

**Trends in Demographics,  
Participation, Attitudes,  
Expenditures, and  
Management Preferences  
of Texas Saltwater  
Anglers, 1986-1987**

by

**Robert B. Ditton      David K. Loomis  
Seungdam Choi      Maury F. Osborn  
Jerry Clark      Robin Riechers  
and Gary C. Matlock**

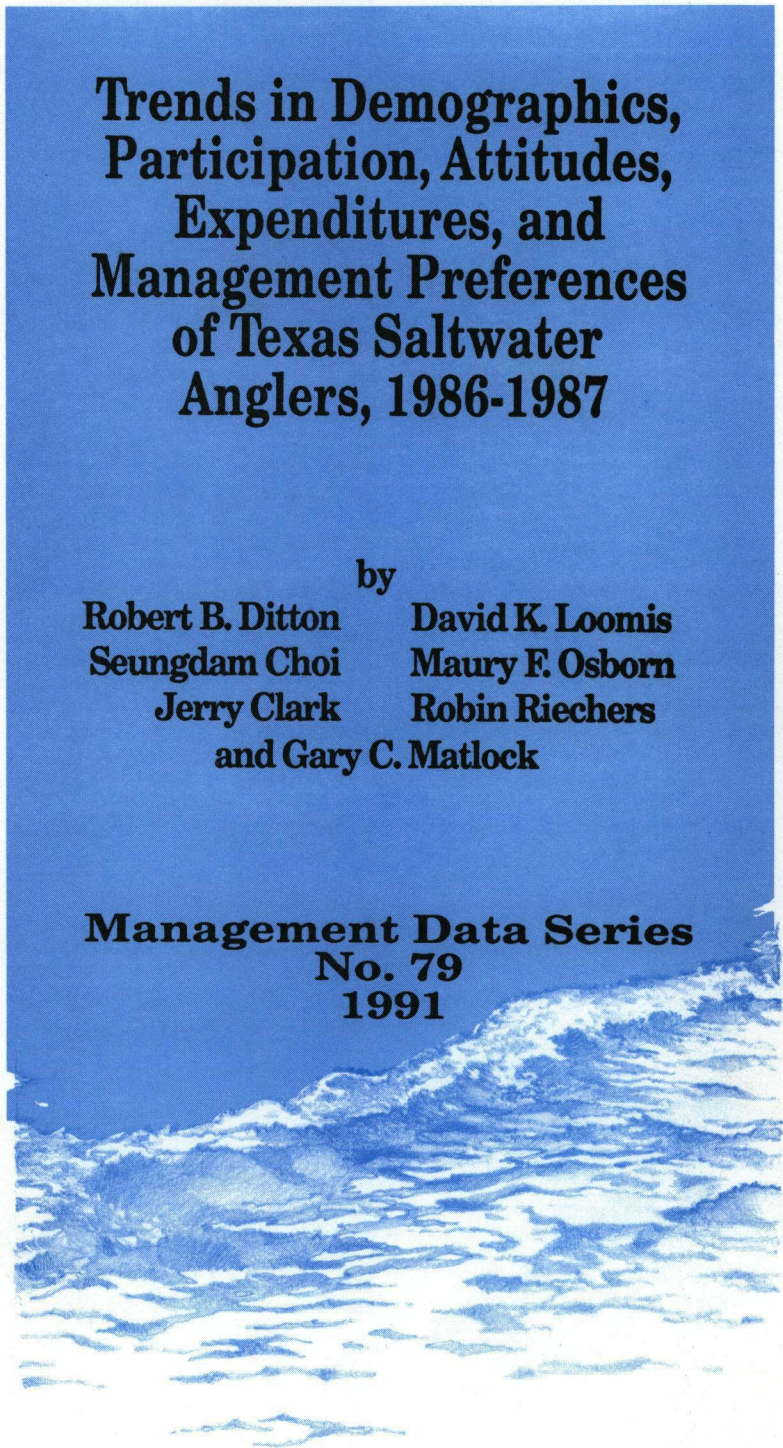
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**TEXAS  
PARKS & WILDLIFE  
DEPARTMENT**

**FISHERIES & WILDLIFE  
DIVISION**

**4200 Smith School Road  
Austin, Texas 78744**



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EXPENDITURES, AND MANAGEMENT PREFERENCES  
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TRENDS IN DEMOGRAPHICS, ATTITUDES, EXPENDITURES, AND MANAGEMENT  
PREFERENCES OF TEXAS SALTWATER ANGLERS, 1986-1987

ABSTRACT

This report presents data from the second in a series of statewide surveys of licensed saltwater anglers initiated in 1986. Our objective was to make comparisons between the two data sets to establish longitudinal trends in support of coastal fisheries management. During January-March 1988, mail questionnaires were sent to a random sample of 7,847 individuals who purchased a saltwater fishing stamp between September 1, 1986 to August 31, 1987. Overall, a response rate of 67%, after non-deliverable questionnaires were excluded, was less than the 71% rate achieved in the 1986 statewide survey. The Texas saltwater angler community continued to be dominated by 20-49 year-old middle-class males from coastal urban areas. Whereas Texas saltwater anglers indicated a strong level of commitment to saltwater fishing in terms of number of days fished/year, frequency and rates of fishing in various settings declined in 1987. Only 10% of Texas saltwater anglers fished in saltwater tournaments.

Most saltwater anglers continued to prefer red drum (Sciaenops ocellatus) and spotted seatrout (Cynoscion nebulosus) in 1987. Following the general category of drum, flounder (Paralichthys sp.) was the fourth most preferred species. Less than 20% of the saltwater anglers took out-of-state fishing trips in the previous 12 months, mainly they targeted bass and trout species. Although Texas saltwater anglers continued to rate activity-specific items as less important than activity-general items as motivations for fishing, responses to questions regarding their consumptive attitudes

indicated catching and keeping fish was important to their fishing experience. Saltwater anglers continued to be most positive about minimum size limits and stocking and most negative about prohibition of certain types of bait and slot limits among management tools used by the TPWD. Most saltwater fishing items bought by respondents were purchased in Texas and used predominantly for saltwater fishing. On average, Texas anglers spent less for durable goods in 1987. This included large reductions in average expenditures for the most expensive items (trailers and campers, boats, boat motors, and vehicles). In response to a new survey question, 51% of the anglers reported they were very to extremely satisfied with saltwater fishing in Texas.

## INTRODUCTION

During the early development of fisheries management, scientific efforts were generally limited to collection and analysis of biological data. Management activities progressed from regulation of gear as a means to reduce user conflict (with or without scientific basis) to maximum sustainable yield (MSY) as a means to ensure adequate reproduction, recruitment, and maximize yield in weight (Gulland 1977). Little consideration, however, has been given to the human dimensions of fisheries management (Voiland and Duttweiler 1984).

This has occurred despite a consensus since the 1960's that successful management depends as much on solving "people problems" as on solving biological problems (Bryan 1976). Leading resource scholars argue that natural resources are managed by managing people (O'Riordan 1971, Clawson 1972); similarly, the necessity of understanding the human component has been stated within the fisheries community (Ditton 1977, Orbach 1980, Aron 1982).

Christy and Scott (1965) suggest maximum net economic yield should replace MSY as the objective for fisheries management. The Fishery Conservation and Management Act of 1976 specified a goal of optimum yield (OY), defined as the yield that would produce the greatest overall benefit to the nation with respect to food production and recreational opportunity. This was to be based on MSY as modified by relevant economic, social, and ecological factors. Fisheries management must consider not only biological and ecological factors, but economic and social factors as well. This is especially true with recreational fisheries, for if management for "the greatest benefit to society" is to succeed, managers must be concerned with user satisfaction and public attitudes toward regulatory policies. This is vital since any policy, no matter how scientifically sound, will be rejected



and fail if it is not in accord with fundamental views held by the public (Vanderpool 1986, Matlock et al. 1988).

In response to the need for social and economic information, the Texas Parks and Wildlife Department (TPWD) and the Department of Wildlife and Fisheries Sciences at Texas A&M University (TAMU) initiated annual mail surveys of licensed saltwater anglers in 1986. These surveys were designed to obtain annual social and economic information on saltwater anglers and their fishing activity. This information will be used to enhance fisheries management through 1) monitoring and prediction of public response to regulations and other management tools, 2) allocation and prediction of economic impacts due to management action, 3) design of management programs to maximize angler satisfaction, 4) education of anglers, and 5) prediction of demand for different resources through time.

The objective of the present report is to summarize and compare 1987 data with 1986 data to establish trends. This summary includes a demographic profile of Texas recreational saltwater anglers, their attitudes towards management tools, fishing motivations, species preferences, level of satisfaction, and annual expenditures. The report presents data relevant to evaluating the survey instrument, sample size, and use of the saltwater sport fishing stamp as a sampling frame for use in improving future surveys.

#### MATERIALS AND METHODS

About 520,597 people purchased a saltwater sport fishing stamp (Revenue Code 211) between September 1, 1986 and August 31, 1987. Using stamp sales receipts as the sampling frame, a random sample of 7,847 purchasers was

manually selected. The saltwater sport fishing stamp cost \$5.00 and was required (with a valid fishing license) of all persons who fished in coastal waters for non-commercial purposes. Purchasers' names and addresses were listed on sheets (up to 18 names/sheet) that license vendors sent to TPWD. Using a randomly selected starting point, the last name listed on every 34th sheet was included in the sample. Only legible names and addresses were included. Illegible records were replaced with the preceding name on the list. A computerized list of the selected stamp purchasers was prepared.

A mail questionnaire was used to collect information on angler demographics, previous fishing experience, fishing participation, level of investment, attitudes, motivations, and orientation to fisheries management efforts. Questions were based on previous research efforts and designed to provide useful information.

First, a social and economic profile of Texas saltwater anglers was sought with questions regarding age, gender, income, residence location, and length of residence. Saltwater angler responses regarding age were categorized into six age groups with 10-year categories. Anglers were asked for their approximate annual household incomes using standard \$10,000 categories to \$99,999. These categories were developed to be broad enough to not invade personal privacy yet be managerially useful. Saltwater anglers were categorized first according to their three-digit U.S. Postal Service zip code, second, whether or not they resided in Texas and, if yes, whether or not they resided in one of 18 counties with coastal waters. Finally, saltwater anglers were asked how long they had lived continuously in Texas; these responses were grouped using 10-year categories to 59.



Two questions were used to collect information on level of fishing experience among saltwater anglers. First, anglers were asked how many years they had fished in saltwater; responses were grouped using 10-year categories. Second, anglers were asked to compare their fishing ability to that of other anglers using three nominal categories: less skilled, equally skilled, and more skilled.

A series of questions sought information on saltwater angler participation. First, anglers were asked to report number of days fished in the previous 12 months in three major categories: freshwater, saltwater bays, and saltwater gulf. Second, saltwater anglers were asked to indicate the three kinds of saltwater fish they preferred to catch in Texas: first choice, second choice, and third choice. Third, they were asked to choose among five alternate responses regarding with whom they fished most often: by yourself, friends, family, family and friends together, and club. Fourth, saltwater anglers were asked if they participated in saltwater tournaments and, if yes, the number fished/year. Finally, saltwater anglers were asked if they had fished outside of Texas and, if yes, to identify the destination for each trip taken, number of days/trip, species sought, and total trip expenditures.

Saltwater anglers were asked about their investment in equipment used for sport fishing. First, saltwater anglers were asked if they or someone in their household owned a powerboat and, if yes, the length of the longest boat owned. Second, saltwater anglers were asked if they had purchased one or more items of designated outdoor equipment during the previous 12 months and, if an expenditure was made, the purchase price of each item, whether it was purchased in Texas, and % of time used for saltwater fishing.

Orientation towards catching fish was investigated with a scale

developed by Graefe (1977, 1980) to understand four sub-dimensions of consumption: number of fish caught, type of fish caught, disposition of catch, and general orientation toward catching "something". An additional item - "I like to fish where I know I have a chance to catch a trophy fish" - was added to the questionnaire to understand the importance of this orientation. Anglers were asked to indicate the extent to which they agreed with each attitudinal statement on a Likert-type scale. Also, 18 motive statements for saltwater fishing were rated by each respondent. Anglers were asked to indicate the importance of each statement as a reason for fishing using a Likert-type scale. Eleven motive statements dealt with the generic benefits sought in most outdoor recreation activities (activity-general). The statements were single-item measures of the following Driver (1977) domains: physical rest, escape physical pressures, escape daily routine, relationships with nature, escape role overloads, family togetherness, social contacts, exploration, achievement-competence testing, achievement-seeking stimulation, and equipment. In addition, seven motive statements dealt with experience element associated only with sport fishing (activity-specific): "To obtain fish for eating", "For the experience of the catch", "To obtain a trophy fish", "To be close to the sea", "For the challenge or sport", "To obtain a trophy", and "For the fun of catching fish". Driver (1977) and Driver and Cooksey (1978) documented reliability and validity of the activity-general scales.

