

**Demographics,
Participation, Attitudes,
Expenditures, and
Management Preferences of
Texas Non-Resident Anglers,
1987**

by
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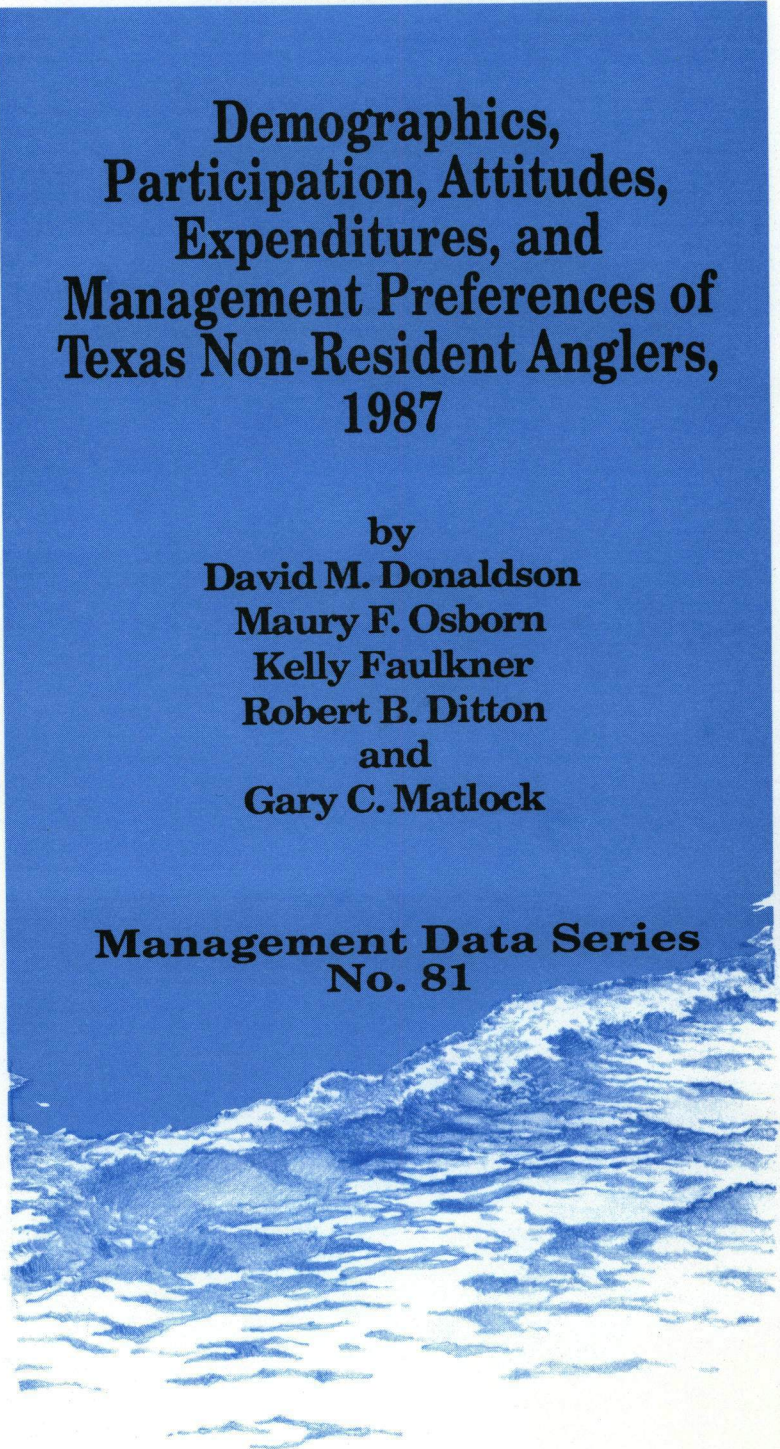
**Management Data Series
No. 81**



**TEXAS
PARKS & WILDLIFE
DEPARTMENT**

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DEMOGRAPHICS, PARTICIPATION, ATTITUDES, EXPENDITURES,
AND MANAGEMENT PREFERENCES OF TEXAS NON-RESIDENT ANGLERS, 1987

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MANAGEMENT DATA SERIES
No. 81

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Acknowledgements

Partial funding support for this study was provided by the Texas Parks and Wildlife Department and the Texas Agricultural Experiment Station. We acknowledge the work of Jerri Evander who was involved in this survey research project.

ABSTRACT

Anglers who purchased a Texas non-resident fishing license during the 1986 license year (September 1 to August 31) were sent a mail survey inquiring about their general demographics, attitudes toward management tools, fishing motivations, species preferences and annual expenditures. The majority of non-resident anglers (89%) rated Texas fishing as average or above average and 94% plan to fish in Texas again. Over 80% have been fishing for over 20 years. Over 60% of the respondents fished only in freshwater, 34% fished in both fresh and saltwater, and only 6% fished exclusively in saltwater in Texas. Most (70%) fished in freshwater 14 or more days the previous year. Non-resident anglers were generally supportive of all the management tools presented. "For relaxation," "to be outdoors," and "to get away from the regular routine" were ranked as the most important reasons for fishing. "To test my equipment" and "winning a trophy" were ranked as least important. Anglers agreed with the phrases "I like to fish where there are several kinds of fish to catch" and "I usually eat the fish I catch" and disagreed most with "I want to keep all the fish I catch" and "I usually give away the fish I catch." Unspecified bass, largemouth bass (Micropterus salmoides) and crappie (Pomoxis sp.) were the fishes most sought by Texas non-resident anglers. Most fishing items bought by respondents were purchased in other states. On average, each non-resident angler spent approximately \$743/year in Texas for fishing gear and related equipment.

INTRODUCTION

Historically, fisheries management has focused on the collection and analysis of biological data. Only a small amount of effort was focused towards the social and economic aspect of fishing (Voiland and Duttweiler 1984). The human dimensions of fisheries management were generally ignored although the idea that successful management not only depends on solving biological problems but also on solving "people problems" has been recognized since the 1960's (Bryan 1976). Leading researchers stated a necessity for understanding the human impacts on natural resources (Ditton 1977, Orbach 1980, Aron 1982). Unfortunately, fisheries management continued to follow the path of biological data collection despite the fact that for fisheries management to succeed, it must provide "the greatest benefit to society" (Lackey and Nielsen 1980).

Christy and Scott (1965) suggested that maximum net economic yield should replace MSY as the objective for fisheries management. The Fishery Conservation and Management Act of 1976 defined optimum yield as the yield which provides the greatest overall benefit to the nation with respect to food production and recreational opportunity. Therefore, fisheries management needs to consider not only ecological factors, but economic and social factors as well. This is especially true with respect to 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).

