65	0.65
Sheepshead	High use			0.68		0.68
	Low use					
	Annual			0.68		0.68
Atlantic croaker	High use			0.47		0.47
	Low use					
	Annual			0.47		0.47
Sand seatrout	High use			0.44		0.44
	Low use					
	Annual			0.44		0.44
Gafftopsail catfish	High use					
	Low use					
	Annual					
All species combined	High use		0.60	0.50	0.72	0.59
	Low use				1.10	1.10
	Annual		0.60	0.50	0.88	0.75

Table 29. Total pressure estimates in man-h (x 1000) for party-boat fishing by season in Texas bays (May 1983-May 1984).

Area	Season		Annual <sup>a</sup> total
	High use	Low use	
Galveston	21.4	0.0	21.4
Matagorda	14.4	0.0	14.4
San Antonio	8.6	0.0	8.6
Aransas	34.8	0.0	34.8
Corpus Christi	56.7	5.8	62.4
Upper Laguna Madre	0.1	0.3	0.4
Lower Laguna Madre	55.2	35.1	90.3
Coastwide total <sup>a</sup>	191.2	41.1	232.3

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

Table 30. Estimated harvest of fishes (No. x 1000) by species, season, and bay system caught by party-boat fishermen in Texas bays (May 1983-May 1984).

Species	Season	Bay system										Coastwide <sup>a</sup> total
		Galveston	Matagorda	San Antonio		Aransas	Corpus Christi	Upper Laguna Madre		Lower Laguna Madre		
Spotted seatrout	High use	13.3	9.6	8.4	44.6	41.0	0.0	53.1	0.0	169.9		
	Low use	0.0	0.0	0.0	0.0	0.0	0.0	10.7	0.0	10.7		
	Annual	13.3	9.6	8.4	44.6	41.0	0.0	63.8	0.0	180.6		
Red drum	High use	0.2	2.3	0.5	1.4	1.8	0.0	4.5	0.0	10.7		
	Low use	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	1.0		
	Annual	0.2	2.3	0.5	1.4	1.8	0.0	5.5	0.0	11.8		
Black drum	High use	0.1	0.0	0.0	0.1	2.5	0.0	0.3	0.0	3.0		
	Low use	0.0	0.0	0.0	0.0	0.0	0.0	2.2	0.0	2.2		
	Annual	0.1	0.0	0.0	0.1	2.5	0.0	2.5	0.0	5.1		
Southern flounder	High use	0.2	0.2	0.1	0.3	1.0	0.0	2.2	0.0	3.9		
	Low use	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
	Annual	0.2	0.2	0.1	0.3	1.0	0.0	2.2	0.0	3.9		
Sheepshead	High use	0.0	0.0	0.0	0.0	1.8	0.0	0.5	0.0	2.3		
	Low use	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1		
	Annual	0.0	0.0	0.0	0.0	1.8	0.0	0.6	0.0	2.4		
Atlantic croaker	High use	0.1	0.0	0.0	<.1	11.6	0.0	0.2	0.0	11.9		
	Low use	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
	Annual	0.1	0.0	0.0	<.1	11.6	0.0	0.2	0.0	11.9		
Sand seatrout	High use	0.1	6.6	0.1	2.9	9.5	0.0	0.1	0.0	19.2		
	Low use	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
	Annual	0.1	6.6	0.1	2.9	9.5	0.0	0.1	0.0	19.2		
Gafftopsail catfish	High use	0.0	0.3	0.0	0.0	2.2	0.0	<.1	0.0	2.6		
	Low use	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.3		
	Annual	0.0	0.3	0.0	0.0	2.5	0.0	<.1	0.0	2.8		

Table 30. (Cont'd.).

Species	Season	Bay system										Coastwide <sup>a</sup> total				
		Galveston		Matagorda		San Antonio		Aransas		Corpus Christi			Upper Laguna Madre		Lower Laguna Madre	
Other	High use	0.0	0.1	0.1	<.1	0.4	1.0	0.0	0.0	0.0	0.0	0.2	1.8			
	Low use	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4				
	Annual	0.0	0.1	0.1	<.1	0.4	1.0	0.0	0.0	0.0	0.6	2.2				
All species combined <sup>a</sup>	High use	13.9	19.1	19.1	9.1	49.7	72.6	0.0	0.0	0.0	61.0	225.3				
	Low use	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	14.4	14.7				
	Annual	13.9	19.1	19.1	9.1	49.7	72.9	0.0	0.0	0.0	75.4	240.0				

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

Table 31. Mean catch rate of fishes (No./man-h) by species, season, and bay system caught by party-boat fishermen in Texas bays (May 1983-May 1984).