Four questions were included in the questionnaire to explore degree of support for agency management efforts. First, using a Likert-type scale, saltwater anglers were asked whether or not they supported each of 12 management tools used by the TPWD for managing saltwater fisheries. Second,

anglers were asked to what extent they used nine sources of saltwater fishing information using a Likert-type scale. Information sources investigated ranged from interpersonal contact to formal media outlets including information provided by the TPWD. Third, to obtain information on angler commitment to resource conservation, they were asked if they caught a tagged fish whether or not they would report the tag to the appropriate authorities. Fourth, anglers were asked to what extent they were satisfied with saltwater fishing in Texas using a five-point Likert-type scale.

Finally, two open-ended questions were used to give saltwater anglers an opportunity to tell us what was important to them. First, saltwater anglers were asked to describe their most memorable saltwater fishing trip; responses were content-analyzed and up to five trip characteristics listed/angler. Content assignments were either activity-specific or activity-general. Finally, saltwater anglers were asked if there was "anything else they would like to share with us?" Responses (up to 5 per respondent) of saltwater anglers were content-analyzed and grouped according to whether they were positive or negative.

The mail questionnaire was not pre-tested. Most questions in the 1987 survey were used in the 1986 statewide survey of saltwater anglers (Ditton et al. 1990); changes from the 1986 survey are provided in Table A.1.

Data were requested from each selected stamp purchaser using a 12 page 10 question mail questionnaire (Appendix B) between January 19 and March 11, 1988. With survey procedures based partly on Dillman (1978) and partly on experience gained through previous data collections in Texas (Ditton and Holland 1984, Ditton and Gramann 1987, Ditton and Loomis 1988), the survey was personalized to enhance response rate. For example, letters were personally

addressed to each angler using "mailmerge" techniques and personally signed with the names of those responsible for the survey. When nondeliverables are excluded from consideration, a final response rate of 67% was obtained (Table C.1).

Questionnaires were checked for completeness of responses; 4.1% of the questionnaires returned were not usable since respondents reported they had not fished saltwater in the previous 12 months. Additionally, a screening program identified and deleted respondents with 0 days of saltwater fishing in the previous year (and 0 years of previous saltwater fishing experience). Location of residence, species preference, and open-ended questions were coded by project personnel. Next, data were entered into a computer file and error checked. Frequency distributions for all variables were generated as a final check against error.

## RESULTS

### Demographics

In 1987, the Texas saltwater angling community continued to be dominated by 20-49 year-old middle-class males from coastal urban areas (Table 1). Female anglers comprised 21% of the Texas saltwater anglers. Less than two-thirds of all saltwater anglers resided in coastal counties (Table 2). Two percent of the respondents were from out-of-state and an additional 4% indicated that although they currently reside in Texas, they were not permanent Texas residents (Table 3). The majority (59%) of Texas saltwater anglers were from coastal urban areas, primarily from Houston (23%), Corpus Christi (10%) and the Beaumont area (7%) or from two major inland population

centers, Dallas-Fort Worth (6%) and San Antonio (14%) (Table 4). Whereas percent of Texas saltwater anglers from urban areas remained constant, there were fewer anglers from Corpus Christi and more from Dallas-Fort Worth in 1987. Eleven percent of Texas saltwater anglers had lived in Texas < 10 years; 76% had lived in Texas for > 20 years (Table 5). About 63% of the respondents had household incomes between \$20,000 and \$59,999 (Table 6).

#### Participation and Experience

Whereas Texas saltwater anglers indicated strong commitment to saltwater fishing in terms of number of days fished, frequency and rates of fishing in various settings declined in 1987. Texas saltwater anglers fished an average of 21.4 days in saltwater and an average of 12 days in freshwater (Table 7). Nineteen percent of the respondents fished > 33 days in saltwater in the previous year. This was six days below 1986. Seventy-five percent fished from a boat and 74% from shore in saltwater bays at least once; almost 42% of the respondents fished from boats in the Gulf of Mexico and 55% fished from shore in the gulf. Fifty-one percent of respondents' households owned a power boat in 1987 (Table 8); most were 5 to 8 m in length (Table 8). Most respondents (72%) had fished in saltwater  $\geq$  10 years (Table 9); about 59% felt they were equally skilled when compared to other anglers (Table 10).

No changes were found in the extent to which respondents participated competitively in saltwater fishing. More than 90% of saltwater anglers fished most often with family and/or friends (Table 11). Only 10% of Texas saltwater anglers fished in saltwater tournaments (Table 12); the majority of those fished in only 1 (49%) or 2 (32%) events during 1987. Respondents indicated they relied on a variety of sources for information on fishing (Table 13). Word of mouth through other anglers and bait and tackle shops were reportedly

used most often (lots of use or a great deal of use categories) followed by written media (newspaper articles, TPWD materials, and magazine articles, respectively). Least used were fishing clubs.

There were no changes in most preferred species among saltwater anglers. The majority of saltwater anglers indicated a preference for catching red drum (Sciaenops ocellatus) and spotted seatrout (Cynoscion nebulosus) in 1987 (Table 14). Following the general category of drum, flounder (Paralichthys sp.) was the fourth most preferred species. All other species ranked < 5% in preference. These results were comparable with species preference results in 1986 except for a slight increase in preference for the general category of drum (Table 15).

About 13% of the anglers took out-of-state fishing trips in the previous 12 months (Table 16). The most popular destinations in terms of anglers were Louisiana, Florida, Mexico, Colorado, and Arkansas. In 1987, Arkansas replaced Oklahoma among the five most popular out-of-state fishing destinations. Bass and trout species were targeted most by saltwater anglers on out-of-state fishing trips in 1987 (Table 17).

#### Motivations and Attitudes

Although Texas saltwater anglers continued to rate activity-specific items less important than activity-general items as motivations for fishing, responses to questions regarding their consumptive attitudes indicated catching and keeping fish is important to their fishing experiences. Eleven motivational items including "for relaxation," "to be outdoors," "to get away from the regular routine," "for the experience of the catch," "to experience natural surroundings," "for the challenge or sport," "to get away from the demands of other people," "for family relaxation," "to be with friends," "to

experience adventure and excitement" and "for the fun of catching fish" were rated very to extremely important by most respondents (Table 18). Only three of these items were specific to fishing. More than 50% of the respondents rated "to obtain a trophy fish" and "to win a trophy" as not at all important. Motivational responses in 1987 were similar to those for 1986 except for the two new items and the original item "to be with friends" which were rated very to extremely important by the majority of respondents. Over 85% of the respondents indicated they usually eat the fish they catch (Table 19). Most saltwater anglers also agreed with statements such as "I like to fish where there are several kinds of fish to catch", that "a fishing trip can be successful even if no fish are caught" and "the more fish I catch, the happier I am". In contrast with 1986, < 50% of the anglers agreed with the statement "I would rather catch one or two big fish than ten smaller fish"; this was the only difference in consumptive orientation between 1986 and 1987. Responses to other fish-related items were more neutral or indicated disagreement. Most disagreed with the statements: "I want to keep all the fish I catch" and "I usually give away the fish I catch".

Saltwater anglers continued to be most positive about minimum size limits and stocking and most negative about prohibition of certain types of bait and slot limits among management tools used by the TPWD (Table 20). Most saltwater anglers continued to support stocking, minimum size limits, bag limits, prohibition of certain sportfishing gears, restricted areas, closed seasons, and maximum size limits. In response to two new items, most anglers supported a ban on retention of certain species during certain times of the year and a voluntary catch and release program. More than 50% of the respondents continued to be neutral or opposed to slot limits, prohibition of



types of bait, and not being able to retain certain species in certain areas. Almost 99% of the saltwater anglers reported they would report tagged fish caught (Table 21).

### Expenditures

In 1987, saltwater anglers spent approximately \$750/angler on fishing tackle, camping equipment, boats, and vehicles in the previous 12 months (Table 22). This represents a significant reduction in expenditures since 1986 (Table 23). Expenditures on boating equipment continued to account for approximately 70%, vehicles 15%, fishing tackle 10%, and camping and other equipment 2% of the total annual expenditures (Table 22). Approximately 90% of the items in each category continued to be purchased in Texas, but use in saltwater and the percentage of respondents buying at least one item declined (Table 22, Table D.1). The categories of boats, boat motors, boat trailers contributed significantly to the overall decline in average expenditures. The average cost per item ranged from \$1.37 for a lure color selector to a \$1,885 for vehicle expenditures. The actual average cost/trip of each item, when incurred, can be calculated by dividing the mean by the percent of anglers that purchased that item (e.g., rods:  $\$37.35/0.53 = \$70.48$ ) (Table 22).

### Angler Feedback

Responses to the open-ended question on most memorable saltwater fishing trip indicated overwhelmingly that some aspect of the catch continued to be most important (Table 24), although size and number of fish caught were apparently less related to a memorable trip. Over 35% of all responses to this question described a catch-related or specific species trip aspect. All

other categories besides location-specific aspects and "other" were mentioned < 10% of the responses. When asked if there was anything else they would like to share, anglers were positive towards stocking of fish, catch and release and current regulations; negative toward commercial fishing, current regulations, and the saltwater sport fishing stamp requirement (Table 25). Between 1986 and 1987 there was a greater increase in negative comments than positive ones; most were directed toward commercial fishing interests, catch and release, and current regulations. The rate of negative responses towards the saltwater fishing stamp decreased, indicating greater acceptance among saltwater anglers. In response to a new question, most (51%) saltwater anglers reported they were very to extremely satisfied with saltwater fishing in Texas. Only 3% reported they were not at all satisfied (Table 26).

#### Survey Instrument Evaluation

With the exception of optional questions, most respondents continued to answer each question in the questionnaire (Table 27). A majority of survey questions had < 150 non-respondents/ item (Table 28). In addition to the two open-ended questions, two questions had a particularly high rate of non-response: 1) number of days fished in saltwater gulf from a boat and 2) number of days fished in saltwater gulf from shore or piers.

#### DISCUSSION

Whereas saltwater angler responses between 1986 and 1987 were generally comparable on most variables, there were some notable differences with possible implications for management. First, there was a reduction (6 days) in saltwater fishing frequency between 1986 and 1987. Second, rates of

participation (% of anglers) in every type of saltwater environment studied were consistently lower than those for 1986. These results are not necessarily inconsistent with Maddux et al. (1989) which reveal increases in coastal fishing pressure (million man-h) and landings (million fish) for the period between 85-86 and 86-87. It is possible people fished for fewer days/year but fished more h/day and caught more fish overall. Another explanation could be the recall problems associated with collection of annual fishing frequency data. In contrast with the 1986 statewide survey, the 1987 survey was conducted in the first quarter of 1988 thus posing serious recall problems for fishing that occurred in spring 1987. Third, although a decreasing percent of respondents responded to the optional open-ended question "Is there anything else you would like to share with us?", there has been a noticeable increase in negative responses toward commercial fishing interests and the required catch and release of fish above the maximum size limit. Also, there has been a sharp increase in both positive and negative responses toward current regulations indicating increased angler interest in management efforts.

Whereas avidity levels of Texas saltwater anglers in 1987 were less than reported for 1986 (Ditton et al. 1990), they are still higher than for the general population of Texas saltwater anglers (12 d/angler/year) (U.S. Fish and Wildlife Service 1989). Explanations for this are still being sought. Initially, we thought higher avidity levels were due to how we treated non-response to the frequency of participation questions - missing values were treated as missing instead of being recorded as zero. A recent investigation of the extent of bias associated with how missing values were treated under these two scenarios revealed that the former produced a slightly lower mean

avidity level (Ditton et al. In Preparation). Second, relatively high self-reports of avidity might be attributed to the influences of the survey methodology used, namely the mail survey as suggested by Thompson and Hubert (1990). We suspect several biases: respondent recall bias (Hiatt and Worrall 1977), telescoping avidity beyond the previous 12 months (Neter and Waksberg 1965), and digit bias in responses (Graefe 1980). In particular, the first two sources of bias were likely exacerbated by not conducting the survey immediately following high-participation summer months. Saltwater avidity levels and other data subject to recall, telescoping, and digit biases need further investigation using alternate study designs: a fishing diary or telephone interview methodology with 1 or 2-month waves, whereby these problems can be more adequately controlled. Ultimately, results of these types of studies can be used to adjust previous, as well as future statewide saltwater survey results.