The Texas Parks and Wildlife Department (TPWD) has conducted on-site interviews of saltwater anglers since 1974 (Osburn et al. 1988) and of freshwater anglers since 1977; however, these surveys focused on landings and effort information and generally ignored socio-economic considerations. In 1986, TPWD requested help from experts in the human dimensions aspect of fisheries management at Texas A&M University (TAMU). Through a joint effort, socio-economic questions were developed for the on-site survey to get trip-specific information and a mail survey was designed to get information on an annual basis. These mail surveys were begun in 1986 (Ditton et al. 1990) and although some non-resident saltwater anglers were surveyed (since all saltwater anglers were required to purchase a saltwater stamp), non-resident freshwater anglers were not included in the sampling frame. To obtain a better understanding of non-resident anglers, TPWD and the Department of Recreation and Parks at TAMU conducted a survey of non-resident license holders during 1986. Although the total number of resident anglers in Texas is considerably larger than non-resident participants, fishery managers need to study all anglers who use the resource to make appropriate decisions about the resources. Non-resident anglers tend to participate more frequently, have more available time to fish and have more years of fishing experience than the average fisherman (U.S. Fish and Wildlife Service 1989). Therefore, it is anticipated that non-resident anglers, although a small group of users, may have a profound impact on the fishery resources in Texas.

The collection of social and economic data will enable fisheries managers to improve 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 sport fishermen, and 5) prediction of demand for different resources over time.

The objective of this paper is to provide a summary of the characteristics of non-resident anglers. This summary includes a demographic characterization of non-resident anglers, their attitudes towards management tools, fishing motivations, their level of fishing satisfaction, species preference and annual expenditures. This paper presents data which will enable researchers to evaluate the survey instrument, sample sizes, and the use of non-resident fishing license sales as a sampling frame.

MATERIALS AND METHODS

During September 1985 through August 1986, there were 91,344 non-resident anglers licensed in Texas. Using listings of license sales as the sampling frame, a systematic random sample of 1,090 licenses was selected (Blalock 1979, Rossi et al. 1983). License sellers sent TPWD sheets of the names and addresses of people purchasing non-resident fishing licenses. Using a randomly selected starting point, the first legible name with a non-resident license listed on every 28th sheet was included in the sample. When a sheet did not have a legible name or did not include a non-resident license holder, it was replaced with the following sheet and the necessary information was recorded. Names and addresses were entered in a computer file and a master list was produced.

A 12-page, 28-question questionnaire (Appendix A) was mailed first class to each selected license holder during February through May 1987. The questionnaire asked for information on angler demographics, fishing experience and expertise, fishing participation, fish species preference, level of investment in fishing-related durable goods, attitudes, motivations and orientation to fisheries management efforts. Questions were based on previous surveys (Ditton and Fedler 1983, Ditton and Loomis 1985, Ditton and Gramann 1987). The survey was personalized as much as possible based on survey procedures of Dillman (1978) and modified by experience obtained through previous data collections (Ditton and Gramann 1987, Ditton and Loomis 1988). For example, letters were personally addressed to each fisherman using "mailmerge" techniques (Dillman 1978). Each letter was personally signed with the names of those responsible for the survey. When non-deliverables were excluded, a final response rate of 72.5% was obtained (Figure 1). Questionnaires were checked for completeness and usability. Some of the surveys returned (5.5%) were not usable since respondents reported they were not non-resident anglers or had not fished in the previous 12 months. Frequency distributions for all variables were generated as a final check against error.

First, a social and economic profile of non-resident anglers was sought with questions regarding age, gender, employment status, income and state of residence. Responses regarding age were categorized into six age groups with 10-year categories. Anglers were asked their status concerning full or part-

time employment, retirement, or student status. 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. Finally, anglers were asked their state of residence.

Three questions were used to collect information on the level of fishing experience among non-resident anglers. First, anglers were asked how many years they had fished; their responses were grouped using 10-year categories. Second, anglers were asked how many years they had purchased a Texas non-resident fishing license. Again, the responses were grouped into 10-year categories. Lastly, non-resident anglers were asked to compare their fishing ability to that of other anglers in general using three nominal categories (less skilled, equally skilled and more skilled).

A series of questions sought information on non-resident angler participation in sport fishing. Anglers were asked to report the number of days they fished in the previous 12 months in seven categories (rivers, lakes from shore or pier, lake from a boat, saltwater bays from shore or pier, saltwater bays from a boat, saltwater gulf from shore or pier and saltwater gulf from a boat). Non-resident anglers were asked to indicate the three kinds of fish they preferred to catch while in Texas (first choice, second choice and third choice). Anglers were asked to indicate if they put most of their effort in fishing for one particular species in Texas and, if so, to identify that species. Anglers were asked to choose among five alternate responses regarding who they fished with most often (by yourself, friends, family, family and friends together and club). Non-resident anglers were asked if they participated in freshwater and saltwater tournaments and, if so, the number they fished per year. Anglers were asked about the particular areas in Texas where they fished based on a map of Texas, divided into 13 areas which loosely corresponded to major metropolitan regions (Appendix B). For each trip taken where the primary purpose was fishing, the destination, the number of days spent there, species sought and total trip expenditures were asked. The anglers were asked to circle their favorite fishing area. Anglers were asked to grade sport fishing in Texas using an academic scale (A-F) and whether they planned to fish in Texas again.

Non-resident anglers were asked questions about their investment in fishing-related equipment and use of fishing services in Texas. Anglers were asked if they or someone in their household owned a powerboat and, if so, the length of the longest boat owned. Anglers were asked if they purchased one or more pieces of indicated equipment in Texas during the previous year and, if an expenditure was made, the purchase price of each item. Anglers were asked what types of services they used while fishing in Texas.

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 towards catching "something". Anglers were asked the extent to which they agreed with each attitudinal statement on a Likert-type scale. Also, 16 motive statements for sport 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. Ten motive statements dealt with 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 pressure, escape daily routine, relationships with nature, escape role overloads, family togetherness, social contacts, exploration, achievement-competence testing, and equipment. In addition, six motive statements dealt with experience elements 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 water", "for the challenge or sport", and "to obtain a trophy". Driver (1977) and Driver and Cooksey (1978) documented the reliability and validity of the activity-general scales.

Three questions concerning fisheries management efforts were included. Anglers were asked whether or not they supported each of ten management tools used by TPWD using a Likert-type scale. Anglers were asked to what extent they used nine sources of sport fishing information using a Likert-type scale. The information sources ranged from interpersonal contact to formal media outlets including information provided by TPWD. In an effort to understand 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.

Two open-ended questions were asked to give non-resident anglers an opportunity to describe what was important to them. Anglers were asked to describe their most memorable fishing trip. Multiple responses (up to five/angler) were analyzed by content and grouped accordingly. Content assignments were either activity-specific or activity-general. Anglers were asked if there was "anything else they would like to share with us?". Multiple responses (up to five/angler) were analyzed by content and grouped accordingly.

RESULTS

Demographics

In 1985-86, the largest group of the non-resident anglers licensed to fish in Texas were ≥ 60 years-old males who lived in states adjacent to Texas. Female anglers comprised about 14% of the Texas non-resident anglers (Table 1, Figures C.1-C.2). Slightly more than 35 percent of the anglers were retired (Table 2). Slightly more than 35% lived in the four-state area surrounding Texas: New Mexico, Oklahoma, Arkansas and Louisiana (Table 3). Two possible explanations for non-residents indicating Texas as their state of residence are: 1) winter Texans who may have received their questionnaires while living in Texas and who logically entered their current zip code, and 2) students from other states going to college in Texas when they received their questionnaire. The distribution of non-resident anglers showed that 68% earned less than \$40,000 per year (Table 4).