Species	Season	Bay system										Coastwide total						
		Galveston		Matagorda		San Antonio		Aransas		Corpus Christi			Upper Laguna Madre		Lower Laguna Madre			
		High use	Low use	High use	Low use	High use	Low use	High use	Low use	High use	Low use		High use	Low use	High use	Low use	High use	Low use
Spotted seatrout	High use	0.62	0.66	0.98	1.28	0.72	0.00	0.96	0.89									
	Low use	0.00	0.00	0.00	0.00	0.00	0.00	0.31	0.26									
	Annual	0.62	0.66	0.98	1.28	0.66	0.00	0.71	0.78									
Red drum	High use	0.01	0.16	0.06	0.04	0.03	0.00	0.08	0.06									
	Low use	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.02									
	Annual	0.01	0.16	0.06	0.04	0.03	0.00	0.06	0.05									
Black drum	High use	<.01	0.00	0.00	<.01	0.04	0.00	0.01	0.02									
	Low use	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.05									
	Annual	<.01	0.00	0.00	<.01	0.04	0.00	0.03	0.02									
Southern flounder	High use	0.01	0.01	0.01	0.01	0.02	0.00	0.04	0.02									
	Low use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00									
	Annual	0.01	0.01	0.01	0.01	0.02	0.00	0.02	0.02									
Sheepshead	High use	0.00	0.00	0.00	0.00	0.03	0.00	0.01	0.01									
	Low use	0.00	0.00	0.00	0.00	0.00	0.00	<.01	<.01									
	Annual	0.00	0.00	0.00	0.00	0.03	0.00	0.01	0.01									
Atlantic croaker	High use	0.01	0.00	0.00	<.01	0.21	0.00	<.01	0.06									
	Low use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00									
	Annual	0.01	0.00	0.00	<.01	0.19	0.00	<.01	0.05									
Sand seatrout	High use	<.01	0.46	0.01	0.08	0.17	0.00	<.01	0.10									
	Low use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00									
	Annual	<.01	0.46	0.01	0.08	0.15	0.00	<.01	0.08									
Gafftopsail catfish	High use	0.00	0.02	0.00	0.00	0.04	0.00	<.01	0.01									
	Low use	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.01									
	Annual	0.00	0.02	0.00	0.00	0.04	0.00	<.01	0.01									



Table 31. (Cont'd.).

Species	Season	Bay system										Coastwide <sup>a</sup> total
		Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre		Lower Laguna Madre			
Other	High use	0.00	0.01	<.01	0.01	0.02	0.00	<.01	0.01	0.01	0.01	0.01
	Low use	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01
	Annual	0.00	0.01	<.01	0.01	0.02	0.00	0.01	0.01	0.01	0.01	0.01
All species combined <sup>a</sup>	High use	0.65	1.32	1.06	1.43	1.28	0.00	1.10	1.18	1.10	1.18	1.18
	Low use	0.00	0.00	0.00	0.00	0.05	0.00	0.41	0.36	0.41	0.36	0.36
	Annual	0.65	1.32	1.06	1.43	1.17	0.00	0.84	1.03	0.84	1.03	1.03

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

Table 32. Mean weight of fishes (kg/fish) by species, season, and area caught by party-boat fishermen in Texas bays (May 1983-May 1984). Blank = no fish weighed.

Species	Season	Bay system										Coastwide total
		Galveston	Matagorda	San Antonio		Aransas	Corpus Christi	Upper		Lower		
				Laguna	Madre			Laguna	Madre			
Spotted seatrout	High use	1.06	0.45	0.45	0.45	0.45	0.75			0.76	0.67	
	Low use									0.76	0.76	
	Annual	1.06	0.45	0.45	0.45	0.45	0.75			0.76	0.67	
Red drum	High use	0.84	1.54	1.59	1.31	1.22				1.48	1.42	
	Low use									1.52	1.52	
	Annual	0.84	1.54	1.59	1.31	1.22				1.49	1.43	
Black drum	High use	1.21			1.03	0.80				1.53	0.89	
	Low use									2.16	2.16	
	Annual	1.21			1.03	0.80				2.05	1.41	
Southern flounder	High use	0.45			0.32	0.55				0.74	0.64	
	Low use									0.74	0.64	
	Annual	0.45			0.32	0.55				0.74	0.64	
Sheepshead	High use					0.96				0.65	0.89	
	Low use									0.44	0.44	
	Annual					0.96				0.62	0.88	
Atlantic croaker	High use	0.24			0.40	0.30				0.40	0.30	
	Low use									0.40	0.30	
	Annual	0.24			0.40	0.30				0.40	0.30	
Sand seatrout	High use	0.47	0.27	0.26	0.22	0.34				0.23	0.30	
	Low use									0.23	0.30	
	Annual	0.47	0.27	0.26	0.22	0.34				0.23	0.30	
Gafftopsail catfish	High use		0.70			1.75				3.60	1.63	
	Low use					1.77				3.60	1.77	
	Annual		0.70			1.76				3.60	1.65	

Table 32. (Cont'd.).