For the first time in 1987, we used the statewide mail questionnaire to ask saltwater anglers how satisfied they were with saltwater fishing in Texas. These data together with trip satisfaction data being collected by the TPWD under its coastal fisheries creel intercept program are useful to evaluate TPWD management efforts. Intuitively, we expect differences in satisfaction levels reported by anglers at the conclusion of their fishing trips and at the end of the season and need to further investigate the topic.

Although the survey resulted in a high overall level of response (67%) from saltwater anglers, it was less than the average response rate of 74% reported by Dillman (1978) and the 71% rate of the 1986 statewide survey of saltwater anglers in Texas (Ditton et al. 1990). Two possible scenarios exist. First, the lower rate may have been due to the slightly reduced level

of personalization used in contrast with the 1986 statewide survey of saltwater anglers. For example, mailing labels were used with the 1987 survey instead of addressing envelopes with a laser jet printer to simulate a first class mailing. Also, the individuals' full name was used in the salutation due to an inability to differentiate specific fields of information within the sample of names and addresses provided. Secondly, in contrast with the 1986 survey which was conducted during the last quarter of the year, this survey was conducted during the first quarter of 1988.

Results suggest the saltwater stamp was purchased by a broader cross-section of saltwater anglers than in 1986 where high specialization anglers were thought to be over-represented as evidenced by their avidity levels and rates of boat ownership. Both participation indicators decreased in 1987. First, in 1987, the statewide sample of saltwater anglers exhibited a lower level of mean fishing frequency than in 1986. This was accompanied by an increase in the percent of anglers who felt they were less skilled than other anglers. Second, rate of boat ownership (51%) for 1987 was less than the rate of 55% reported in the 1986 survey and more consistent with the rate of the general angler population (48%) in Texas in 1985 (U.S. Fish and Wildlife Service 1989).

When converting from a cross-sectional study format to a longitudinal format, several unexpected problems occurred that required careful attention. First, whenever we used an "other" category in the 1986 report (Ditton et al. 1990) it was not possible later to make comparisons between years. To remedy this problem, we presented data for 1987 without aggregation. Similarly, some species preference data for anglers who took out-of-state trips were aggregated into generic categories in 1986 but not in 1987. To make

comparisons with the trout category, for example, in 1986 the reader needs to group angler preferences for various species of trout in 1987. Henceforth, all results will be presented in disaggregated form to allow for maximum use and to avoid loss of data. Second, when changes in the TPWD species codes were made concurrent with the surveys, it was necessary for us to re-code the 1986 species preference data to allow for direct comparison with 1987 data. This is why 1986 species preference results in Ditton et al. (1990) are different from those reported in the present report. Third, upon completion of the 1986 statewide saltwater angler survey, we became aware of a need to "screen out" those respondents who reported 0 days of saltwater fishing in the previous year and 0 years of previous saltwater fishing experience. This is why saltwater fishing frequency results overall and in every category reported in Ditton et al. (1990) are lower than reported for 1986 in this report. Finally, because survey sample sizes varied by year, there was a need to standardize presentation of results to enable comparisons between years. There were differences, for example, between how data were presented for response to the optional open-ended question: "Is there anything else you would like to share with us?" Whereas responses for 1986 were shown as a percent of total comments made in Ditton et al. (1990), they are reported as a percent of total saltwater anglers for both years in the present report.

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Table 1. Percent of saltwater anglers by gender and age category by year.

Gender	Age						Mean age (yr) ( $\pm 1$ SE)
	Year	<20	20-29	30-39	40-49	50-59	
<b>Male</b>							
1986	2.7	20.2	32.4	20.4	14.9	9.3	39.8 $\pm$ 0.2
1987	2.2	21.5	30.9	23.4	14.4	7.6	39.5 $\pm$ 0.2
<b>Female</b>							
1986	1.8	23.9	28.4	17.9	19.2	8.8	40.1 $\pm$ 0.5
1987	2.1	19.2	29.9	21.7	17.3	9.7	40.7 $\pm$ 0.4
<b>Total</b>							
1986	2.5	20.9	31.7	20.0	15.7	9.2	39.8 $\pm$ 0.2
1987	2.2	21.0	30.7	23.0	15.0	8.1	39.7 $\pm$ 0.2

Table 2. Distribution of responses to: 'What is the Zip Code of your current home residence?', by year.

Year	Area		
	Coastal <sup>a</sup>	Non-coastal	Outside Texas
1986	56.8	38.6	4.6
1987	55.0	42.6	2.4

<sup>a</sup> Coastal counties include Aransas, Brazoria, Calhoun, Cameron, Chambers, Galveston, Harris, Jackson, Jefferson, Kenedy, Kleberg, Matagorda, Nueces, Orange, Refugio, San Patricio, Willacy, and Victoria.

Table 3. Percent of saltwater anglers currently living in Texas, regardless of legal residence.

Year	%
1986	91.4
1987	93.9

Table 4. Percent of saltwater anglers by their three-digit Zip Code by year. Blanks = no response.

Zip code/post office	1986	1987
768 Abilene	0.2	0.2
795 Abilene	<0.1	0.1
796 Abilene	0.3	0.1
790 Amarillo	<0.1	0.1
791 Amarillo	0.1	0.2
786 Austin	1.8	2.0
787 Austin	2.5	2.9
789 Austin	0.5	0.7
776 Beaumont	4.5	4.9
777 Beaumont	2.6	2.0
778 Bryan	0.8	1.3
792 Childress		<0.1
773 Conroe	2.9	3.8
783 Corpus Christi	5.6	4.6
784 Corpus Christi	7.4	5.1
750 Dallas	1.1	1.7
751 Dallas	0.5	0.6
752 Dallas	0.9	1.0
753 Dallas	<0.1	
762 Denton	0.2	0.2
798 El Paso		<0.1
799 El Paso	0.1	0.2
760 Fort Worth	1.1	1.3
761 Fort Worth	0.6	1.1
764 Fort Worth	0.1	<0.1
754 Greenville	<0.1	0.2
770 Houston	16.5	17.0
771 Houston	<0.1	<0.1
772 Houston	0.1	<0.1
774 Houston	6.8	6.3
756 Longview	0.2	0.2
793 Lubbock	0.1	0.1
794 Lubbock	0.2	0.1
759 Lufkin	0.4	0.6
785 McAllen	5.4	6.2
769 Midland	0.2	0.3
797 Midland	0.4	0.5
775 Pasadena	12.6	12.7
780 San Antonio	1.4	1.9
781 San Antonio	2.8	2.8
782 San Antonio	8.6	8.6
788 San Antonio	0.3	0.2
765 Temple	0.7	1.0
755 Texarkana		<0.1
757 Tyler	0.3	0.4
758 Tyler	0.1	0.2
779 Victoria	3.6	3.2
766 Waco	0.3	0.2
767 Waco	0.3	0.1
763 Wichita Falls	0.1	2.4
Out of state	4.6	
Total	99.7	99.9

<sup>a</sup> Totals do not include zip codes with <0.1.

Table 5. Percent of saltwater anglers by length of residence in Texas by year.

Year	Length of residence (years)							Mean ( $\pm$ 1 SE)
	<10	10-19	20-29	30-39	40-49	50-59	>60	
1986	12.2	13.1	23.0	25.0	13.6	8.4	40.6	30.1 $\pm$ 0.3
1987	10.6	13.7	22.6	24.6	15.4	9.0	4.2	30.7 $\pm$ 0.2

Table 6. Percent of saltwater anglers by household income category by year.

Year	Income category (\$ x 1000)										
	<10	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80-89	90-99	>100
1986	7.1	14.5	19.8	20.1	14.1	9.2	5.8	3.0	1.4	0.9	4.1
1987	7.1	13.3	19.0	18.7	14.9	10.3	5.8	3.2	2.1	1.0	4.5



Table 7. Percent of saltwater anglers by reported number of days spent fishing in freshwater, saltwater bays and gulf by boat or from shore or pier during the previous 12 months by year.

Area	Year	Days/year					Mean no. of days ( $\pm 1$ SE)
		0	1-13	14-33	34-63	$\geq 64$	
Freshwater	1986	24.1	50.7	17.5	5.2	2.5	10.1 $\pm$ 0.34
	1987	25.3	47.9	19.0	5.0	2.7	12.0 $\pm$ 0.35
Saltwater bays from boat	1986	22.2	53.4	17.1	5.4	2.0	10.8 $\pm$ 0.31
	1987	25.4	53.2	16.0	3.7	1.7	9.4 $\pm$ 0.28
Saltwater bays from shore or pier	1986	20.0	57.8	15.7	4.3	2.3	10.4 $\pm$ 0.32
	1987	25.8	57.0	12.7	3.3	1.1	8.2 $\pm$ 0.27
Saltwater gulf from boat	1986	53.6	42.2	3.4	0.5	0.2	2.5 $\pm$ 0.14
	1987	58.3	38.6	2.6	0.3	0.2	2.1 $\pm$ 0.12
Saltwater gulf from shore of pier	1986	40.3	47.6	8.8	2.1	1.2	6.2 $\pm$ 0.28
	1987	45.3	45.5	6.8	1.7	0.6	4.8 $\pm$ 0.20
Total Saltwater	1986	1.8	42.4	30.5	16.0	9.3	27.2 $\pm$ 0.67
	1987	6.8	47.5	26.5	12.5	6.7	21.4 $\pm$ 0.85
Grand Total	1986	0.9	26.9	33.1	22.1	17.0	38.1 $\pm$ 0.80
	1987	4.2	30.7	32.5	19.8	12.0	32.7 $\pm$ 0.72

<sup>a</sup> Categories of fishing frequency  $>0$  are based on Graefe (1980).

Table 8. Percent of saltwater anglers who own a powerboat or live in a household where someone owns a powerboat.

Year	%
1986	54.6
1987	50.6

Distribution of lengths of the longest boat owned.

Year	Length (m)				Mean length ( $\pm$ 1 SE)
	<5	5 - 8	9 - 12	$\geq$ 12	
1986	24.7	73.0	1.9	0.4	5.3 $\pm$ 0.1
1987	26.1	71.5	1.8	0.7	5.3 $\pm$ 0.3

Table 9. Percent of saltwater anglers by number of years they have been fishing in saltwater by year.

Year	Number of years of saltwater fishing								Mean no. of yrs. ( $\pm 1$ SE)
	0	1-9	10-19	20-29	30-39	40-49	50-59	$\geq 60$	
1986	0.4	28.7	26.1	22.9	14.2	5.3	2.1	0.2	17.8 $\pm$ 0.2
1987	0.3	27.7	25.9	23.1	15.1	6.0	1.7	0.1	18.2 $\pm$ 0.1

Table 10. Percent of saltwater anglers by perceived fishing ability compared to other anglers by year.

Year	Ability category		
	Less skilled	Equally skilled	More skilled
1986	24.2	62.9	12.9
1987	28.8	59.2	12.0

Table 11. Percent of saltwater anglers by type of group they fished with most often by year.

Year	Group				
	Family & friends	Friends	Family	By yourself	Club
1986	34.9	28.9	28.2	7.8	0.1
1987	36.5	29.5	26.5	7.3	0.2

Table 12. Percent of saltwater anglers who participated in saltwater fishing tournaments by year.

Year	%
1986	10.5
1987	9.7

Distribution of number of tournaments fished/year for saltwater anglers who participated.

Year	Number of tournaments/year						Mean Number/year ( $\pm 1$ SE)
	0	1	2	3	4	$\geq 5$	
1986	0.5	46.8	31.7	13.0	3.2	4.9	2.0 $\pm$ 0.1
1987	1.1	49.1	32.2	10.3	3.9	3.4	2.0 $\pm$ 0.1

Table 13. Distribution of saltwater anglers (%) by the extent they reported using different types of saltwater fishing information by year.