Participation and Experience

Texas non-resident anglers indicated a strong commitment to sport fishing. Non-resident anglers fished an average of 39.0 days per year in freshwater and an average of 5.2 days in saltwater (Table 5). Over 60% of the respondents

fished only in freshwater, 34% fished in both fresh and saltwater, and only 6% fished exclusively in saltwater. Fifty-nine percent of all respondents' households owned a power boat in 1987 (Table 6); the majority of the boats were 5-8 m in length (Table 6, Figure C.3). Over 80% of the respondents reported they had been fishing for over 20 years (Table 7, Figure C.5); however, approximately 80% of the respondents reported they had been purchasing a non-resident fishing license for less than 10 years (Table 8, Figure C.4). Most (61%) non-resident anglers believed they were as equally skilled as other anglers (Table 9).

Respondents generally did not participate competitively when fishing in Texas. Eighty-six percent of non-resident anglers preferred to fish with either friends, family, or family and friends together (Table 10). When asked how many fishing tournaments they participate in each year, 95% reported no participation (Table 11). Non-resident anglers indicated they made the greatest use of "word of mouth" information from other anglers. They reported using information from radio shows and fishing clubs the least (Table 12).

The majority of non-resident anglers preferred catching four types of freshwater fish and two saltwater species: unspecified bass, largemouth bass (or black bass) (Micropterus salmoides), crappie (Pomoxis sp.), red drum (Sciaenops ocellatus) and spotted seatrout (Cynoscion nebulosus) (Table 13). All other species ranked at or below 5% in preference. Approximately one-half (49%) of the respondents concentrate their effort on one particular species with 65% of those respondents focusing on bass (Table 14).

Most of the non-resident anglers fished in the areas around San Antonio, Houston, Texarkana and Beaumont. Slightly more than one-half (52%) chose areas 4 (San Antonio), 11 (Houston) and 12 (Texarkana) as their favorite fishing regions in Texas (Table 15). Approximately 43% of non-resident anglers took trips to Texas where fishing was the primary reason for the trip in the previous 12 months (Table 16). Most fishing trips to Texas were made in Area 4 (San Antonio), Area 12 (Texarkana), Area 13 (Beaumont) and Area 11 (Houston). Those four areas accounted for 59% of the total number of fishing trips taken and 58% of the respondents. Bass, crappie and catfish were the species targeted most by anglers during their fishing trips to Texas (Table 17). The majority of the respondents (56%) graded Texas fishing as average or above (Table 18) and most (94%) plan to fish in Texas again (Table 19).

Motivations and Attitude

Although non-resident anglers generally rated activity-specific items as less important than activity-general items as motivations for fishing, responses to questions pertaining to consumptive attitudes indicated that catching and keeping fish is important to their fishing experience. Eight motivational items including "for relaxation", "to be outdoors," "to get away from the regular routine," "experience the natural surroundings", "for experience of the catch", "for the challenge or sport", "to be with friends" and "for family recreation" were rated as very to extremely important reasons for fishing in Texas by most respondents (Table 20). Most respondents rated "to test my equipment" and "to win a trophy" as not at all important. Over 72% of the respondents indicated that they eat the fish they catch (Table 21). Approximately one-half of the non-resident anglers also agreed with the statements "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", "the more fish I catch, the happier I am" and "I would rather catch one or two big fish than ten smaller fish". Responses to other fish-related items were more neutral or in disagreement. Most respondents disagreed with statements like "I want to keep all the fish I catch" and "I usually give away the fish I catch."

Non-resident anglers were generally supportive of most of the management efforts used by TPWD. Attitudes were most positive for stocking and prohibition of certain sport fishing gears and most negative regarding slot limits (Table 22). The majority supported stocking, prohibition of certain sport fishing gears, minimum size limit, daily bag limit, restricted species, restricted area and closed seasons. Nearly all (99%) anglers said they would report catching a tagged fish (Table 23).

Economics

Non-resident anglers spent a surprising amount of money for equipment and services while fishing in Texas, even though most of the fishing-related equipment was purchased outside Texas (Tables 24). Rods and reels, lures and live bait equipment were purchased more often than any of the other equipment; however, only lures, live bait equipment, fish attracting lights, and "other" items were purchased more than 50% in Texas. The average cost/item ranged from \$1.15 for live bait equipment to \$26,000 for camping gear. About \$743 were spent in Texas per respondent. Few non-resident anglers used fishing-related services in Texas (Table 25).

Angler Feedback

Non-resident angler responses for their most memorable fishing trip indicated that some aspect of the catch was important, although location was as a factor (Table 26). Over 45% of all responses dealt with the catch-related or species-specific aspects of the trip. All other categories were mentioned on less than 7% of the responses.

Survey Instrument Evaluation

A majority of survey questions (75%) had less than 100 non-respondents/item (Table 27). The two open-ended questions and three other questions had a high rate of non-response (>139 non-respondents); 1) number of days fished in each particular location, 2) number of trips to Texas (where fishing was the primary reason for the trip) and 3) number of years anglers purchased a non-resident fishing license. Non-response may have been due to the complexity of the questions or not wanting to take the time to respond to the question.

DISCUSSION

The response rate of 73% was consistent with the average response rate of 74% reported by Dillman (1978) for his "total design method." Due to the high response rate, a non-respondent check was not necessary (Babbie 1986). Generally, non-respondents have less interest in the subject, less fishing

ability and less fishing experience than the respondents (Ditton and Holland 1984, Graefe and Ditton 1986). Study results are not directly applicable to anglers who fished in Texas and for whatever reason did not purchase a non-resident fishing license. Previous estimates of 243,000 non-resident anglers in Texas (U.S. Fish and Wildlife Service 1989) contrast with the sampling frame (N=91,000) from which our sample was drawn. Possible explanations for this discrepancy include: 1) non-resident anglers <17 from Oklahoma, Kansas, or Louisiana; non-residents 65 or older from Kansas or Louisiana; and, non-residents 64 or older from Oklahoma are not required to purchase a non-resident license; 2) anglers might not have known that a non-resident license is required; or 3) anglers may have taken a chance on lenient enforcement of having a required fishing license.

Even though some older non-residents are not required to buy a license, non-resident anglers are apparently older and more experienced than resident anglers. Over one-half of non-resident anglers (53%) were 50 years old or greater and eighty-one percent of the respondents had been fishing for over 20 years. The majority of Texas freshwater and saltwater anglers were much younger and had less fishing experience than non-resident anglers (Ditton et al. 1990, In Preparation). Also, 68% of non-resident anglers earned less than \$40,000 per year. This coincides with Texas freshwater (66%) and saltwater (62%) anglers (Ditton et al. 1990, In Preparation).

As a group, non-resident anglers exhibited a higher level of avidity (43 days/angler/year) than the general population of anglers in the United States in 1985 (21 days/angler/year) (U.S. Fish and Wildlife Service 1989). The higher avidity may be due to a high level of non-response to parts of question two; i.e. a fishing category was left blank although the respondent intended a zero. When compared to avidity determined with similar methodology, non-resident anglers also had a higher level of avidity than Texas freshwater anglers in 1986 (29 days/angler/year) (Ditton et al. In Preparation) as well as Texas saltwater anglers in 1986 (24 days/angler/year) (Ditton et al. 1990). Approximately 38% of non-resident anglers reported greater than 33 total days of fishing in freshwater during the previous 12 months. This is generally consistent with the percent of Texas freshwater anglers (34%) (Ditton et al. In Preparation).