Species	Season	Bay system								Coastwide total
		Galveston	Matagorda	San Antonio	Aransas	Corpus Christi	Upper Laguna Madre	Lower Laguna Madre		
All species combined	High use	0.93	0.44	0.47	0.48	0.59		0.75	0.61	
	Low use					1.70		1.08	1.09	
	Annual	0.93	0.44	0.47	0.48	0.60		0.76	0.63	

Appendix A. Pass descriptions.

## PASS DESCRIPTIONS

## Galveston Bay

Rollover Pass is the area between the junction with Rollover Bay, extending 1.6 km gulfward of the surf line.

Bolivar Roads is the area east of a line between the ferry landings in Port Bolivar to a range marker at the Coast Guard Station at Fort Point and 1.6 km gulfward of the end of the jetties.

Quintana Channel is the area between the Intracoastal Waterway southeast to 1.6 km gulfward of the end of the jetties.

San Luis Pass is the area 0.8 km bayward and 1.6 km gulfward off the Vacek Bridge.

## Matagorda Bay

Brown Cedar Cut is the area between the mainland and Matagorda Peninsula extending southeast 1.6 km gulfward of the surf line.

Matagorda Ship Channel is the area from Marker 13 southeast to 1.6 km gulfward of the end of the jetties.

Pass Cavallo is the area south of a line between Decros Point and Saluria Bayou to 1.6 km gulfward of a line between Marker 13 and the Matagorda Light on Matagorda Island.

## Aransas/Corpus Christi Bay Area

Cedar Bayou is the area between a line from Cedar Point Southeast to the point of land on Matagorda Island out to 1.6 km gulfward of the surf line, including Vincent's Slough.

Port Aransas Pass is the area between a line from the range marker on San Jose Island to the Radio Beacon Tower out to 1.6 km gulfward of the end of the jetties.

Water Exchange Channel is the area through Mustang Island between the junction of Corpus Christi Bay and 1.6 km gulfward of the surf line.

## Upper Laguna Madre

Corpus Christi Pass is the area through Mustang Island between the junction with the upper Laguna Madre 1.6 km gulfward of the surf line.

## Lower Laguna Madre

Port Mansfield Channel is the area extending from Marker 12 to 1.6 km gulfward of the end of the jetties.

Brazos Santiago Channel is the area between a line from the Radio Beacon area south to Brazos Island out to 1.6 km gulfward to the end of the jetties.

Appendix B. List of inventoried headboats.

SAMPLE SITE CODES--HEADBOATS  
1983-1984

<u>MAJOR AREA AND TYPE</u>	<u>PASSENGER CAPACITY</u>	<u>CODE IN USE</u>	<u>CODE DELETED</u>	<u>MINOR Bay</u>	<u>HEADBOAT IDENTIFICATION</u>
Galveston (Bay)			(81)	180	Kemah Clipper (Deleted 3-24-84)
	76	86			Lafitte (Added 9-1-82)
	80	95			Judy Beth (Added 12-3-81)
Galveston (Gulf)	100	84		180	New Buccaneer
	90	85		180	Old Buccaneer
	65	87		180	Texsun II
	30	88		266	Bear Cat
			(89)	266	Lady Lari (Deleted 3-24-84)
	60	90		266	Capt. Casey
	120	93		180	Ranger 5
			(94)	172	Miss Vicki (Deleted 3-12-84)
			(96)	172	Miss Tamara (Added 3-82; deleted 3-12-84)
	25	97		266	Cobia (Added 5-82)
			(98)	266	Blue Fin (Deleted 3-24-84)
		(99)	266	Nancy Ann (Deleted 3-24-84)	
Aransas/Corpus (Bay)	50	81		20	Whooping Crane
			(82)	20	Mary Lou (Deleted 9-28-83)
	100	89		130	Capt. Clark
	89	91		130	Star Trek
Port Aransas (Gulf)	93	83		96	Wharf Cat
	20	84		96	Pelican
	30	87		96	Dolphin
	93	92		96	Scat Cat
	25	93		96	Dolphin Express (Added 3-28-84)
			(94)	96	Pisces (Deleted 3-28-84)
	30	95		96	Kingfisher
Lower Laguna Madre (Bay)	75	81		230	Laguna Queen
	30	83		230	Albatross
	48	84		230	Danny B
	74	88		230	Majestic
Port Isabel (Gulf)	48	82		230	Thunderbird III
	19	85		230	Risa Ann
	32	87		230	Miss Hospitality

Appendix C. Linear regression coefficients  
for fish landed vs. number of people per trip  
and the number of people per trip vs. passenger  
capacity (May 1983-May 1984).



Table C.1. Linear regression coefficients for fish landed vs. number of people/headboat trip by boat type and season (May 1983-May 1984).