Type of information	Year	Value <sup>a</sup>				
		1	2	3	4	5
Comments and opinions of other anglers	1986	6.5	7.2	44.8	29.3	12.3
	1987	4.4	5.8	44.2	31.8	13.9
Texas Parks and Wildlife magazine	1986	28.5	16.6	34.8	14.3	5.8
	1987	21.3	15.4	35.7	19.4	8.3
Other information provided by Texas Parks and Wildlife Department (brochures, etc...)	1986	22.2	19.4	36.8	14.7	7.0
	1987	14.6	17.7	38.7	19.8	9.2
Newspaper articles	1986	13.8	18.2	40.2	21.0	6.8
	1987	10.3	17.9	42.3	22.8	6.8
Magazine articles	1986	20.0	21.3	38.6	15.1	5.0
	1987	14.6	20.1	41.0	18.6	5.8
Bait and tackle shop	1986	13.1	16.8	37.8	23.2	9.1
	1987	9.9	15.9	38.2	26.6	9.5
Fishing clubs	1986	67.7	17.1	10.5	3.3	1.3
	1987	60.7	19.4	13.5	4.7	1.6
Radio shows	1986	45.0	21.2	23.8	6.7	3.3
	1987	40.1	22.1	25.3	9.3	3.2
Television shows	1986	29.3	19.9	31.8	12.8	6.3
	1987	25.4	19.3	33.0	14.7	7.7

<sup>a</sup> 1=no use; 2=little use; 3=some use; 4=lots of use; 5=great deal of use.

Table 14. Percent of saltwater anglers by saltwater species most preferred: ranked by first choice percentages in 1987. Blanks = category not mentioned.

Species <sup>a</sup>	1st choice	2nd choice	3rd choice
Red drum	35.8	34.4	15.0
Spotted seatrout	20.1	15.6	5.6
Drum family	19.0	21.6	15.6
Flounder	11.9	14.3	35.4
King mackerel	3.1	2.0	3.8
Red snapper	2.5	2.1	2.2
Shark family	1.1	1.2	3.1
Snapper family	0.7	0.4	0.7
Croaker	0.6	1.3	4.1
Sand seatrout	0.5	1.0	2.2
Anything	0.5	0.2	1.6
Catfish family	0.4	0.9	1.4
Sea bass family	0.4	0.4	0.5
Billfish	0.3	0.2	0.4
Cobia	0.3	0.6	0.7
Dolphin	0.3	0.5	0.5
Gulf kingfish	0.2	0.5	1.0
Sheepshead	0.2	0.3	1.2
Black drum	0.1	0.3	0.6
Blue marlin	0.1		0.1
Codlet family	0.1	0.2	0.2
Florida pompano	0.1	<0.1	0.1
Gafftopsail catfish	0.1	0.3	0.7
Greater amberjack	0.1	0.1	0.1
Snook	0.1	<0.1	0.1
Spanish mackerel	0.1	0.1	0.2
Tarpon	0.1	<0.1	0.3
Temperate bass family	0.1	0.1	0.2
Alligator gar	<0.1		<0.1
Atlantic cutlass	<0.1		<0.1
Atlantic spadefish	<0.1		
Bank seabass	<0.1		
Bayou killifish	<0.1		
Beaugregory	<0.1		
Blackfin tuna	<0.1		<0.1



Table 14. (Cont'd)

Species	1st choice	2nd choice	3rd choice
Blacktip shark	<0.1	<0.1	0.1
Bluefish	<0.1	<0.1	0.1
Bullhead catfish family	<0.1	<0.1	0.1
Gar family	<0.1		0.2
Hardhead catfish	<0.1	<0.1	0.1
Jack family	<0.1	0.1	0.2
Leon Springs pupfish	<0.1		<0.1
Mackerel family	<0.1	0.1	0.1
Marlin-spike	<0.1		
Other salmonids	<0.1	<0.1	<0.1
Rainbow runner	<0.1		
Rainbow trout	<0.1		0.1
Sailfish	<0.1	0.3	0.1
Spadefish family	<0.1		
Spotted bass	<0.1		
Squirrelfish family	<0.1	<0.1	
Sunfishes	<0.1	<0.1	
Striped bass	<0.1	<0.1	0.1
Tripletail family	<0.1		<0.1
Warsaw grouper	<0.1		<0.1
Yellowfin tuna	<0.1		0.1
Yellowtail snapper	<0.1		<0.1
Wahoo		0.1	0.1
Atlantic bonito		<0.1	0.1
Atlantic stingray		<0.1	0.1
Gray triggerfish		<0.1	
Gulf menhaden		<0.1	<0.1
Hammerhead shark family		<0.1	
Largemouth bass		<0.1	
Lefteye flounder family		<0.1	0.1
Ocean triggerfish		<0.1	
Pompano dolphin		<0.1	0.1
Righteye flounder		<0.1	
Spot		<0.1	
Tarpon family		<0.1	

Table 14. (Cont'd)

Species	1st choice	2nd choice	3rd choice
Tidewater silverside		<0.1	
Unclassified tuna		<0.1	0.2
Black crappie			0.1
Mullet family			0.1
Sandbar shark			0.1
Two spot flounder			0.1
White bass			0.1
Angel shark family			<0.1
Butterflyfish family			<0.1
Full-bearded codlet			<0.1
Ladyfish			<0.1
Little tunny			<0.1
Pancake batfish			<0.1
Pigfish			<0.1
Sand diver			<0.1
Skipjack tuna			<0.1
Striped mullett			<0.1
White perch			<0.1

<sup>a</sup> Anglers identified species preferences with common names.

Table 15. Trends of saltwater anglers' saltwater species preferences by year: ranked by first choice percent in 1986. Blanks = category not mentioned.

Species <sup>a</sup>	1986	1987
Red drum	35.7	35.8
Spotted seatrout	19.5	20.1
Drum family	17.4	19.0
Flounder	10.8	11.9
King mackerel	3.9	0.1
Red snapper	2.6	2.5
Anything	1.9	0.5
Shark family	1.1	1.1
Gafftopsail catfish	0.8	0.5
Croaker	0.6	0.6
Cobia	0.4	0.3
Sea bass family	0.4	0.4
Dolphin	0.3	0.3
Marlin	0.3	<0.1
Sand seatrout	0.3	0.5
Billfish	0.2	0.3
Gulf kingfish	0.2	0.2
Sailfish	0.2	<0.1
Sheepshead	0.2	0.2
Bluefish	0.1	<0.1
Crappie	0.1	
Florida pompano	0.1	0.1
Greater amberjack	0.1	0.1
Jewfish	0.1	
Snook	0.1	0.1
Spanish mackerel	0.1	0.1
Tarpon	0.1	0.1
Blackfin tuna	<0.1	<0.1
Blackmouth bass	<0.1	
Blacktip Shark	<0.1	<0.1
Blue marlin	<0.1	0.1
Little tunny	<0.1	
Rock hind	<0.1	
Swordfish	<0.1	

Table 15. (Cont'd)

Species	1986	1987
Tiger shark	<0.1	
Warsaw grouper	<0.1	<0.1
Snapper family		0.7
Catfish family		0.4
Black drum		0.1
Codlet family		0.1
Temperate bass family		0.1
Alligator gar		<0.1
Atlantic cutlass		<0.1
Atlantic spadefish		<0.1
Bank seabass		<0.1
Bayou killifish		<0.1
Beaugregory		<0.1
Bullhead catfish family		<0.1
Gar family		<0.1
Hardhead catfish		<0.1
Jack family		<0.1
Leon Springs pupfish		<0.1
Mackerel family		<0.1
Other salmonids		<0.1
Rainbow runner		<0.1
Rainbow trout		<0.1
Spadefish family		<0.1
Spotted bass		<0.1
Squirrelfish family		<0.1
Sunfishes		<0.1
Striped bass		<0.1
Tripletail family		<0.1
Yellowfin tuna		<0.1
Yellowtail snapper		<0.1

<sup>a</sup> Anglers identified species preferences with common names.

Table 16. Distribution of fishing trips taken out of state during the previous 12 months by saltwater anglers by destination and days fished/trip (listed in alphabetical order). Blanks = no response.

State or Country	Year	No. trips/ angler <sup>a</sup>	% of all saltwater angling respondents	Mean days fished/trip ( $\pm 1$ SE)
Alabama	1986	1.00	0.22	4.9 $\pm$ 0.8
	1987	1.20	0.20	6.5 $\pm$ 0.9
Alaska	1986	1.11	0.45	7.5 $\pm$ 1.0
	1987	1.00	0.33	13.7 $\pm$ 4.5
Arizona	1986	1.00	0.07	7.3 $\pm$ 3.3
	1987	1.00	0.15	13.4 $\pm$ 9.5
Arkansas	1986	1.00	0.94	6.8 $\pm$ 0.7
	1987	1.02	0.94	7.8 $\pm$ 1.4
California	1986	1.00	0.48	6.0 $\pm$ 0.9
	1987	1.18	0.24	13.7 $\pm$ 7.2
Canada	1986	1.00	0.70	7.8 $\pm$ 0.7
	1987	1.05	0.46	7.0 $\pm$ 1.2
Colorado	1986	1.00	1.37	11.4 $\pm$ 1.7
	1987	1.01	1.49	7.3 $\pm$ 0.7
Connecticut	1986	1.00	0.10	4.5 $\pm$ 1.2
	1987			
Delaware	1986	1.00	0.02	3.0 $\pm$ 0.0
	1987			
Florida	1986	1.07	2.06	9.5 $\pm$ 0.8
	1987	1.03	1.55	7.7 $\pm$ 1.2
Georgia	1986	1.00	0.12	5.8 $\pm$ 1.0
	1987	1.00	0.11	6.0 $\pm$ 2.2
Hawaii	1986			
	1987	1.00	0.04	7.0 $\pm$ 0.0
Idaho	1986	1.00	0.14	5.3 $\pm$ 1.9
	1987	1.00	0.15	7.1 $\pm$ 2.3
Illinois	1986	1.00	0.24	21.7 $\pm$ 9.0
	1987	1.00	0.04	5.0 $\pm$ 0.0
Indiana	1986	1.00	0.17	6.3 $\pm$ 1.7
	1987	1.00	0.04	8.5 $\pm$ 5.5
Iowa	1986	1.00	0.29	16.2 $\pm$ 5.9
	1987	1.00	0.04	2.0 $\pm$ 0.0
Kansas	1986	1.00	0.19	9.7 $\pm$ 2.1
	1987	1.00	0.18	27.6 $\pm$ 12.2
Kentucky	1986	1.00	0.05	10.0 $\pm$ 0.0
	1987	1.00	0.04	6.0 $\pm$ 0.0
Louisiana	1986	1.02	3.72	6.8 $\pm$ 0.8
	1987	1.60	3.04	3.2 $\pm$ 0.3
Maine	1986	1.20	0.12	4.7 $\pm$ 1.1
	1987	1.00	0.04	12.5 $\pm$ 2.5
Maryland	1986	1.00	0.07	4.3 $\pm$ 1.9
	1987	1.60	0.11	3.5 $\pm$ 0.9
Massachusetts	1986	1.00	0.07	7.7 $\pm$ 3.8
	1987			
Mexico	1986	1.01	1.68	8.1 $\pm$ 1.7
	1987	1.15	1.75	5.0 $\pm$ 0.7

Table 16. (Cont'd)