Although the average amount spent in Texas per respondent of \$744 may be a slightly exaggerated estimate for gear and equipment costs by the general non-resident population because of the small sample size of the responding anglers, it does attempt to quantify the dollars spent annually on fixed costs by non-resident anglers. Using the U.S. Fish and Wildlife Service's estimate for extrapolation purposes, the annual total expenditures for non-resident fishing in Texas would be approximately \$181 million dollars ($\$743 \times 243,000$). Using the 1985-86 license year sales, the annual total expenditures for non-resident fishing in Texas would be approximately \$68 million dollars ($\$743 \times 91,000$). By using these estimates, fisheries managers can assess the value of the growing recreational fishing industry and understand the importance and the impact of non-resident recreational fishing to the State of Texas. The economic approximations exclude trip-related cost items such as food, fuel, lodging, etc. These costs were not included for several reasons. One, there is a recall problem with the information requested. Anglers are either reluctant or are

unable to remember such information (Ellis et al. 1958, Hiatt and Worrall 1977). Two, variable costs are generally based on a per trip basis while the economic information requested in the survey is based on a yearly time frame. And third, the trip-related cost information is currently obtained with the on-site creel surveys conducted by TPWD.

LITERATURE CITED

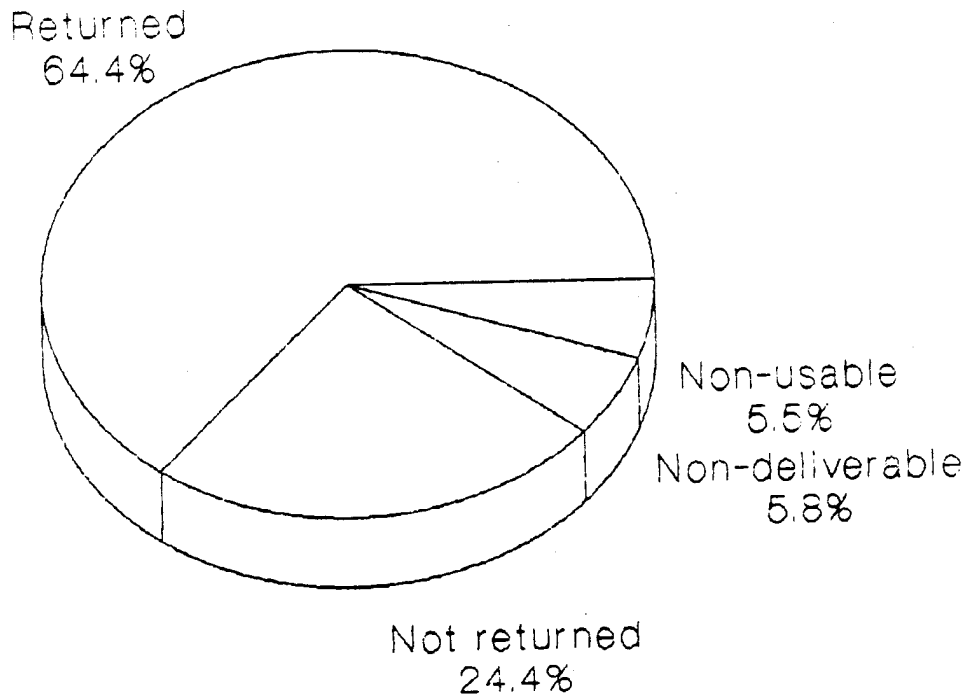
- Aron, W. 1982. Fishery science, uncertainty and responsibility. *Fisheries* 7(1):6-8.
- Babbie, E. 1986. *The practice of social research*. 4th edition. Wadsworth Publishing, Belmont.
- Blalock, H. M., Jr. 1979. *Social statistics*, revised 2nd edition. John Wiley & Son, New York.
- Bryan, H. 1976. The sociology of fishing: a review and critique. Pages 83-92. In: H. Clepper, editor. *Marine Recreational Fisheries*. Sport Fishing Institute, Washington, District of Columbia.
- Christy, F. and A. D. Scott. 1965. *The commonwealth of ocean fisheries*. John Hopkins Press, Baltimore.
- Dillman, D. A. 1978. *Mail and telephone surveys*. John Wiley and Sons, New York.
- Ditton, R. B. 1977. Human perspectives in optimum sustainable yield fisheries management. Pages 29-41. In: H. Clepper, editor. *Marine Recreational Fisheries 2*. Sport Fishing Institute, Washington, District of Columbia.
- Ditton, R. B. and A. J. Fedler. 1983. A statewide survey of boatowners in Texas and their saltwater fishing activity. TAMU-SG-83-205. Texas A&M University Sea Grant College Program, College Station.
- Ditton, R. B. and J. H. Gramann. 1987. A survey of down-island visitors and their use patterns at Padre Island National Seashore. USDI-NPS-7029-5-0005. Cooperative Park Studies Unit, Department of Recreation and Parks, Texas A&M University, College Station.
- Ditton, R. B. and S. M. Holland. 1984. Understanding involved fishermen: a survey of members of the Gulf Coast Conservation Association. TAMU-SG-84-623. Texas A&M University Sea Grant College Program, College Station.
- Ditton, R. B. and D. K. Loomis. 1985. 1983 Texas International Fishing Tournament: an analysis of participants' characteristics, attitudes, and expenditures. TAMU-SG-85-202. Texas A&M University Sea Grant College Program, College Station.
- Ditton, R. B. and D. K. Loomis. 1988. 1985 Southeast Texas Sport fishing Tournament: an analysis of participant's characteristics, attitudes, and expenditures. TAMU-SG-88-201. Texas A&M University Sea Grant College Program, College Station.