Boat type	Season	Intercept	Passenger capacity(X)	Coefficient of determination ( $R^2$ )	se(Y)	N
Bay headboats						
	Low use	13.57	0.0019	<.01	0.2729	39
	High use	23.81	1.6825	0.42*	0.5190	50
Gulf headboats						
	Low use	-47.15	11.4103	0.60*	2.5187	38
	High use	63.48	4.6279	0.52*	1.2422	40

Table C.2. Linear regression coefficients for legal passenger capacity vs. mean number of people/headboat trip by boat type and season (May 1983-May 1984).

Boat type	Season	Intercept	Passenger capacity(X)	Coefficient of determination ( $R^2$ )	se(Y)	N
Bay headboats						
	Low use	19.30	0.0536	0.12	0.205	7
	High use	2.94	0.3599	0.65	0.161	9
Gulf headboats						
	Low use	13.92	0.2288	0.63*	0.089	12
	High use	5.54	0.4087	0.73*	0.126	11

Appendix D. List of common and scientific names of fishes identified on charter boats (May 1983-May 1984).

Table D.1. List of common and scientific names of species identified on offshore headboats and party boats fishing in the U.S. Fishery Conservation Zone (May 1983-May 1984).

Common name	Scientific name	Area			
		Galveston	Matagorda	Corpus Christi	Lower Laguna Madre
Almaco jack	<u>Seriola rivoliana</u>			X	
Atlantic bonito	<u>Sarda sarda</u>	X		X	
Atlantic croaker	<u>Micropogonias undulatus</u>	X		X	X
Bigeye	<u>Priacanthus arenatus</u>	X		X	
Black drum	<u>Pogonius cromis</u>			X	
Blue runner	<u>Caranx crysos</u>	X		X	X
Burro grunt	<u>Pomadasys crocro</u>				X
Cobia	<u>Rachycentron canadum</u>	X		X	
Creole fish	<u>Paranthias furcifer</u>	X		X	
Gray triggerfish	<u>Balistes capriscus</u>	X		X	X
Great barracuda	<u>Sphyraena barracuda</u>			X	
Greater amberjack	<u>Seriola dumerili</u>	X		X	X
Hardhead catfish	<u>Arius felis</u>	X			
King mackerel	<u>Scomberomorus cavalla</u>	X	X	X	X
Knobbed porgy	<u>Calamus nodosus</u>	X		X	X
Lefteye flounder sp.	Family <u>Bothidae</u>	X			
Little tunny	<u>Euthynnus alletteratus</u>	X		X	
Pinfish	<u>Lagodon rhomboides</u>	X		X	
Rainbow runner	<u>Elagatis bipinnulata</u>	X		X	
Red drum	<u>Sciaenops ocellatus</u>			X	
Red snapper	<u>Lutjanus campechanus</u>	X	X	X	X
Remora	<u>Remora remora</u>	X			
Sand seatrout	<u>Cynoscion arenarius</u>	X		X	X
Sea basses sp.					
Bank seabass	<u>Centropistis ocyurus</u>	X			
Black grouper	<u>Mycteroperca bonaci</u>				X
Gag	<u>Mycteroperca microlepis</u>	X		X	X
Graysby	<u>Epinephelus cruentatus</u>	X			
Red grouper	<u>Epinephelus morio</u>	X			
Red hind	<u>Epinephelus guttatus</u>	X			
Rock hind	<u>Epinephelus adscensionis</u>	X		X	X
Scamp	<u>Mycteroperca phenax</u>	X		X	X
Warsaw grouper	<u>Epinephelus nigritus</u>	X		X	X
Yellowedge grouper	<u>Epinephelus flavolimbatus</u>				X
Sharks sp.					
Atlantic sharpnose shark	<u>Rhizoprionodon terraenovae</u>		X	X	X
Dusky shark	<u>Carcharhinus obscurus</u>			X	X
Requiem sharks	Family <u>Carcharhinidae</u>			X	
Silky shark	<u>Carcharhinus falciformis</u>			X	
Smooth dogfish	<u>Mustelus canis</u>			X	
Southern flounder	<u>Paralichthys lethostigma</u>	X		X	
Spanish mackerel	<u>Scomberomorus maculatus</u>	X		X	

Table D.1. (Cont'd.).

Common name	Scientific name	Area			
		Galveston	Matagorda	Corpus Christi	Lower Laguna Madre
Spot	<u>Leiostomus xanthurus</u>			X	
Spotted scorpionfish	<u>Scorpaena plumieri</u>	X			
Squirrelfish	<u>Holocentrus ascensionis</u>	X		X	
Stingray sp.	Family <u>Dasyatidae</u>	X			
Tilefish	<u>Lopholatilus chamaeleonticeps</u>				X
Tomtate	<u>Haemulon aurolineatum</u>	X		X	
Vermilion snapper	<u>Rhomboplites aurorubens</u>	X		X	X
Whitebone porgy	<u>Calamus leucosteus</u>	X			

Table D.2. List of common and scientific names of species identified on offshore headboats and party boats fishing in the Texas Territorial Sea (May 1983-May 1984).