State or Country	Year	No. trips/ angler <sup>a</sup>	% of all saltwater angling respondents	Mean days fished/trip ( $\pm 1$ SE)
Michigan	1986	1.08	0.31	8.3 $\pm$ 2.7
	1987	1.00	0.22	7.8 $\pm$ 3.5
Minnesota	1986	1.00	0.38	8.6 $\pm$ 1.6
	1987	1.07	0.33	8.8 $\pm$ 1.7
Mississippi	1986	1.00	0.50	5.1 $\pm$ 0.6
	1987	1.08	0.26	3.9 $\pm$ 0.9
Missouri	1986	1.00	0.60	6.7 $\pm$ 0.9
	1987	1.00	0.50	5.8 $\pm$ 0.8
Montana	1986	1.00	0.34	20.5 $\pm$ 7.5
	1987	1.00	0.22	9.1 $\pm$ 2.3
Nebraska	1986	1.00	0.12	9.5 $\pm$ 5.5
	1987	1.00	0.04	37.0 $\pm$ 27.0
Nevada	1986	1.00	0.05	3.5 $\pm$ 1.5
	1987	1.00	0.07	3.5 $\pm$ 0.5
New Hampshire	1986	1.00	0.02	7.0 $\pm$ 0.0
	1987			
New Jersey	1986	1.00	0.05	1.5 $\pm$ 0.5
	1987	1.00	0.02	5.0 $\pm$ 0.0
New Mexico	1986	1.04	0.62	7.7 $\pm$ 1.7
	1987	1.33	0.53	5.6 $\pm$ 1.0
New York	1986	1.00	0.14	8.5 $\pm$ 3.0
	1987	1.33	0.13	4.0 $\pm$ 0.5
North Carolina	1986	1.75	0.10	4.6 $\pm$ 1.9
	1987	1.00	0.13	14.2 $\pm$ 4.6
North Dakota	1986	1.00	0.02	2.0 $\pm$ 0.0
	1987	1.00	0.02	3.0 $\pm$ 0.0
Ohio	1986	1.00	0.07	7.7 $\pm$ 2.2
	1987	1.00	0.11	6.0 $\pm$ 2.2
Oklahoma	1986	1.02	1.13	8.7 $\pm$ 1.6
	1987	1.33	0.72	5.3 $\pm$ 0.8
Oregon	1986	1.00	0.02	1.0 $\pm$ 0.0
	1987	1.14	0.15	5.0 $\pm$ 0.7
Pennsylvania	1986	1.00	0.10	17.0 $\pm$ 14.3
	1987	1.00	0.07	4.3 $\pm$ 1.8
Rhode Island	1986			
	1987			
South Carolina	1986	4.00	0.02	8.0 $\pm$ 0.0
	1987	1.00	0.08	3.7 $\pm$ 0.7
South Dakota	1986	1.00	0.10	6.7 $\pm$ 1.8
	1987	1.00	0.09	5.0 $\pm$ 0.0
Tennessee	1986	1.00	0.05	6.0 $\pm$ 1.0
	1987	1.00	0.13	7.5 $\pm$ 2.6
Utah	1986	1.00	0.12	5.0 $\pm$ 1.6
	1987	1.00	0.09	3.0 $\pm$ 0.0
Vermont	1986	1.00	0.05	2.0 $\pm$ 0.0
	1987			

Table 16. (Cont'd)

State or Country	Year	No. trips/ angler <sup>a</sup>	% of all saltwater angling respondents	Mean days fished/trip ( $\pm$ 1 SE)
Virginia	1986	1.00	0.07	8.3 $\pm$ 4.9
	1987	1.00	0.13	7.5 $\pm$ 3.9
Washington	1986	1.00	0.19	12.1 $\pm$ 2.9
	1987	1.25	0.18	6.9 $\pm$ 1.4
West Virginia	1986	1.00	0.02	5.0 $\pm$ 0.0
	1987			
Wisconsin	1986	1.00	0.17	9.0 $\pm$ 2.9
	1987	1.00	0.11	8.0 $\pm$ 2.2
Wyoming	1986	1.09	0.53	7.3 $\pm$ 1.4
	1987	1.00	0.20	8.0 $\pm$ 2.0
Foreign countries other than Canada and Mexico	1986	1.00	0.41	6.5 $\pm$ 1.3
	1987	1.09	0.48	7.1 $\pm$ 0.9

<sup>a</sup> Total number of trips reported for that destination divided by the number of respondents traveling to that destination.

Table 17. Distribution of fishing trips taken out of state during the previous 12 months by saltwater anglers by species sought and mean days fished/trip (listed in alphabetical order). Blanks = no response.

Species	Year	No. of trips/ angler <sup>a</sup>	% of all saltwater angling respondents	Mean days fished/trip ( $\pm 1$ SE)
Anything	1986			
	1987	1.30	0.48	6.3 $\pm$ 1.3
Arctic grayling	1986	1.00	0.02	4.0 $\pm$ 0.0
	1987			
Barracuda	1986	1.00	0.07	9.7 $\pm$ 5.2
	1987			
Billfish family	1986	1.18	0.41	11.5 $\pm$ 4.7
	1987	1.00	0.50	5.0 $\pm$ 0.6
Black drum	1986			
	1987	1.00	0.02	4.0 $\pm$ 0.0
Blue sucker	1986			
	1987	1.00	0.02	7.0 $\pm$ 0.0
Bluefish	1986	1.00	0.22	7.6 $\pm$ 2.4
	1987	1.00	0.11	4.0 $\pm$ 0.6
Bluegill	1986	1.30	0.07	8.7 $\pm$ 2.7
	1987			
Bonefish	1986	1.00	0.02	4.0 $\pm$ 0.0
	1987			
Bonita	1986	1.00	0.02	4.0 $\pm$ 0.0
	1987			
Bowfin	1986			
	1987	1.00	0.02	4.0 $\pm$ 0.0
Brook trout	1986			
	1987	1.00	0.04	4.0 $\pm$ 0.0
Brown trout	1986	1.00	0.05	7.0 $\pm$ 5.0
	1987	1.00	0.04	5.0 $\pm$ 2.0
Bullhead catfish family	1986	1.00	0.02	1.0 $\pm$ 0.0
	1987	1.20	0.28	9.2 $\pm$ 4.4
Channel catfish	1986			
	1987	1.00	0.07	3.2 $\pm$ 1.2
Cobia	1986	1.00	0.10	7.3 $\pm$ 1.9
	1987	1.00	0.02	2.0 $\pm$ 0.0
Codfish family	1986			
	1987	1.00	0.02	6.0 $\pm$ 0.0
Crappie	1986	1.11	0.43	11.1 $\pm$ 2.0
	1987	1.16	0.13	9.7 $\pm$ 4.4
Croaker	1986	1.00	0.02	6.5 $\pm$ 3.5
	1987	1.00	0.02	6.0 $\pm$ 0.0
Dolphin	1986		0.04	3.7 $\pm$ 0.7
	1987	1.20		
Drum family	1986			
	1987	1.30	0.53	3.7 $\pm$ 0.5
Flounder	1986	1.00	0.31	9.3 $\pm$ 3.4
	1987			



Table 17. (Cont'd)

Species	Year	No. of trips/ angler <sup>a</sup>	% of all saltwater angling respondents	Mean days fished/trip ( $\pm$ 1 SE)
Gar	1986	1.00	0.02	2.0 $\pm$ 0.0
	1987			
Gray triggerfish	1986			
	1987	1.00	0.02	4.0 $\pm$ 0.0
Greater amberjack	1986			
	1987	1.00	0.04	2.5 $\pm$ 0.5
Gulf kingfish	1986			
	1987	1.00	0.02	6.0 $\pm$ 0.0
Halibut	1986	1.00	0.07	9.0 $\pm$ 2.5
	1987			
Hardhead catfish	1986			
	1987	1.00	0.02	6.0 $\pm$ 0.0
King mackerel	1986	1.00	0.22	9.6 $\pm$ 3.5
	1987	1.30	0.18	6.7 $\pm$ 1.1
King salmon	1986	1.00	0.10	6.8 $\pm$ 2.7
	1987			
Lake trout	1986	1.00	0.07	5.3 $\pm$ 2.6
	1987			
Largemouth bass	1986	1.10	0.70	7.3 $\pm$ 1.0
	1987	1.17	0.61	8.3 $\pm$ 3.4
Mackerel family	1986			
	1987	1.00	0.02	30.0 $\pm$ 0.0
Muskellunge	1986			
	1987	1.00	0.04	7.0 $\pm$ 0.0
Northern pike	1986	1.10	0.23	7.9 $\pm$ 1.3
	1987	1.00	0.15	5.7 $\pm$ 0.9
Other salmonids	1986	1.10	0.72	7.6 $\pm$ 0.9
	1987	1.20	2.82	7.8 $\pm$ 0.7
Pickerel	1986	1.00	0.05	6.0 $\pm$ 3.0
	1987			
Pinfish	1986	1.00	0.07	10.5 $\pm$ 3.5
	1987			
Rainbow trout	1986	1.04	0.60	11.6 $\pm$ 3.4
	1987	1.10	0.53	5.9 $\pm$ 0.5
Red snapper	1986			
	1987	1.00	0.11	6.2 $\pm$ 1.7
Red drum	1986	1.07	1.03	7.4 $\pm$ 1.4
	1987	1.70	0.75	2.6 $\pm$ 0.5
Redbreast sunfish	1986			
	1987	1.00	0.02	1.0 $\pm$ 0.0
Requiem shark family	1986	1.00	0.05	14.0 $\pm$ 0.0
	1987	1.50	0.09	10.2 $\pm$ 2.5
Righteye flounder family	1986			
	1987	1.00	0.04	10.0 $\pm$ 5.0

Table 17. (Cont'd)

Species	Year	No. of trips/ angler <sup>a</sup>	% of all saltwater angling respondents	Mean days fished/trip ( $\pm 1$ SE)
Rock bass	1986			
	1987	1.00	0.04	7.5 $\pm$ 2.5
Sailfish	1986	1.00	0.50	4.2 $\pm$ 0.6
	1987	1.00	0.22	4.9 $\pm$ 1.3
Sea bass family	1986	1.00	0.12	15.0 $\pm$ 11.7
	1987	1.00	0.13	15.5 $\pm$ 9.0
Sea catfish family	1986	1.00	0.17	14.9 $\pm$ 6.1
	1987	1.00	0.04	4.5 $\pm$ 2.5
Seatrout	1986	1.08	1.46	6.5 $\pm$ 0.9
	1987			
Sheepshead	1986			
	1987	1.00	0.04	13.0 $\pm$ 1.0
Smallmouth bass	1986			
	1987	1.00	0.02	5.0 $\pm$ 0.0
Snapper family	1986	1.00	0.34	9.4 $\pm$ 2.9
	1987	1.00	0.02	3.0 $\pm$ 0.0
Snook	1986	1.00	0.14	10.6 $\pm$ 1.3
	1987	1.00	0.13	5.7 $\pm$ 1.1
Southern flounder	1986			
	1987	1.80	0.44	2.6 $\pm$ 0.7
Spanish mackerel	1986	1.00	0.07	3.0 $\pm$ 0.0
	1987	1.00	0.02	7.0 $\pm$ 0.0
Spot	1986	1.00	0.02	1.5 $\pm$ 0.0
	1987			
Spotted seatrout	1986			
	1987	1.40	0.44	3.0 $\pm$ 0.6
Spotted gar	1986			
	1987	1.00	0.02	2.0 $\pm$ 0.0
Steelhead trout	1986	1.00	0.10	13.5 $\pm$ 5.5
	1987			
Striped bass	1986	1.05	0.48	8.1 $\pm$ 2.9
	1987	1.00	0.18	4.4 $\pm$ 1.2
Tarpon	1986	1.00	0.34	6.9 $\pm$ 0.9
	1987	1.10	0.22	5.9 $\pm$ 0.6
Temperate bass family	1986	1.09	2.70	7.5 $\pm$ 1.0
	1987	1.40	2.23	5.5 $\pm$ 0.6
Trout	1986	1.20	2.80	8.7 $\pm$ 1.0
	1987			
Tuna	1986	1.10	0.05	8.5 $\pm$ 1.5
	1987	1.00	0.11	4.4 $\pm$ 1.4
Unclassified kingfish	1986			
	1987	1.00	0.02	3.0 $\pm$ 0.0
Unidentified fish	1986	1.00	0.10	15.5 $\pm$ 11.6
	1987	1.00	0.09	4.3 $\pm$ 1.8

Table 17. (Cont'd)

Species	Year	No. of trips/ angler <sup>a</sup>	% of all saltwater angling respondents	Mean days fished/trip ( $\pm 1$ SE)
Walleye	1986	1.08	0.62	9.7 $\pm$ 3.9
	1987	1.10	0.53	13.8 $\pm$ 4.2
White bass	1986	2.00	0.07	7.8 $\pm$ 1.2
	1987	1.00	0.02	6.0 $\pm$ 0.0
Yellowfin tuna	1986	1.00	0.02	4.0 $\pm$ 0.0
	1987	2.00	0.02	3.0 $\pm$ 0.0

<sup>a</sup> Total number of trips reported for that species divided by the number of anglers taking those trips.

Table 18. Distribution of saltwater anglers (%) by the importance they attribute to various reasons why people fish in saltwater by year.