- Ditton, R. B., D. K. Loomis, A. Risenhoover, S. Choi, M. O. Osborn, J. Clark, R. Riechers and G. C. Matlock. 1990. Demographics, participation, attitudes, expenditures, and management preferences of Texas saltwater anglers, 1986. Management Data Series. Number 18. Texas Parks and Wildlife Department, Coastal Fisheries Branch, Austin.
- Ditton, R. B., A. D. Risenhoover, W. Roehl, S. Choi and S. Geutreuter. In Preparation. Demographics, participation, attitudes, expenditures, and management preferences of Texas freshwater anglers, 1987. Management Data Series. Texas Parks and Wildlife Department, Coastal Fisheries Branch, Austin.
- Driver, B. L. 1977. Item pool for scales designed to quantify the psychological outcomes desired and expected from recreation participation. Unpublished report. U.S. Forest Service, Rocky Mountain Forest and Range Experiment Station, Ft. Collins.
- Driver, B. L. and R. W. Cooksey. 1978. Psychological outcomes that are desired and expected from recreational fishing and their relevance to sport fisheries management. Unpublished report. USDA Forest Science, Rocky Mountain Forest and Range Experiment Station, Ft. Collins.
- Ellis, R. W., A. Rosen and A. W. Moffett. 1958. A survey of the number of anglers and of their fishing effort and expenditures in the coastal recreation fishery of Florida. University of Miami Marine Laboratory, Technical Series 24, Miami.
- Graefe, A. R. 1977. Development of an attitude scale to measure fishermen's desire to catch fish. Unpublished paper. Available from author at Department of Recreation and Parks, Pennsylvania State University, University Park.
- Graefe, A. R. 1980. The relationship between level of participation and selected aspects of specialization in recreational fishing. PhD. Dissertation, Texas A&M University, College Station.
- Graefe, A. R. and R. B. Ditton. 1986. Bay and offshore fishing in the Galveston Bay area: a comparative study of fishing patterns, fishermen characteristics and expenditures. North American Journal of Fisheries Management 6:192-199.
- Hiatt, R. L. and J. W. Worrall. 1977. Marine recreational fishermen's ability to estimate catch and to recall catch and effort over time. HSR.RR-77/13-cd, Human Sciences Research, Inc., McLean.
- Lackey, R. T. and L. A. Nielsen (eds). 1980. Fisheries management. John Wiley & Sons, New York.
- Matlock, G. C., G. E. Saul and C. E. Bryan. 1988. Importance of fish consumption to sport fishermen. Fisheries 13(1):25-26.

- Orbach, M. K. 1980. The human dimension. Pages 149-163. In: R. Lackey and L. Nielsen, editors. Fisheries management. John Wiley & Sons, New York.
- Osburn, H. R., M. F. Osborn and H. R. Maddux. 1988. Trends in finfish landings by sport-boat fishermen in Texas Marine Waters, May 1974-May 1987. Management Data Series. Number 150. Texas Parks and Wildlife Department, Coastal Fisheries Branch, Austin.
- Rossi, P. H., J. D. Wright and A. B. Anderson (eds). 1983. Handbook of survey research. Academic Press, New York.
- U.S. Fish and Wildlife Service. 1989. 1985 National survey of fishing, hunting, and wildlife-associated recreation: Texas. U.S. Department of the Interior, U.S. Department of Commerce, Bureau of the Census, Washington, District of Columbia.
- Vanderpool, J. K. 1986. Social assessment of fisheries resources: policy and institutional framework in the Great Lakes. Presented at the 117th American Fisheries Society Annual Meeting. Providence, Rhode Island.
- Voiland, M. P. and M. W. Duttweiler. 1984. Where's the humanity? A challenge and opportunity for the fisheries community. Fisheries 9(4):10-12.

Figure 1. Response rate of the 1987 survey of non-resident licensed anglers in Texas. The returned non-usable category includes those who indicated they were not non-resident anglers or had not fished in Texas in the previous 12 months.

Figure 1. Response rate of the 1987 survey of non-resident licensed anglers in Texas. The returned non-usable category includes those who indicated they were not non-resident anglers or had not fished in Texas in the previous 12 months.



n=1094

Table 1. Number and percent of non-resident anglers by gender and age category.

Age Category (years)	Male		Female		Total	
	no.	%	no.	%	no.	%
<20	6	0.9	1	0.1	7	1.0
20 - 29	68	10.0	10	1.5	78	11.4
30 - 39	117	17.1	14	2.0	131	19.2
40 - 49	97	14.2	11	1.6	108	15.8
50 - 59	105	15.4	26	3.8	131	19.2
≥60	195	28.6	33	4.8	228	33.4
Total	588	100.0	95	100.0	683	100.0

Table 2. Number and percent of non-resident anglers by employment category.

Employment category	no.	%
Employed full-time	344	51.2
Retired	253	37.6
Employed part-time	39	5.8
Unemployed	28	4.2
Student	8	1.2
Total	672	100.0

Table 3. Number and percent of non-resident anglers by state of residence.

State	no.	%
Oklahoma	90	13.5
Louisiana	63	9.4
New Mexico	62	9.3
Missouri	42	6.3
Illinois	36	5.4
California	35	5.2
Texas ^a	35	5.2
Colorado	33	4.9
Kansas	26	3.9
Arkansas	20	3.0
Wisconsin	20	3.0
Michigan	19	2.8
Iowa	18	2.7
Minnesota	18	2.7
Indiana	17	2.5
Ohio	13	1.9
Mississippi	10	1.5
Nebraska	10	1.5
Florida	9	1.4
Pennsylvania	9	1.4
New York	8	1.2
Kentucky	7	1.1
Oregon	7	1.1
Arizona	6	0.9
Georgia	5	0.7
Idaho	5	0.7
Virginia	5	0.7
South Dakota	5	0.7
Other ^b	36	5.4
Total	669	100.0

^aPossibly explanations include winter Texans and students from other states.

^bOther category includes states with less than 5 respondents.

Table 4. Number and percent of non-resident anglers by household income category.

Income category (Dollars)	no.	%
<10,000	53	8.3
10,000 - 19,999	117	18.3
20,000 - 29,999	127	19.8
30,000 - 39,999	138	21.6
40,000 - 49,999	84	13.1
50,000 - 59,999	50	7.8
60,000 - 69,999	34	5.3
70,000 - 79,999	9	1.4
80,000 - 89,999	9	1.4
90,000 - 99,999	5	0.8
≥100,000	14	2.2
Total	640	100.0

Table 5. Number and percent of non-resident anglers by the number of days spent fishing in freshwater and saltwater bays and gulf by boat, shore, or pier reported during the previous 12 months.

Days/ Year ^a	0	1-13	14-33	34-63	≥64	Total ^b	Mean	Standard Error
Freshwater rivers								
no.	118	250	80	21	14	483	11.0	0.9
%	24.4	52.8	16.6	4.4	2.9	100.1		
Freshwater lakes - shore								
no.	105	250	85	26	8	474	11.2	0.9
%	22.2	52.7	17.9	5.5	1.7	100.0		
Freshwater lakes - boats								
no.	60	260	132	75	38	564	20.8	1.2
%	10.6	46.1	23.4	13.3	6.7	100.1		
Freshwater Total								
no.	18	93	118	82	61	372	39.0	2.3
%	4.8	25.0	31.7	22.0	16.4	99.9		
Saltwater Bays - shore								
no.	230	112	15	2	0	359	2.6	0.3
%	64.1	31.2	4.2	0.6	0.0	99.9		
Saltwater Bays - boat								
no.	243	124	11	5	7	390	4.1	0.7
%	62.3	31.8	2.8	1.3	1.8	100.0		
Saltwater Bays - Total								
no.	203	94	24	5	3	329	4.4	0.6
%	61.7	28.6	7.3	1.5	0.9	100.0		
Saltwater Gulf - shore								
no.	261	85	10	1	1	358	2.0	0.4
%	72.9	23.7	2.8	0.3	0.3	100.0		
Saltwater Gulf - boat								
no.	277	67	6	1	0	351	1.1	0.2
%	78.9	19.1	1.7	0.3	0.0	100.0		
Saltwater Gulf - Total								
no.	238	72	9	1	1	321	1.9	0.4
%	74.1	22.4	2.8	0.3	0.3	99.9		
Saltwater Total								
no.	187	89	25	7	4	312	5.2	0.7
%	59.9	28.5	8.0	2.2	1.3	99.9		
Grand Total								
no.	8	60	101	71	61	301	43.4	2.5
%	2.7	19.9	33.6	23.6	20.3	100.1		

^aCategories of fishing frequency >0 are based on Graefe (1980).