Common name	Scientific name	Area			
		Galveston <sup>a</sup>	Matagorda	Corpus Christi	Lower Laguna Madre
Black drum	<u>Pogonius cromis</u>		X		
Blue runner	<u>Caranx crysos</u>				X
Cobia	<u>Rachycentron canadum</u>			X	
King mackerel	<u>Scomberomorus cavalla</u>			X	X
Little tunny	<u>Euthynnus alletteratus</u>			X	
Red drum	<u>Sciaenops ocellatus</u>		X		
Red snapper	<u>Lutjanus campechanus</u>				X
Atlantic sharpnose shark	<u>Rhizoprionodon terraenovae</u>			X	
Spanish mackerel	<u>Scomberomorus maculatus</u>			X	
Spotted seatrout	<u>Cynoscion nebulosus</u>		X		

<sup>a</sup> No data were available for fish landed by Galveston area party boats.

Table D.3. List of common and scientific names of species identified on inshore headboats and party boats fishing in passes (May 1983-May 1984).

Common name	Scientific name	Area			
		Galveston	Matagorda	Corpus Christi	Lower Laguna Madre
Atlantic croaker	<u>Micropogonias undulatus</u>	X			X
Black drum	<u>Pogonias cromis</u>	X			
Gafftopsail catfish	<u>Bagre marinus</u>	X			
Hardhead catfish	<u>Arius felis</u>	X			X
Red drum	<u>Sciaenops ocellatus</u>		X		X
Red snapper	<u>Lutjanus campechanus</u>				X
Sand seatrout	<u>Cynoscion arenarius</u>	X		X	X
Warsaw grouper	<u>Ephinephelus nigritus</u>		X		
Atlantic sharpnose shark	<u>Rhizoprionodon terraenovae</u>	X			
Sheepshead	<u>Archosargus probatocephalus</u>		X	X	
Southern flounder	<u>Paralichthys lethostigma</u>	X			X
Spotted seatrout	<u>Cynoscion nebulosus</u>	X	X		X

Table D.4. List of common and scientific names of species identified on inshore headboats and party boats fishing in Texas bays (May 1983-May 1984).

Common name	Scientific name	Bay					Corpus Christi		Lower Laguna Madre
		Galveston	Matagorda	San Antonio	Aransas	Aransas	Christi	Christi	
Atlantic croaker	<u>Micropogonias undulatus</u>	X			X	X	X	X	
Black drum	<u>Pogonias cromis</u>	X			X	X	X	X	
Gafftopsail catfish	<u>Bagre marinus</u> X	X			X	X	X		
Hardhead catfish	<u>Arius felis</u> X				X	X	X		
Pinfish	<u>Lagodon rhomboides</u>	X				X	X		
Red drum	<u>Sciaenops ocellatus</u>	X	X	X	X	X	X	X	
Red snapper	<u>Lutjanus campechanus</u>	X	X	X	X	X	X	X	
Sand seatrout	<u>Cynoscion arenarius</u>	X	X	X	X	X	X	X	
Atlantic sharpnose shark	<u>Rhizoprionodon terraenovae</u>						X		
Hammerhead sp.	Family <u>Sphyrnidae</u>	X							
Sheepshead	<u>Archosargus probatocephalus</u>	X				X	X	X	
Southern flounder	<u>Paralichthys lethostigma</u>	X	X	X	X	X	X	X	
Spot	<u>Leiostomus xanthurus</u>	X							
Spotted seatrout	<u>Cynoscion nebulosus</u>	X	X	X	X	X	X	X	



Appendix E. Mean catch rates for selected finfish species retained by charterboat fishermen (1978-1984).

Table E.1. Annual mean catch rates (No./1 man-h  $\pm$  1 SE) of selected finfish species retained by offshore headboat fishermen in three areas off the Texas coast (1978-1984<sup>a</sup>). Number in parenthesis indicates No. of surveys.