Reasons why people fish	Year	Value <sup>a</sup>				
		1	2	3	4	5
To be outdoors	1986	2.8	5.6	21.3	42.1	28.3
	1987	2.0	5.0	18.8	43.3	31.0
For family recreation	1986	8.3	13.8	26.8	33.1	18.0
	1987	8.0	11.8	26.3	34.6	19.4
To experience new and different things	1986	14.4	18.1	30.4	24.7	12.4
	1987	13.0	18.4	30.8	25.1	12.8
For relaxation	1986	2.4	4.3	13.5	36.7	43.1
	1987	1.9	3.8	14.5	37.7	42.1
To be close to the sea	1986	17.6	18.0	26.1	20.7	17.7
	1987	17.3	19.3	26.9	20.4	16.0
To obtain fish for eating	1986	12.8	19.6	34.8	18.3	14.5
	1987	13.3	19.5	32.7	19.8	14.7
To get away from the demands of other people	1986	13.8	11.3	19.2	26.7	29.1
	1987	10.8	11.4	19.7	27.7	30.3
For the experience of the catch	1986	5.3	8.9	23.3	32.5	29.9
	1987	5.2	8.0	24.2	32.4	30.3
To test my equipment	1986	40.9	25.9	21.7	7.8	3.7
	1987	38.0	27.9	22.1	8.5	3.4
To be with friends	1986	9.9	12.2	30.0	30.9	17.0
	1987	7.9	10.9	28.4	34.5	18.2
To experience natural surroundings	1986	6.5	9.7	25.9	33.5	24.3
	1987	7.0	8.6	20.2	31.5	32.7
To win a trophy	1986	76.8	11.5	7.5	2.0	2.2
	1987	71.0	14.7	9.7	2.6	2.0
To develop my skills	1986	23.4	19.6	29.0	18.1	9.9
	1987	19.9	20.0	30.0	19.6	10.5
To get away from the regular routine	1986	5.4	6.5	20.2	35.2	32.6
	1987	3.3	4.4	18.9	37.8	35.7
To obtain a "trophy" fish	1986	53.7	16.2	16.4	7.0	6.7
	1987	52.3	17.1	16.2	7.2	7.2
For the challenge of the sport	1986	11.1	9.8	25.5	28.3	25.3
	1987	9.6	9.5	25.6	30.5	24.7
For the fun of catching fish	1986	not asked				
	1987	1.6	2.8	17.1	37.3	41.3
To experience adventure and excitement	1986	not asked				
	1987	5.2	8.6	25.1	31.9	29.2

<sup>a</sup> 1 = not at all important; 2 = slightly important; 3 = moderately important; 4 = very important; 5 = extremely important.

Table 19. Distribution of saltwater anglers (%) by the extent they agree or disagree with statements about sport fishing in saltwater by year.

Statement	Year	Value <sup>a</sup>				
		1	2	3	4	5
The more fish I catch, the happier I am	1986	5.4	13.6	22.8	40.2	18.0
	1987	4.6	12.5	24.0	40.5	18.4
A fishing trip can be successful even if no fish are caught	1986	5.2	12.0	14.4	49.5	19.2
	1987	4.3	11.4	13.6	51.5	19.2
I usually eat the fish I catch	1986	2.4	4.1	7.6	39.4	46.5
	1987	1.6	3.8	7.8	39.4	47.5
A successful fishing trip is one in which many fish are caught	1986	6.5	24.0	26.4	30.7	12.4
	1987	6.2	26.3	27.7	29.8	10.0
I would rather catch one or two big fish than ten smaller fish	1986	4.8	17.6	25.9	31.7	20.1
	1987	5.2	21.7	26.7	28.8	17.6
When I go fishing, I'm just as happy if I don't catch a fish	1986	11.3	36.9	21.2	22.2	8.5
	1987	11.1	35.1	23.1	23.3	7.5
It doesn't matter to me what type of fish I catch	1986	11.6	34.5	20.5	26.9	6.4
	1987	8.4	35.4	19.4	29.7	7.0
The bigger the fish I catch, the better the fishing trip	1986	5.3	23.0	26.4	32.0	13.3
	1987	4.6	25.0	26.8	31.7	12.0
I'm just as happy if I don't keep the fish I catch	1986	12.5	28.5	22.2	28.2	8.6
	1987	10.1	27.8	22.6	30.3	9.3
I like to fish where there are several kinds of fish to catch	1986	0.6	2.2	13.3	54.7	29.2
	1987	0.6	2.1	13.4	56.7	27.1
I want to keep all the fish I catch	1986	16.0	40.8	22.9	13.2	7.1
	1987	15.8	41.7	22.5	13.3	6.6
I catch fish for sport and pleasure	1986	11.1	25.8	27.9	24.7	10.5
	1987	9.8	27.4	28.2	24.8	9.8
I'm just as happy if I release the fish I catch	1986	9.6	27.9	27.2	25.7	9.6
	1987	8.5	27.9	27.4	26.6	9.5
I usually give away the fish I catch	1986	23.0	43.6	23.3	7.4	2.7
	1987	21.9	44.9	23.3	8.1	1.9
I like to fish where I know I have a chance to catch a "trophy fish"	1986	not asked				
	1987	10.8	24.8	30.1	23.0	11.3

<sup>a</sup> 1 = strongly disagree; 2 = disagree; 3 = neutral; 4 = agree; 5 = strongly agree.

Table 20. Distribution of saltwater anglers (%) by support or opposition to management tools used by the Texas Parks and Wildlife Department by year.

Management tool	Year	Value <sup>a</sup>				
		1	2	3	4	5
Releasing fish below a certain length (minimum size limit)	1986	3.0	5.3	8.5	38.1	45.0
	1987	2.5	4.3	8.5	36.8	47.9
Releasing fish above a certain length (maximum size limit)	1986	10.2	17.8	18.0	28.1	26.0
	1987	7.8	16.3	19.2	29.0	27.7
Relasing fish within a certain length range, but keeping the fish below and above this range (slot limit)	1986	9.8	17.4	36.4	22.8	13.6
	1987	8.9	15.4	36.1	24.6	15.0
Being able to keep only a certain number of fish you catch in a day (daily bag limit)	1986	6.1	9.3	10.7	40.9	33.0
	1987	4.2	8.2	10.2	40.6	36.7
Not being able to fish in certain restricted areas	1986	7.3	12.1	23.4	36.0	21.2
	1987	6.7	10.1	23.8	36.6	22.9
Having certain fishing areas closed during part of the year (closed season)	1986	8.6	13.4	24.4	33.8	19.8
	1987	8.0	13.7	23.9	34.6	20.0
Prohibiting the use of certain types of sport fishing gear	1986	5.9	10.5	26.7	32.4	24.4
	1987	5.1	9.5	26.5	33.7	25.2
Prohibiting the use of certain types of bait	1986	10.4	21.5	33.0	21.4	13.7
	1987	9.7	18.6	34.9	22.6	14.1
Not being able to retain certain species in certain areas	1986	7.2	13.2	31.8	31.0	16.9
	1987	6.0	13.2	29.2	34.1	17.4
Stocking fish in saltwater	1986	1.4	2.1	12.5	30.2	53.9
	1987	1.2	1.6	13.2	30.9	53.1
Not being allowed to keep certain species during certain times of the year	1986	not asked				
	1987	5.8	12.9	26.4	35.9	19.0
A voluntary catch and release program	1986	not asked				
	1987	4.9	8.3	29.3	32.5	24.9

<sup>a</sup> 1 = strongly oppose; 2 = oppose; 3 = neutral; 4 = support; 5 = strongly support.

Table 21. Percent of saltwater anglers who responded that they would report catching a tagged fish.

Year	%
1986	98.7
1987	98.8

Table 22. Average expenditures (\$)/person for Texas saltwater anglers in 1987. SW denotes salt water.

Description of item(s)	Mean spent/person	Respondents buying at least one (%)	% mean spent for		Avg. spent per person for Texas SW fishing
			SW fishing	purchases in Texas	
<b>Tackle</b>					
Rods	37.35	53	74	98	27.00
Reels	36.27	48	72	98	25.63
Lures, tackle boxes, boxes, landing nets, etc.	41.83	65	67	98	27.82
Live bait equipment	13.06	36	80	99	10.32
Fish-attracting lights	4.57	5	77	94	3.28
Lure-color selector	1.37	4	46	94	<u>0.61</u>
Subtotal					94.66
<b>Camping Equipment</b>					
Trailer or camper	102.48	3	7 <sup>a</sup>	89	5.21
Tents, sleeping bags, lanterns, stoves, ice chests, etc.	38.49	34	8 <sup>b</sup>	98	<u>2.85</u>
Subtotal					8.06
<b>Boating</b>					
Electronic equipment: depth finders, fish locators, radio, etc.	28.77	7	67	93	18.08
Boat accessories: anchors, safety equipment, etc.	18.11	17	71	98	12.70
Boats	459.64	12	64	98	289.67
Boat motors	267.21	12	64	99	167.52
Boat trailers	74.97	9	61	99	<u>45.10</u>
Subtotal					533.07
<b>Vehicles</b>					
Autos, vans, pickups, Rvs, all-terrain vehicles	1,885.10	19	7 <sup>c</sup>	97	<u>121.33</u>
Subtotal					121.33
Other equipment	47.79	12	9 <sup>d</sup>	100	<u>4.16</u>
Subtotal					4.16
GRAND TOTAL					761.28

a,b,c,d The percentage of mean spent for saltwater fishing for these categories was based on the reported number of days fished.



Table 23. Average expenditures (\$)/person for Texas saltwater anglers in 1986. SW denotes saltwater.

Description of item(s)	Mean spent/person	Respondents buying at least one (%)	<u>% mean spent for</u>		Avg. spent per person for Texas SW fishing
			SW fishing	purchases in Texas	
<b>Tackle</b>					
Rods	49.62	75	75	97	36.23
Reels	39.39	35	72	97	27.53
Lures, tackle boxes, boxes, landing nets, etc.	42.37	67	74	98	31.06
Live bait equipment	13.64	38	85	100	11.54
Fish attracting lights	6.73	5	60	100	4.00
Lure color selector	1.53	4	50	92	<u>0.76</u>
Subtotal					111.12
<b>Camping Equipment</b>					
Trailer or camper	191.05	5	12 <sup>a</sup>	93	22.52
Tents, sleeping bags, lanterns, stoves, ice chests, etc.	36.83	36	10 <sup>b</sup>	98	<u>3.67</u>
Subtotal					26.19
<b>Boating</b>					
Electronic equipment; depth finders, fish locators, radio, etc.	37.02	9	71	90	23.32
Boat accessories; anchors, safety equipment, etc.	20.34	20	72	98	14.41
Boats	925.88	22	71	96	625.43
Boat motors	502.81	23	72	99	360.51
Boat trailers	139.61	18	76	99	<u>105.03</u>
Subtotal					1,128.70
<b>Vehicles</b>					
Autos, vans, pickups, Rvs, all terrain vehicles	2,850.41	28	8 <sup>c</sup>	95	<u>221.36</u>
Subtotal					221.36
Other equipment	28.88	12	17 <sup>d</sup>	100	<u>4.83</u>
Subtotal					4.83
GRAND TOTAL					1,492.20

a,b,c,d The percentage of mean spent for saltwater fishing for these categories was based on the reported number of days fished in Question 2 of the survey (see Appendix A).

Table 24. Distribution of saltwater angler responses to: Briefly describe your most memorable saltwater fishing trip.

Aspect of trip	Year	% of saltwater anglers responding to question <sup>a</sup>
Catch related	1986	24.4
	1987	17.5
Specific species	1986	21.8
	1987	17.6
Social related	1986	9.7
	1987	2.1
Size of fish	1986	8.9
	1987	8.6
Number of fish	1986	8.0
	1987	9.9
Family	1986	6.3
	1987	5.5
Location specific	1986	4.8
	1987	13.9
Friends	1986	4.0
	1987	3.4
Charter or party boat related	1986	1.7
	1987	1.2
Traveled offshore	1986	1.4
	1987	2.5
Weather related	1986	1.2
	1987	2.0
Catch and release	1986	1.2
	1987	1.4
Challenge related	1986	1.1
	1987	1.3
Relaxing setting	1986	1.0
	1987	0.4
Other	1986	4.4
	1987	12.9

<sup>a</sup> Each angler could list up to five responses.

Table 25. Percent of saltwater respondents to: Is there anything else you would like to share with us.

Subject	Year	Positive response	Negative response
Stocking fish	1986	2.0	<0.1
	1987	2.8	0.2
Commercial fishing	1986	<0.1	4.1
	1987	0.2	7.5
Saltwater fishing stamp	1986	1.0	5.4
	1987	0.8	4.6
Catch and release	1986	0.2	<0.1
	1987	2.1	3.7
Current regulations	1986	2.4	1.2
	1987	5.6	6.2

<sup>a</sup> Each respondent could list up to five responses.

Table 26. Distribution (%) of saltwater fishing satisfaction levels of saltwater angling respondents.