^bSince missing values were treated as missing data, means across categories are not additive to the grand mean.

Table 6. Number and percent of non-resident anglers by response to: Do you or someone in your household own a power boat?

Response	no.	%
Yes	408	59.0
No	283	41.0
Total	691	100.0

If yes, what length is the longest one?

Length (m)	no.	%
<5	159	39.0
5 - 8	240	59.0
9 -12	6	1.5
≥13	2	0.5
Total	407	100.0

Table 7. Number and percent of non-resident anglers by the number of years they have been fishing.

Number of years	no.	%
0	2	0.3
1 - 9	59	8.7
10 - 19	71	10.4
20 - 29	124	18.2
30 - 39	141	20.7
40 - 49	126	18.5
50 - 59	102	15.0
≥60	56	8.2
Total	681	100.0

Table 8. Number and percent of anglers by the number of years they have purchased a Texas non-resident fishing license.

Number of years	no.	%
<10	431	82.3
10 - 19	68	13.0
20 - 29	20	3.8
30 - 39	3	0.6
≥40	2	0.4
Total	524	100.1

Table 9. Number and percent of non-resident anglers by perceived fishing ability compared to other anglers.

Ability category	no.	%
Less skilled	171	25.0
Equally skilled	418	61.2
More skilled	94	13.8
Total	683	100.0

Table 10. Number and percent of non-resident anglers by type of group they fished with most often.

Group	no.	%
Family & friends together	206	31.1
Family	198	29.9
Friends	166	25.0
By yourself	83	12.5
Club	10	1.5
Total	663	100.0

Table 11. Number and percent of responses to: Do you participate in fishing tournaments while in Texas?

Response	no.	%
Yes	34	5.0
No	651	95.0
Total	685	100.0

If yes, how many tournaments did you participate in since this time last year?

Number of tournaments	freshwater		saltwater		Total	
	no.	%	no.	%	no.	%
1	9	28.1	1	50.0	10	29.4
2	8	25.0	1	50.0	9	26.5
3	2	6.3	0	0.0	2	5.9
4	4	12.5	0	0.0	4	11.8
≥5	9	28.1	0	0.0	9	26.5
Total	32	100.0	2	100.0	34	100.1

Table 12. Percent of non-resident anglers by the extent they used different types of fishing information.

Type of information	Value ^a				
	1	2	3	4	5
Comments and opinions of other anglers	7.5	8.9	36.2	30.4	17.0
Texas Parks and Wildlife magazine	42.2	17.2	25.8	11.5	3.2
Other information provided by Texas Parks and Wildlife Department (brochures, etc.)	29.4	20.0	30.5	14.2	5.9
Newspaper articles	30.5	21.6	33.3	11.1	3.5
Magazine articles	29.3	20.1	31.1	14.6	4.9
Bait and tackle shop	17.8	13.9	32.1	24.7	11.5
Fishing clubs	71.0	14.6	9.0	4.1	1.3
Radio shows	57.6	16.0	17.6	6.5	2.3
Television shows	37.2	13.4	27.9	13.1	8.5

^a1 - no use; 2 - little use; 3 - some use; 4 - lots of use; 5 - a great deal of use.

Table 13. Number and percent of non-resident anglers by fresh and saltwater species most preferred: ranked by first choice percentages.

Species ^a	1st Choice		2nd Choice		3rd Choice	
	no.	%	no.	%	no.	%
Bass	218	33.4	97	16.4	58	11.2
Largemouth or black bass	82	12.6	22	3.7	11	2.1
Crappie	75	11.5	142	24.0	88	16.9
Catfish	60	9.2	75	12.7	121	23.3
Red drum	45	6.9	40	6.8	16	3.1
Spotted seatrout	26	4.0	24	4.1	12	2.3
Trout (unspecified)	22	3.4	31	5.2	27	5.2
Striped bass	19	2.9	22	3.7	20	3.8
Other ^b	106	16.2	138	23.4	167	32.1
Total	653	100.1	591	100.0	520	100.0

^aAnglers identified species preferences with common names.

^bOther species include muskellunge, channel catfish, sand bass, bluegill, smallmouth bass, walleye, "anything", flounder, sheepshead, black drum, gulf whiting, shark, wahoo, red snapper, halibut, salmon, "saltwater" fish, bream, pompano, grouper, yellow catfish, spotted bass, sand trout and carp.

Table 14. Number and percent of non-resident anglers by response to: Do you put most of your effort in fishing for one particular species of fish in Texas?

Response	no.	%
Yes	334	48.8
No	350	51.2
Total	684	100.0

If yes, what species?

Species ^a	no.	%
Bass	137	41.3
Largemouth bass	57	17.2
Catfish	44	13.3
Crappie	33	9.9
Striped bass	11	3.3
White bass	9	2.7
Spotted seatrout	7	2.1
Red drum	6	1.8
Trout	6	1.8
Other ^b	22	6.6
Total	332	100.0

^aAnglers identified species with common names.

^bOther species include channel catfish, bluegill, walleye, "anything", flounder, black drum, gulf whiting, shark, red snapper, salmon, "saltwater" fish and bream.

Table 15. Number and percent of non-resident anglers by their favorite area for fishing in Texas: ranked by preference.

Area ^a	no.	%
Area 4	184	29.3
Area 11	80	12.8
Area 12	61	9.7
Area 13	58	9.3
Area 6	33	5.3
Area 10	33	5.3
Area 8	32	5.1
Area 2	29	4.6
Area 3	29	4.6
Area 7	24	3.8
Area 1	23	3.7
Area 9	22	3.5
Area 5	19	3.0
Total	627	100.0

^aAreas used correspond to fishing areas based on major metropolitan regions as shown in Figure B.1. of Appendix B.

Table 16. Distribution of trips taken to Texas primarily for fishing during the previous twelve months by area by number of non-resident angler respondents and days fished/trip: ranked by frequency of trips.

Area ^a	no. of trips	%	no. of anglers	Mean Days Fished/Trip ^b	Standard Error
Area 4	120	18.8	87	25.8	2.4
Area 12	116	18.2	53	6.2	1.2
Area 13	79	12.4	40	10.7	1.1
Area 11	66	10.3	41	13.5	1.6
Area 3	50	7.8	22	4.2	0.2
Area 2	44	6.9	25	4.5	0.3
Area 10	35	5.5	25	3.5	0.1
Area 1	29	4.6	18	3.2	0.2
Area 8	24	3.8	16	8.8	0.6
Area 9	24	3.8	16	3.6	0.1
Area 6	20	3.1	14	8.1	0.7
Area 7	18	2.8	14	6.5	0.3
Area 5	13	2.0	10	7.0	0.3
Total	638 ^c	100.0	381 ^d	10.7	1.4

^aAreas used correspond to fishing areas based on major metropolitan regions as shown in Figure B.1. of Appendix B.