Area	Atlantic <sup>b</sup>				Total finfish
	Red snapper	Vermilion snapper	sharpnose shark	Other finfish	
Galveston/Freeport					
1978-79 (18)	1.11 $\pm$ 0.18	0.03 $\pm$ 0.01	0.02 $\pm$ 0.01	0.17	1/35 $\pm$ 0.18
1980-81 (22)	2.00 $\pm$ 0.28	0.24 $\pm$ 0.08	0.03 $\pm$ 0.01	0.34	2.62 $\pm$ 0.31
1981-82 (25)	2.39 $\pm$ 0.33	0.26 $\pm$ 0.07	0.01 $\pm$ 0.01	0.32	2.98 $\pm$ 0.36
1983-84 (28)	1.61 $\pm$ 0.42	0.50 $\pm$ 0.22	0.02 $\pm$ 0.01	0.28	2.41 $\pm$ 0.59
Aransas/Corpus Christi/ Upper Laguna Madre					
1978-79 (5)	2.10 $\pm$ 1.11	0.68 $\pm$ 0.33	<.01	0.08	2.87 $\pm$ 1.24
1980-81 (16)	0.52 $\pm$ 0.12	1.19 $\pm$ 0.31	0.01 $\pm$ 0.01	0.14	1.87 $\pm$ 0.32
1981-82 (19)	0.43 $\pm$ 0.20	1.41 $\pm$ 0.22	0.01 $\pm$ 0.01	0.31	2.06 $\pm$ 0.26
1983-84 (37)	0.56 $\pm$ 0.17	0.22 $\pm$ 0.09	0.05 $\pm$ 0.03	0.27	1.09 $\pm$ 0.29
Lower Laguna Madre					
1978-79 (2)	1.04 $\pm$ 0.41	0.00	0.02 $\pm$ 0.02	0.02	1.63 $\pm$ 1.00
1980-81 (17)	2.56 $\pm$ 0.29	0.56 $\pm$ 0.53	0.03 $\pm$ 0.01	0.13	2.76 $\pm$ 0.28
1981-82 (10)	1.87 $\pm$ 0.54	0.15 $\pm$ 0.05	0.03 $\pm$ 0.01	0.49	2.40 $\pm$ 0.54
1983-84 (18)	3.46 $\pm$ 1.33	0.03 $\pm$ 0.02	0.01 $\pm$ 0.01	0.09	3.59 $\pm$ 1.36
Coastwide Total					
1978-79 (25)	1.15 $\pm$ 0.13	0.10 $\pm$ 0.02	0.02 $\pm$ 0.01	0.16	1.70 $\pm$ 0.29
1980-81 (55)	1.79 $\pm$ 0.14	0.43 $\pm$ 0.05	0.03 $\pm$ 0.01	0.30	2.44 $\pm$ 0.18
1981-82 (54)	2.18 $\pm$ 0.19	0.36 $\pm$ 0.04	0.01 $\pm$ 0.01	0.34	2.58 $\pm$ 0.23
1983-84 (83)	1.30 $\pm$ 0.26	0.38 $\pm$ 0.13	0.03 $\pm$ 0.01	0.27	1.98 $\pm$ 0.36

<sup>a</sup> Year is 1 September-31 August for 1978-82 and 15 May-14 May for 1983-84.

<sup>b</sup> Includes all species of shark for 1978-82.

Table E.2. Mean catch rates (No./man-h  $\pm$  1 SE) of selected finfish species retained by inshore headboat fishermen in three Texas bay areas during the high and low use seasons (1978-1984). Number in parenthesis indicates number of surveys.

Area	Sand seatrout	Atlantic croaker	Other	Total <sup>a</sup>
Galveston-Freeport				
1978-79				
Low use (8)	0.00	0.00	0.14	0.14 $\pm$ 0.08
High use (12)	1.85 $\pm$ 0.66	0.59 $\pm$ 0.25	0.16	2.59 $\pm$ 0.71
1981-82				
Low use (3)	0.00	0.02 $\pm$ 0.02	0.08	0.09 $\pm$ 0.04
High use (15)	0.52 $\pm$ 0.23	0.52 $\pm$ 0.16	0.32	1.35 $\pm$ 0.28
1983-84				
Low use (10)	0.11	0.10	0.06	0.27
High use (16)	0.40	0.34	0.24	0.98
Aransas/Corpus Christi/ Upper Laguna Madre				
1978-79				
Low use (5)	0.12 $\pm$ 0.10	0.00	0.16	0.29 $\pm$ 0.19
High use (19)	1.32 $\pm$ 0.33	0.02 $\pm$ 0.01	0.25	1.58 $\pm$ 0.33
1981-82				
Low use (6)	0.11 $\pm$ 0.05	0.00	0.15	0.25 $\pm$ 0.07
High use (13)	1.10 $\pm$ 0.40	0.04 $\pm$ 0.01	0.11	1.25 $\pm$ 0.40
1983-84				
Low use (15)	0.15 $\pm$ 0.13	0.00	0.51	0.20 $\pm$ 0.14
High use (19)	0.56 $\pm$ 0.17	0.01 $\pm$ 0.01	0.12	0.70 $\pm$ 0.20
Lower Laguna Madre				
1978-79				
Low use (5)	0.08 $\pm$ 0.08	<.01	0.08	0.16 $\pm$ 0.07
High use (14)	0.52 $\pm$ 0.19	0.01 $\pm$ 0.01	0.19	0.71 $\pm$ 0.20
1981-82				
Low use (6)	0.13 $\pm$ 0.11	0.00	0.33	0.46 $\pm$ 0.17
High use (10)	0.60 $\pm$ 0.20	0.01 $\pm$ 0.01	0.22	0.90 $\pm$ 0.19
1983-84				
Low use (14)	0.13	0.01	0.15	0.29
High use (18)	0.28	0.03	0.21	0.52
Coastwide Total				
1978-79				
Low use (18)	0.06 $\pm$ 0.03	<.01	0.12	0.19 $\pm$ 0.04
High use (45)	1.21 $\pm$ 0.24	0.34 $\pm$ 0.08	0.19	2.02 $\pm$ 0.22
1981-82				
Low use (15)	0.10 $\pm$ 0.05	0.01 $\pm$ 0.01	0.11	0.27 $\pm$ 0.04
High use (38)	0.73 $\pm$ 0.17	0.26 $\pm$ 0.05	0.22	1.25 $\pm$ 0.12
1983-84				
Low use (39)	0.13	0.04	0.07	0.24
High use (53)	0.45	0.14	0.18	0.78