Year <sup>a</sup>	Satisfaction level <sup>b</sup>				
	1	2	3	4	5
1987	3.2	7.2	39.0	39.9	10.7

<sup>a</sup> This question was first asked in 1987.

<sup>b</sup> 1 = not at all satisfied; 2 = slightly satisfied; 3 = moderately satisfied; 4 = very satisfied; 5 = extremely satisfied.

Table 27. Number of non-respondents by angler survey question number, for 1986.

Question number	No.
1	121
2a	617
b	686
c	837
d	1219
e	1128
3	33
4a	88
b	129
c	156
d	155
e	182
f	73
g	124
h	146
i	162
j	135
k	122
l	143
m	140
n	163
o	157
p	91
5a	184
b	251
c	574
6	36
7a	90
b	89
c	100
d	256
e	163
f	90
g	109
h	244
i	158
j	145
k	90
l	99
m	95
n	99
8	54
9	43
10	3591
11a	77
b	101
c	94
d	70
e	82
f	74
g	114
h	93
i	73
12	40
13	3114
14a	45
b	54
c	134
d	55
e	61
f	68
g	71
h	76
i	89
j	91

Table 27. (Cont'd)

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Question number	No.
15a	78
b	543
16a	517
b	675
c	362
d	503
e	447
f	478
a	454
b	401
a	358
b	372
c	424
d	423
e	456
a	540
b	2722
a	1648
b	2927
17	31
18	31
19	223
20	73
open-ended question	3645

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Table 28. Number of non-respondents by angler survey question number, for 1987.

Question number	No.
1	64
2a	615
b	687
c	870
d	1266
e	1134
3	22
4a	63
b	111
c	136
d	139
e	140
f	54
g	94
h	118
i	151
j	120
k	112
l	118
m	114
n	132
o	117
p	90
q	75
r	94
5a	147
b	227
c	570
6	13
7a	66
b	60
c	112
d	97
e	107
f	65
g	82
h	125
i	163
j	161
k	75
l	78
m	97
n	202
o	73
8	36
9	20
10	31
11	86
12a	71
b	95
c	94
d	65
e	80
f	69
g	121
h	86
i	69
13	1153
14a	51
b	55
c	152
d	57
e	59
f	64

Table 28. (Cont'd)

Question number	No.
g	75
h	72
i	71
j	64
k	77
l	77
15a	119
b	452
c	514
16a	289
b	459
a	1115
b	988
c	490
d	548
a	493
b	871
a	413
b	586
c	2299
d	2401
e	2340
a	1869
b	1869
a	2931
b	2931
17	26
18	22
19	254
20	77
21	54
open-ended question	3030



Appendix A. Changes made in the 1987 statewide saltwater angler questionnaire from the 1986 questionnaire.

Table A.1 Changes appearing in the 1987 statewide saltwater angler questionnaire.

Question number	Nature of change
4	<p>Change title from 1986 Texas Survey of Saltwater Fisheries to Texas Saltwater Fishermen Survey.</p> <p>Also, "QUESTIONNAIRE #" was printed on the top left-hand side of the cover page.</p> <p>Added items g) for the fun of catching fish and r) to experience adventure and excitement in question 4.</p> <p>Item k) was revised from "to experience natural surroundings" to "to experience unpolluted nature surroundings". This was done to clarify the meaning of the type natural surroundings.</p> <p>Item l) was revised from "to win a trophy" to "to win a trophy or prize". This was done to reflect a wider range of extrinsic rewards available from saltwater fishing.</p>
7	<p>The order of questions c) through f) was changed: f) to e), e) to d), d) to c) and c) to f).</p> <p>Also a new item o) was added: I like to fish where I know I have a chance to catch a "trophy fish".</p>
10	<p>Trip numbers were added to each of four lines in an effort to clarify this question.</p>
11	<p>Question 11 (question 12 in 1986) was brought forward to allow more space for open-ended question 13.</p>
14	<p>Wording of item d) was revised to clarify its meaning: "being able to " to "being allowed to".</p> <p>Wording of item i) was revised to clarify its meaning: "being able to" to " being allowed to". Changed "retain" to "keep".</p>

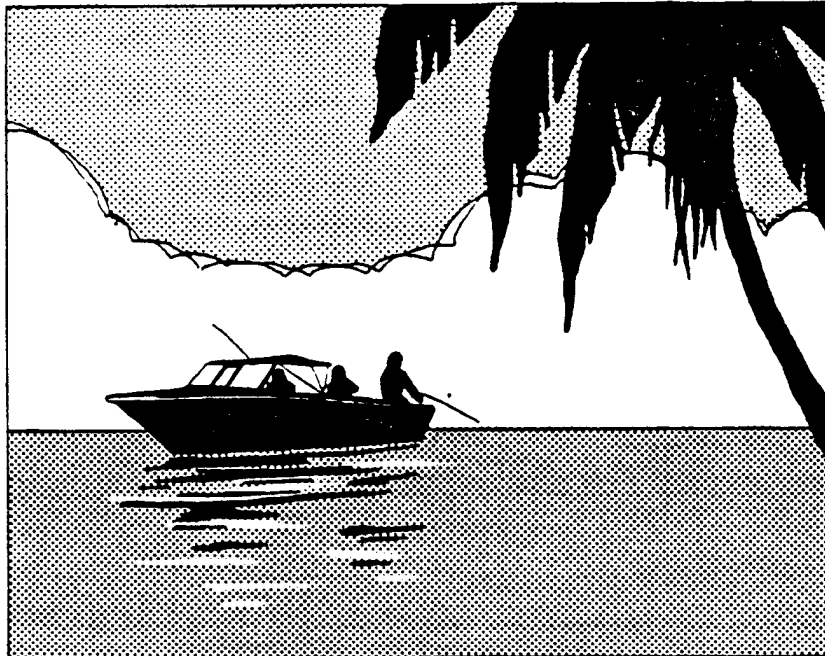
Table A.1 (cont'd)

Question Number	Nature of Change
21	Added new items: j) not being allowed to keep certain species of fish during certain times of the year and l) a voluntary catch and release program.  New question: "Overall, how satisfied are you with saltwater fishing in Texas?"

Appendix B. 1987 Texas saltwater fishing survey instrument.

QUESTIONNAIRE #

# TEXAS SALTWATER FISHERMAN SURVEY



TEXAS PARKS AND WILDLIFE DEPARTMENT

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TEXAS A&M UNIVERSITY

DEPARTMENT OF RECREATION AND PARKS  
COLLEGE STATION, TEXAS 77843

IN THE FOLLOWING QUESTIONS, PLEASE TELL US ABOUT YOUR FISHING  
ACTIVITY AND EXPERIENCE.

1. How many years have you been fishing in saltwater?

\_\_\_\_\_ YEARS

2. Since this time last year, how many days did you go fishing?

NUMBER OF DAYS FISHED:  
(if none, please enter 0)

\_\_\_\_\_ IN FRESHWATER

\_\_\_\_\_ IN SALTWATER BAYS FROM A BOAT

\_\_\_\_\_ IN SALTWATER BAYS FROM SHORE OR PIERS

\_\_\_\_\_ IN SALTWATER GULF FROM A BOAT

\_\_\_\_\_ IN SALTWATER GULF FROM SHORE OR PIERS

3. How do you compare your fishing ability to that of other  
fishermen in general?

1 LESS SKILLED

2 EQUALLY SKILLED

3 MORE SKILLED

4. BELOW IS A LIST OF REASONS WHY PEOPLE FISH IN SALTWATER. PLEASE CIRCLE THE NUMBER THAT INDICATES HOW IMPORTANT EACH ITEM IS TO YOU AS A REASON FOR FISHING.

REASONS:	NOT AT ALL IMPORTANT	SLIGHTLY IMPORTANT	MODERATELY IMPORTANT	VERY IMPORTANT	EXTREMELY IMPORTANT
a) To be outdoors . . . . .	1	2	3	4	5
b) For family recreation. . . . .	1	2	3	4	5
c) To experience new and different things . . . . .	1	2	3	4	5
d) For relaxation . . . . .	1	2	3	4	5
e) To be close to the sea . . . . .	1	2	3	4	5
f) To obtain fish for eating. . . . .	1	2	3	4	5
g) To get away from the demands of other people . . . . .	1	2	3	4	5
h) For the experience of the catch. . . . .	1	2	3	4	5
i) To test my equipment . . . . .	1	2	3	4	5
j) To be with friends . . . . .	1	2	3	4	5
k) To experience unpolluted natural surroundings. . . . .	1	2	3	4	5
l) To win a trophy or prize . . . . .	1	2	3	4	5
m) To develop my skills . . . . .	1	2	3	4	5
n) To get away from the regular routine . . . . .	1	2	3	4	5
o) To obtain a "trophy" fish. . . . .	1	2	3	4	5
p) For the challenge or sport . . . . .	1	2	3	4	5
q) For the fun of catching fish . . . . .	1	2	3	4	5
r) To experience adventure and excitement . . . . .	1	2	3	4	5

5. Name the kinds of fish you most prefer to catch in saltwater in Texas.

\_\_\_\_\_ FIRST CHOICE  
 \_\_\_\_\_ SECOND CHOICE  
 \_\_\_\_\_ THIRD CHOICE

6. Do you or someone in your household own a power boat?

- 1 YES
- 2 NO

If YES, what length is the longest one?

\_\_\_\_\_ FEET

7. PLEASE INDICATE THE EXTENT TO WHICH YOU AGREE OR DISAGREE WITH EACH OF THE FOLLOWING STATEMENTS ABOUT SPORT FISHING IN SALTWATER.

	STRONGLY DISAGREE	DISAGREE	NEUTRAL	AGREE	STRONGLY AGREE
a) The more fish I catch, the happier I am . . . . .	1	2	3	4	5
b) A fishing trip can be successful even if no fish are caught . . . . .	1	2	3	4	5
c) I usually eat the fish I catch. . . . .	1	2	3	4	5
d) A successful fishing trip is one in which many fish are caught . . . . .	1	2	3	4	5
e) I would rather catch one or two big fish than ten smaller fish. . . . .	1	2	3	4	5
f) When I go fishing, I'm just as happy if I don't catch a fish. . . . .	1	2	3	4	5
g) It doesn't matter to me what type of fish I catch . . . . .	1	2	3	4	5
h) The bigger the fish I catch, the better the fishing trip. . . . .	1	2	3	4	5
i) I'm just as happy if I don't keep the fish I catch. . . . .	1	2	3	4	5
j) I like to fish where there are several kinds of fish to catch. . . . .	1	2	3	4	5
k) I want to keep all the fish I catch . . . . .	1	2	3	4	5
l) I catch fish for sport and pleasure rather than for food. . . . .	1	2	3	4	5
m) I'm just as happy if I release the fish I catch . . . . .	1	2	3	4	5
n) I usually give away the fish I catch. . . . .	1	2	3	4	5
o) I like to fish where I know I have a chance to catch a "trophy fish" . . . . .	1	2	3	4	5

8. Do you participate in saltwater fishing tournaments?

- 1 YES
- 2 NO

If YES, how many tournaments do you participate in each year?

\_\_\_\_\_ SALTWATER TOURNAMENTS EACH YEAR



9. What type of group do you fish with most often?  
(mark only one answer please)

- 1 BY YOURSELF
- 2 FRIENDS
- 3 FAMILY
- 4 FAMILY & FRIENDS TOGETHER
- 5 CLUB

10. Have you gone fishing outside the state of Texas in the previous 12 months (where fishing was the primary motivation for the trip)?

- 1 YES
- 2 NO

If YES, what states did you fish in (other than Texas)?

	STATE	DAYS THERE	SPECIES SOUGHT	TOTAL DOLLARS SPENT
Trip 1	_____	_____	_____	\$ _____
Trip 2	_____	_____	_____	\$ _____
Trip 3	_____	_____	_____	\$ _____
Trip 4	_____	_____	_____	\$ _____

11. If you caught a tagged fish, would you report the tag?

- 1 YES
- 2 NO

12. TO WHAT EXTENT DO YOU MAKE USE OF THE FOLLOWING FOR SALTWATER FISHING INFORMATION?

	NO USE	LITTLE USE	SOME USE	LOTS OF USE	A GREAT DEAL OF USE
a) Comments and opinions of other anglers . . . . .	1	2	3	4	5
b) Texas Parks and Wildlife Magazine. . . . .	1	2	3	4	5
c) Other information provided by Texas Parks and Wildlife Department (brochures, etc.) . . . . .	1	2	3	4	5
d) Newspaper articles . . . . .	1	2	3	4	5
e) Magazine articles. . . . .	1	2	3	4	5
f) Bait and tackle shops. . . . .	1	2	3	4	5
g) Fishing clubs. . . . .	1	2	3	4	5
h) Radio shows. . . . .	1	2	3	4	5
i) Television shows . . . . .	1	2	3	4	5

13. Briefly describe your most memorable saltwater fishing trip.

14. THE FOLLOWING IS A LIST OF TOOLS USED BY THE TEXAS PARKS AND WILDLIFE DEPARTMENT FOR MANAGING RECREATIONAL SALTWATER FISHERIES.