^b25 trips had missing information for days fished. Mean number of days fished/trip was based on 613 trips.

^cTotal number of fishing trips reported by 300 anglers.

^dTotal exceeds the number of anglers taking trips because multiple responses were possible.

Table 17. Distribution of trips taken to Texas primarily for fishing during the previous twelve months by species sought by number of non-resident angler respondents and days fished/trip: ranked by frequency of trips.

Species ^a	no. of trips	%	no. of anglers	Mean Days Fished/Trip ^b	Standard Error
Bass	265	44.0	128	6.6	0.7
Crappie	75	12.5	44	8.2	1.0
Catfish	75	12.5	43	13.4	1.9
"Anything"	31	5.1	21	7.3	0.3
Trout	24	4.0	16	25.2	2.6
Red drum	23	3.8	19	18.6	1.4
White bass	21	3.5	12	15.7	1.3
Largemouth bass	20	3.3	11	4.0	0.1
Striped bass	19	3.2	13	4.6	0.2
Spotted seatrout	9	1.5	8	14.9	1.1
Snapper	5	0.8	5	8.6	0.7
"Saltwater" fish	5	0.8	3	7.4	0.2
Other ^c	30	5.0	22	19.3	2.4
Total	602 ^d	100.0	345 ^e	9.8	1.2

^aAnglers reported species sought with common names.

^b17 trips had missing information for days fished. Mean number of days fished/trip based on 583 trips.

^cOther species include channel catfish, walleye, flounder, sheepshead, gulf whiting, shark, "bay" fish, gar, bream, hybrid and wahoo.

^dTotal number of fishing trips reported by 300 anglers.

^eTotal exceeds the number of anglers taking trips because multiple responses were possible.

Table 18. Number and percent of non-resident anglers by response to:
Overall, how would you grade sport fishing in Texas?

Grade	no.	%
A	127	20.3
B	221	35.2
C	212	33.8
D	30	4.8
F	37	5.9
Total	627	100.0

Table 19. Number and percent of non-resident anglers by response to: Do you
plan to fish in Texas again?

Response	no.	%
Yes	630	93.5
No	44	6.5
Total	674	100.0

Table 20. Percent of non-resident anglers by the importance they attribute to various reasons why people fish.

Reasons why people fish	Value ^a				
	1	2	3	4	5
To be outdoors	1.1	3.3	16.3	47.0	32.3
For family recreation	6.6	12.7	28.8	34.5	17.4
To experience new and different things	15.6	20.0	29.3	22.7	12.4
For relaxation	1.4	2.2	12.7	39.1	44.7
To be close to the water	7.9	15.1	30.0	27.8	19.2
To obtain fish for eating	18.7	23.4	35.0	14.5	8.4
To get away from the demands of other people	14.0	14.6	18.1	23.4	29.9
For the experience of the catch	5.0	6.4	26.0	33.0	29.6
To test my equipment	39.0	27.8	22.0	7.0	4.2
To be with friends	7.8	11.3	26.8	34.3	19.8
To experience natural surroundings	3.6	6.2	24.9	35.2	30.1
To win a trophy	73.2	11.7	7.9	3.8	3.3
To develop my skills	21.6	17.1	26.6	24.6	10.1
To get away from the regular routine	3.9	5.2	22.5	34.3	34.0
To obtain a "trophy" fish	49.3	15.5	17.1	7.0	11.2
For the challenge or sport	10.5	9.2	25.0	28.7	26.6

^a1 - not at all important; 2 - slightly important; 3 - moderately important; 4 - very important; 5 - extremely important.

Table 21. Percent of non-resident anglers by the extent they agree or disagree with statements about sport fishing.

Statement	Value ^a				
	1	2	3	4	5
The more fish I catch, the happier I am	4.4	12.9	27.7	38.4	16.6
A fishing trip can be successful even if no fish are caught	3.3	9.5	13.5	53.5	20.3
When I go fishing, I'm just as happy if I don't catch a fish	9.0	35.8	24.3	23.7	7.3
I usually eat the fish I catch	6.3	9.2	12.4	43.7	28.5
A successful fishing trip is one in which many fish are caught	6.1	24.8	29.8	27.7	11.6
I would rather catch one or two big fish than ten smaller fish	3.9	20.8	26.4	30.7	18.2
It doesn't matter to me what type of fish I catch	9.5	29.2	19.8	30.0	11.5
The bigger the fish I catch, the better the fishing trip	4.6	22.1	25.7	34.6	13.1
I'm just as happy if I don't keep the fish I catch	6.2	22.1	23.2	34.3	14.2
I like to fish where there are several kinds of fish to catch	1.1	4.2	17.3	54.0	23.5
I want to keep all the fish I catch	22.2	41.6	19.4	12.1	4.7
I catch fish for sport and pleasure rather than for food	7.3	19.1	24.6	31.8	17.3
I'm just as happy if I release the fish I catch	5.6	22.5	26.3	29.3	16.3
I usually give away the fish I catch	21.3	37.2	29.4	9.8	2.3

^a1 - strongly disagree; 2 - disagree; 3 - neutral; 4 - agree; 5 - strongly agree.

Table 22. Percent of non-resident anglers by support or opposition to management tools used by the Texas Parks and Wildlife Department.

Management tool	1	2	Value ^a 3	4	5
Releasing fish below a certain length (minimum size limit)	1.8	3.8	11.0	37.7	45.7
Releasing fish above a certain length (maximum size limit)	9.1	19.8	29.6	23.0	18.4
Releasing fish within a certain length range, but keeping the fish below and above this range (slot limit)	10.0	15.1	39.1	20.4	15.4
Being able to keep only a certain number of fish you catch in a day (daily bag limit)	2.6	4.2	9.2	42.8	41.3
Not being able to fish in certain restricted areas	5.2	8.2	30.0	34.9	21.7
Having certain fishing areas closed during part of the year (closed season)	6.4	12.5	25.6	33.6	21.8
Prohibition the use of certain types of sport fishing gear (e.g. blasting, poison or bows)	6.9	1.5	2.6	15.8	73.2
Prohibiting the use of certain types of bait	7.6	13.7	31.2	24.0	23.4
Not being able to retain certain species in certain areas	2.9	8.4	35.5	28.9	24.3
Stocking fish	1.2	0.8	7.1	27.3	63.6

^a1 = strongly oppose; 2 = oppose; 3 = neutral; 4 = support; 5 = strongly support.

Table 23. Number and percent of non-resident anglers as to whether or not they would report catching a tagged fish.

Response	no.	%
Yes	674	99.4
No	4	0.6
Total	678	100.0

Table 24. Non-resident anglers average expenditures (dollars) per person for fishing related equipment in Texas in 1986.