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

Table E.3. Mean catch rates (No./man-h  $\pm$  1 SE) of selected finfish species retained by offshore party-boat fishermen in four Gulf of Mexico areas off the Texas coast during June-August (1978-1983). Number in parenthesis indicates No. of interviews.

Area	Atlantic <sup>a</sup>				Total <sup>b</sup>
	King mackerel	Red snapper	Spanish mackerel	Cobia	
<b>Galveston/Freeport</b>					
1979 (5)	0.17 $\pm$ 0.08	0.05 $\pm$ 0.02	0.20 $\pm$ 0.14	<.01	0.45 $\pm$ 0.10
1981 (26)	0.28 $\pm$ 0.04	0.14 $\pm$ 0.07	0.04 $\pm$ 0.04	0.01 $\pm$ 0.01	0.72 $\pm$ 0.11
1982 (21)	0.27 $\pm$ 0.06	0.25 $\pm$ 0.20	0.01 $\pm$ 0.01	0.04 $\pm$ 0.01	0.66 $\pm$ 0.19
1983 (1)	0.32 $\pm$ 0.32	0.00	0.06 $\pm$ 0.06	0.00	0.41 $\pm$ 0.41
<b>Matagorda/San Antonio</b>					
1979 (0)	ND	ND	ND	ND	ND
1981 (0)	ND	ND	ND	ND	ND
1982 (7)	0.20 $\pm$ 0.07	0.04 $\pm$ 0.03	0.01 $\pm$ 0.01	0.01 $\pm$ 0.01	0.48 $\pm$ 0.14
1983 (5)	0.01 $\pm$ 0.01	<.01	0.00	0.00	0.61 $\pm$ 0.58
<b>Aransas/Corpus Christi/Upper Laguna Madre</b>					
1979 (11)	0.29 $\pm$ 0.07	0.00	0.00	0.01 $\pm$ 0.01	0.37 $\pm$ 0.09
1981 (24)	0.41 $\pm$ 0.07	<.01	0.01 $\pm$ 0.01	0.01 $\pm$ 0.01	0.56 $\pm$ 0.09
1982 (33)	0.20 $\pm$ 0.03	0.02 $\pm$ 0.02	<.01	0.02 $\pm$ 0.01	0.28 $\pm$ 0.04
1983 (23)	0.18 $\pm$ 0.14	0.00	<.01	0.00	0.33 $\pm$ 0.23
<b>Lower Laguna Madre</b>					
1979 (0)	ND	ND	ND	ND	ND
1981 (10)	0.42 $\pm$ 0.15	0.28 $\pm$ 0.28	<.01	0.02 $\pm$ 0.01	0.94 $\pm$ 0.31
1982 (11)	0.38 $\pm$ 0.17	0.56 $\pm$ 0.38	0.00	0.00	1.05 $\pm$ 0.36
1983 (14)	0.04 $\pm$ 0.03	0.21 $\pm$ 0.16	0.00	0.00	0.30 $\pm$ 0.21
<b>Coastwide Total</b>					
1979 (16) <sup>c</sup>	0.25 $\pm$ 0.06	0.02 $\pm$ 0.01	0.09 $\pm$ 0.04	0.01 $\pm$ 0.01	0.41 $\pm$ 0.05
1981 (60) <sup>d</sup>	0.37 $\pm$ 0.04	0.11 $\pm$ 0.02	0.02 $\pm$ 0.01	0.01 $\pm$ 0.01	0.69 $\pm$ 0.04
1982 (72)	0.25 $\pm$ 0.03	0.18 $\pm$ 0.05	0.01 $\pm$ 0.01	0.02 $\pm$ 0.01	0.53 $\pm$ 0.05
1983 (43)	0.15 $\pm$ 0.10	0.03 $\pm$ 0.02	<.01	0.00	0.34 $\pm$ 0.19

<sup>a</sup> Galveston/Freeport and Aransas/Corpus Christi/Upper Laguna Madre only.