Please indicate below whether you support or oppose these tools.

	STRONGLY OPPOSE	OPPOSE	NEUTRAL	SUPPORT	STRONGLY SUPPORT
a) Releasing fish below a certain length (minimum size limit) . . . . .	1	2	3	4	5
b) Releasing fish above a certain length (maximum size limit) . . . . .	1	2	3	4	5
c) Releasing fish within a certain length range, but keeping the fish below and above this range (slot limit) . . . . .	1	2	3	4	5
d) Being allowed to keep only a certain number of fish you catch in a day (daily bag limit) . . . . .	1	2	3	4	5
e) Not being allowed to fish in certain restricted areas . . . . .	1	2	3	4	5
f) Having certain fishing areas closed during part of the year (closed season) . . . . .	1	2	3	4	5
g) Prohibiting the use of certain types of sport fishing gear . . . . .	1	2	3	4	5
h) Prohibiting the use of certain types of bait . . . . .	1	2	3	4	5
i) Not being allowed to keep certain species of fish in certain areas . . . . .	1	2	3	4	5
j) Not being allowed to keep certain species of fish during certain times of the year . . . . .	1	2	3	4	5
k) Stocking fish in saltwater . . . . .	1	2	3	4	5
l) A voluntary catch and release program . . . . .	1	2	3	4	5

15. Are you currently living in Texas, even if you are not a resident of Texas?

- 1 YES
- 2 NO

If YES, how long have you continuously lived in Texas?

- More than 1 year? 1 YES
- 2 NO

If YES, how many years? \_\_\_\_\_ YEARS

**18. THE FOLLOWING QUESTION PROVIDES VALUABLE INFORMATION FOR ESTIMATING THE IMPORTANCE OF SALTWATER FISHING TO YOU AND TO THE STATE OF TEXAS. PLEASE HELP US BY BEING ESPECIALLY CAREFUL WITH THIS QUESTION.**

Please record your expenditures for the following items if purchased since this time last year. To see how to complete percents for the last column, please refer to the following example:

EXAMPLE: Assume you purchased a boat and use it a total of 100 hours per year. Of this 100 hours, 25 hours were for saltwater fishing in Texas. In this case, 25% should be allocated to saltwater fishing.

Did you purchase any of the following items since this time last year	Purchase price	Was the item, or most of the items purchased in Texas?	Percent of time item is used for saltwater fishing.
(please circle)		(please circle)	
<b>FISHING EQUIPMENT:</b>			
a) Rod(s) . . . . . YES NO	\$ _____	YES NO	_____
b) Reel(s) . . . . . YES NO	\$ _____	YES NO	_____
<b>TACKLE:</b>			
a) Lures, tackle boxes, landing nets . . . . . YES NO	\$ _____	YES NO	_____
b) Live bait equip . . . . . YES NO	\$ _____	YES NO	_____
c) Fish attracting lights . . . . . YES NO	\$ _____	YES NO	_____
d) Lure color selector . . . . . YES NO	\$ _____	YES NO	_____
<b>VEHICLES:</b>			
Auto, van, pickup, recreational vehicle, all terrain vehicles. Specify type:			
a) _____ (1) YES NO	\$ _____	YES NO	_____
b) _____ (2) YES NO	\$ _____	YES NO	_____

Did you purchase any of the following items since this time last year			Purchase price	Was the item, or most of the items purchased in Texas?		Percent of time item is used for saltwater fishing.
	(please circle)			(please circle)		
<b>BOATING:</b>						
a) Electronic equipment- Radios, depth finder, loran, radar, etc. . . . .	YES	NO	\$ _____	YES	NO	_____
b) Boat accessories- anchors, safety equipment, etc. . . . .	YES	NO	\$ _____	YES	NO	_____
c) Boat trailer(s)	(1) YES	NO	\$ _____	YES	NO	_____
	(2) YES	NO	\$ _____	YES	NO	_____
d) Boat motor(s)	(1) YES	NO	\$ _____	YES	NO	_____
	(2) YES	NO	\$ _____	YES	NO	_____
e) Boat(s) (except for items listed above) . . . . .	(1) YES	NO	\$ _____	YES	NO	_____
	(2) YES	NO	\$ _____	YES	NO	_____
<b>CAMPING EQUIPMENT:</b>						
a) Trailer or camper insert. . . . .	YES	NO	\$ _____	YES	NO	_____
b) Tents, sleeping bags, lanterns, stoves, ice chests, etc. . . . .	YES	NO	\$ _____	YES	NO	_____
<b>OTHER EQUIPMENT:</b> Expenditures not listed above (specify):						
a) _____	(1) YES	NO	\$ _____	YES	NO	_____
b) _____	(2) YES	NO	\$ _____	YES	NO	_____

THE FOLLOWING QUESTIONS WILL HELP US TO KNOW MORE ABOUT FISHERMEN.  
THE INFORMATION YOU PROVIDE WILL REMAIN STRICTLY CONFIDENTIAL,  
AND YOU WILL NOT BE IDENTIFIED WITH YOUR ANSWERS.

17. What is your age?

\_\_\_\_\_ YEARS

18. Are you:

1 MALE

2 FEMALE

19. What is your approximate annual HOUSEHOLD income before taxes?  
(circle only one)

- |   |                      |    |                      |
|---|----------------------|----|----------------------|
| 1 | UNDER \$10,000       | 7  | \$60,000 to \$69,999 |
| 2 | \$10,000 to \$19,999 | 8  | \$70,000 to \$79,999 |
| 3 | \$20,000 to \$29,999 | 9  | \$80,000 to \$89,999 |
| 4 | \$30,000 to \$39,999 | 10 | \$90,000 to \$99,999 |
| 5 | \$40,000 to \$49,999 | 11 | \$100,000 AND ABOVE  |
| 6 | \$50,000 to \$59,999 |    |                      |

20. What is the zip code of your current home residence? \_\_\_\_\_

21. Overall, how satisfied are you with  
saltwater fishing in Texas. . . . .

- 1 NOT AT ALL SATISFIED
- 2 SLIGHTLY SATISFIED
- 3 MODERATELY SATISFIED
- 4 VERY SATISFIED
- 5 EXTREMELY SATISFIED

**IS THERE ANYTHING ELSE YOU WOULD LIKE TO SHARE WITH US?**

**YOUR CONTRIBUTION TO THIS EFFORT IS GREATLY APPRECIATED. PLEASE  
RETURN YOUR COMPLETED QUESTIONNAIRE IN THE STAMPED RETURN ENVELOPE  
AS SOON AS POSSIBLE. THANK YOU.**

**TEXAS A&M UNIVERSITY  
DEPARTMENT OF RECREATION AND PARKS  
COLLEGE STATION, TX 77843**

Appendix C. Response categories and rate for Texas statewide surveys of saltwater anglers, 1986-1987.



Table C.1. Response categories and rates for Texas statewide surveys of saltwater anglers.

Survey	When Conducted	License Year of Coverage	# mailed	returned usable	returned non-usable	screened out <sup>a</sup>	not returned	non-deliverable	raw response rates(%)	effective response rates(%)
SALT86	SEPT 16 - NOV 20, 1986	JAN '86 - AUG '86	6371	4171	96	44	1697	363	67.6	71.8
SALT87	JAN 19 - MAR 11, 1988	SEPT '86 - AUG '87	7847	4567	142	180	2338	620	62.3	67.6

<sup>a</sup> Those who are screened out should be considered as a returned non-usable.

Appendix D. Expenditures (\$) on equipment item(s) by survey respondents, 1986-1987, for all species.

Table D.1. Expenditures (\$) on equipment item(s) by survey respondents, 1986, for all species. SW denotes saltwater.

Description of item(s)	Mean spent per person	Median spent per person	Maximum spent	Respondents buying at least one (%)	% Mean Spent For Purchases in Texas fishing	Avg. spent in Texas per person	Avg. spent per person for SW fishing	Avg. spent per person for Texas SW fishing
Tackle								
Rods	49.62	30.00	890	75	75	48.17	37.13	36.23
Reels	39.39	0.00	1,500	35	72	38.35	28.43	27.53
Lures, tackle boxes, landing nets, ect.	42.37	20.00	995	67	74	41.69	31.38	31.06
Live bait equipment	13.64	0.00	750	38	85	13.60	11.56	11.54
Fishing attracting lights	6.73	0.00	8,000	5	60	6.70	4.01	4.00
Lure color selector	1.53	0.00	480	4	50	1.41	0.77	0.76
Camping Equipment								
Trailer or camper	191.05	0.00	30,000	5	12 <sup>a</sup>	177.48	22.72	22.52
Tents, sleeping bags, lanterns, stoves, ice chests, etc.	36.83	0.00	1,500	36	10 <sup>b</sup>	36.08	3.75	3.67
Boating								
Electronic equipment; depth finders, fish locators, radio, etc.	37.02	0.00	7,000	9	71	33.40	26.26	23.32
Boat accessories; anchors, safety equipment, etc.	20.34	0.00	900	20	73	19.93	14.78	14.41
Boats	925.88	0.00	65,000	22	71	890.13	659.60	625.43
Boat motors	502.81	0.00	13,000	23	72	498.10	363.48	360.51
Boat trailers	139.61	0.00	6,500	18	76	138.70	105.58	105.03
Vehicles								
Autos, vans, pickups, RVs, all terrain vehicles	2,850.41	0.00	70,000	28	8 <sup>c</sup>	2,697.80	240.61	221.36
Other equipment	28.88	0.00	6,500	12	17 <sup>d</sup>	28.88	5.05	4.83

a, b, c, d The percentage of mean spent for saltwater fishing for these categories was based on the reported number of days fished in Question 2 or the survey (see Appendix B).

Table D.2. Expenditures (\$) on equipment item(s) by survey respondents, 1987, for all species. SW denotes saltwater.

Description of item(s)	Mean spent per person	Median spent per person	Maximum spent	Respondents buying at least one (%)	% Mean Spent For SW Purchases in Texas fishing	Avg. spent in Texas per person	Avg. spent per person for SW fishing	Avg. spent per person for Texas SW fishing
Tackle								
Rods	37.35	15.00	999	53	74	36.44	27.53	27.00
Reels	36.27	0.00	999	48	72	35.40	26.16	25.63
Lures, tackle boxes, landing nets, ect.	41.83	20.00	999	65	67	41.09	28.14	27.82
Live bait equipment	13.06	0.00	500	36	80	12.98	10.39	10.35
Fishing attracting lights	4.57	0.00	1,050	5	77	4.31	3.52	3.28
Lure color selector	1.37	0.00	300	4	46	1.29	0.63	0.61
Camping Equipment								
Trailer or camper	102.48	0.00	35,000	3	7 <sup>a</sup>	90.93	6.71	5.21
Tents, sleeping bags, lanterns, stoves, ice chests, etc.	38.49	0.00	5,000	34	8 <sup>b</sup>	37.83	2.90	2.85
Boating								
Electronic equipment; depth finders, fish locators, radio, etc.	28.77	0.00	9,999	7	67	26.82	19.39	18.08
Boat accessories; anchors, safety equipment, etc.	18.11	0.00	999	17	71	17.66	12.89	12.70
Boats	459.64	0.00	60,000	12	64	450.87	294.39	289.67
Boat motors	267.21	0.00	22,000	12	64	263.60	170.79	167.52
Boat trailers	74.61	0.00	9,000	9	61	73.94	45.36	45.10
Vehicles								
Autos, vans, pickups, RVs, all terrain vehicles	1,885.10	0.00	53,000	19	7 <sup>c</sup>	1,821.85	122.81	121.33
Other equipment	47.79	0.00	40,000	12	9 <sup>d</sup>	47.73	4.16	4.16

a,b,c,d The percentage of mean spent for saltwater fishing for these categories was based on the reported number of days fished in Question 2 or the survey (see Appendix B).

**PWD-RP-N3400-378-2/92**

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