<sup>b</sup> Due to rounding of numbers totals may not exactly equal individual species totals. Includes all species of shark retained during 1979-1982.

<sup>c</sup> Galveston/Freeport and Aransas/Corpus Christi/Upper Laguna Madre and the Lower Laguna Madre only.

Table E.4. Mean catch rates (No./man-h  $\pm$  1 SE) of selected finfish species retained by inshore party-boat fishermen in Texas bay systems during June-August (1979-1983). ND indicates no data. Number in parenthesis indicates No. of interviews.

Bay System	Spotted seatrout	Other	Total
Galveston-Freeport			
1979 (2)	0.88 $\pm$ 0.01	0.19 $\pm$ 0.19	1.07 $\pm$ 0.18
1981 (13)	1.14 $\pm$ 0.26	0.15 $\pm$ 0.07	1.29 $\pm$ 0.24
1982 (8)	1.49 $\pm$ 0.37	0.35 $\pm$ 0.31	1.83 $\pm$ 0.42
1983 (3)	0.99	0.00	0.99
Matagorda <sup>a</sup>			
1979 (0)	ND	ND	ND
1981 (0)	ND	ND	ND
1982 (13)	1.16 $\pm$ 0.41	0.25 $\pm$ 0.10	1.43 $\pm$ 0.48
1983 (6)	0.40	0.72	1.12
San Antonio <sup>a</sup>			
1979 (0)	ND	ND	ND
1981 (0)	ND	ND	ND
1982 (13)	1.16 $\pm$ 0.41	0.25 $\pm$ 0.10	1.43 $\pm$ 0.48
1983 (2)	0.23	0.07	0.30
Aransas <sup>b</sup>			
1979 (6)	1.03 $\pm$ 0.37	0.13 $\pm$ 0.08	1.17 $\pm$ 0.38
1981 (30)	2.07 $\pm$ 0.23	0.10 $\pm$ 0.04	2.17 $\pm$ 0.22
1982 (35)	1.49 $\pm$ 0.20	0.37 $\pm$ 0.13	1.86 $\pm$ 0.21
1983 (15)	1.49 $\pm$ 0.98	0.16	1.66 $\pm$ 1.06
Corpus Christi <sup>b</sup>			
1979 (6)	1.03 $\pm$ 0.37	0.13 $\pm$ 0.08	1.17 $\pm$ 0.38
1981 (30)	2.07 $\pm$ 0.23	0.10 $\pm$ 0.04	2.17 $\pm$ 0.22
1982 (35)	1.49 $\pm$ 0.20	0.37 $\pm$ 0.13	1.86 $\pm$ 0.21
1983 (4)	0.86 $\pm$ 0.85	0.30	1.16 $\pm$ 1.15
Upper Laguna Madre <sup>b</sup>			
1979 (6)	1.03 $\pm$ 0.37	0.13 $\pm$ 0.08	1.17 $\pm$ 0.38
1981 (30)	2.07 $\pm$ 0.23	0.10 $\pm$ 0.04	2.17 $\pm$ 0.22
1982 (35)	1.49 $\pm$ 0.20	0.37 $\pm$ 0.13	1.86 $\pm$ 0.21
1983 (1)	0.00	0.00	0.00
Lower Laguna Madre			
1979 (10)	1.26 $\pm$ 0.29	0.04 $\pm$ 0.02	1.31 $\pm$ 0.28
1981 (24)	1.78 $\pm$ 0.23	0.05 $\pm$ 0.01	1.83 $\pm$ 0.22
1982 (39)	2.04 $\pm$ 0.23	0.11 $\pm$ 0.04	2.14 $\pm$ 0.23
1983 (48)	0.76	0.11	0.88
Coastwide			
1979 (18)	1.14 $\pm$ 0.31	0.09 $\pm$ 0.08	1.24 $\pm$ 0.31
1981 (67)	1.79 $\pm$ 0.24	0.09 $\pm$ 0.04	1.88 $\pm$ 0.23
1982 (95)	1.67 $\pm$ 0.27	0.24 $\pm$ 0.13	1.91 $\pm$ 0.29
1983 (79)	0.91	0.24	1.14

<sup>a</sup> Matagorda and San Antonio data were combined during 1979-1982.

<sup>b</sup> Aransas, Corpus Christi, and Upper Laguna Madre data were combined during 1979-1982.

<sup>c</sup> For 1979-1982 coastwide means, Matagorda/San Antonio and Aransas/Corpus Christi/ Upper Laguna Madre means are used as means for one combined area means.