Description of item	Mean \$ spent / person	Median spent / person	Maximum \$ spent	% resp. buying at least one	% mean \$ spent in TX	Avg. \$/ person in Tx
TACKLE						
Rods and reels	65.45	40.00	700.00	60	30	19.89
Lures, tackle boxes and landing nets	35.30	15.00	200.00	62	57	20.04
Live bait equipment	7.63	0.00	400.00	36	74	5.61
Fish attracting lights	1.15	0.00	120.00	3	70	0.80
Lure color	4.40	0.00	6,600.00	8	20	0.89
Subtotal						<u>47.23</u>
CAMPING EQUIPMENT						
Trailer or pickup camper insert	281.60	0.00	651.00	5	19	52.51
Tents, sleeping bags, lanterns, stoves, ice chests, etc.	17.45	0.00	26,000.00	22	28	4.90
Subtotal						<u>57.41</u>
BOATING						
Electronics - radios, loran, radar, depth finders, etc.	62.61	0.00	500.00	12	7	4.66
Boat accessories - anchors, safety equipment, etc.	18.09	0.00	21,000.00	19	35	6.25
Boats	497.17	0.00	16,800.00	14	14	68.09
Boat motors	485.98	0.00	16,000.00	19	16	76.62
Boat trailers	94.08	0.00	14,700.00	10	15	14.14
Subtotal						<u>169.76</u>

Table 24. Continued.

Description of item	Mean \$ spent / person	Median spent / person	Maximum \$ spent	% resp. buying at least one	% mean \$ spent in TX	Avg. \$/ person in Tx
VEHICLES						
Auto, van, pickup, recreational vehicle, all terrain vehicle	3,022.00	0.00	3,500.00	25	13	389.77
OTHER	151.78	0.00	16,800.00	11	52	79.06
TOTAL						743.23

Table 25. Percent of non-resident anglers by the extent they used different types of services while fishing in Texas.

Service	yes	no
Rented a boat	10.0	90.0
Rented a boat slip	8.1	91.9
Rented dry boat storage	1.6	98.4
Used a fishing guide	11.1	88.9
Chartered a saltwater charterboat	3.7	96.3
Went out on a saltwater partyboat	6.3	93.7
Used the services of a taxidermist	2.2	97.8

Table 26. Number and percent of non-resident anglers by response to: Briefly describe your most memorable fishing trip.

Aspect of trip	no.	%
Specific species	314	23.8
Location specific	310	23.5
Number of fish	149	11.3
Size of fish	133	10.1
Family	88	6.7
Equipment related	69	5.2
Friends	52	4.0
Catch and release	34	2.6
Weather related	30	2.3
Surroundings related	32	2.4
Challenge related	15	1.1
Other	91	6.9
Total	1317 ^a	99.9

^aEach angler could list up to five responses.

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

Question no.	no.
1	25
2a	221
b	230
c	139
d	314
e	345
f	353
g	356
3	21
4a	42
b	72
c	75
d	57
e	68
f	50
g	75
h	65
i	78
j	51
k	57
l	73
m	79
n	69
o	71
p	49
5	13
6	41
7a	47
b	38
c	58
d	65
e	64
f	40
g	51
h	53
i	62
j	56
k	50
l	49
m	42
n	52
8	270
9a	51
b	113
c	184

Table 27. Continued.

Question no.	no.
10	20
11	19
12	247
13	404
14	77
15	77
16	30
17a	50
b	86
c	78
d	71
e	87
f	69
g	94
h	91
i	77
18a	41
b	48
c	62
d	38
e	51
f	49
g	40
h	47
i	53
j	42
19	26
20	180
21a	110
b	87
c	100
d	100
e	100
a	103
b	95
a	98
b	103
c	104
d	97
e	102

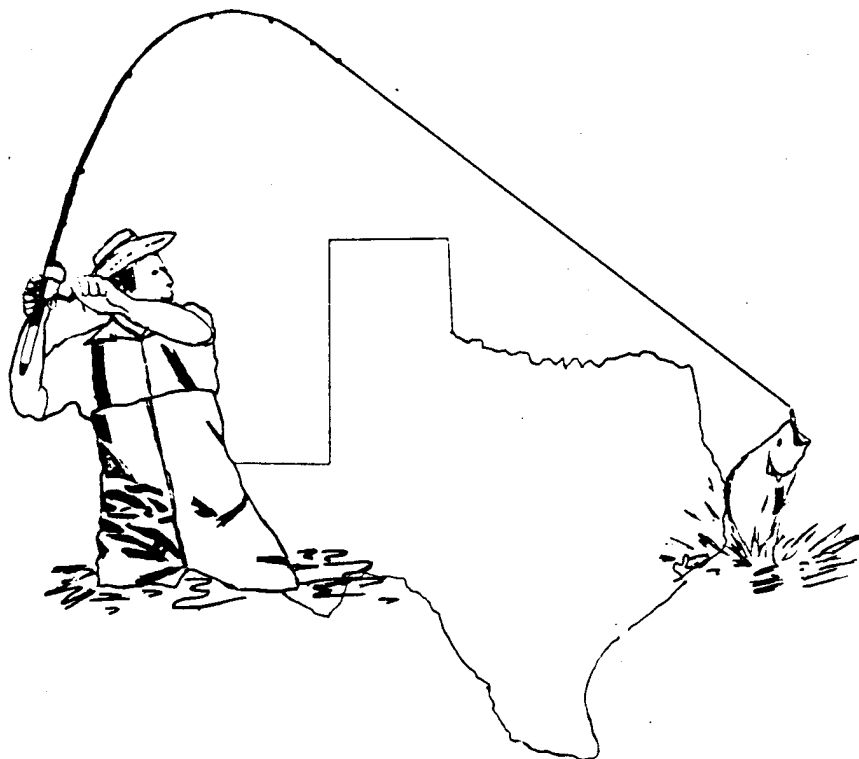
Table 27. Continued.

Question no.	no.
21a	104
b	104
a	289
b	289
22a	53
b	60
c	61
d	56
e	61
f	56
g	62
23	21
24	18
25	64
26	32
27	35
28	428

Appendix A. 1987 Texas non-resident fishing survey instrument.

QUESTIONNAIRE #

**1987
SURVEY OF NON-RESIDENT
FISHING IN TEXAS**



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

THE RECORDS OF THE TEXAS PARKS AND WILDLIFE DEPARTMENT INDICATE THAT YOU PURCHASED A NON-RESIDENT FISHING LICENSE IN THE PAST 12 MONTHS. WE NEED TO KNOW WHETHER YOU DID IN FACT FISH IN TEXAS DURING THIS PERIOD.

IF YES, PLEASE ANSWER THE QUESTIONS PROVIDED IN THE QUESTIONNAIRE.

IF NO, PLEASE WRITE ON THE FRONT OF THE QUESTIONNAIRE THAT YOU DID NOT FISH IN TEXAS OVER THE PAST 12 MONTHS AND RETURN IT TO US IN THE ENCLOSED POSTPAID ENVELOPE. THANK YOU.

IN THE FOLLOWING QUESTIONS, PLEASE TELL US ABOUT YOUR FISHING ACTIVITY AND EXPERIENCE. PLEASE NOTICE THAT THE FIRST HALF OF THIS QUESTIONNAIRE DEALS WITH YOUR OVERALL FISHING ACTIVITIES. (FISHING IN TEXAS, YOUR HOME STATE OR ANY OTHER STATE). THE SECOND HALF OF THE QUESTIONNAIRE WILL DEAL WITH YOUR FISHING ACTIVITIES EXCLUSIVELY IN TEXAS.

1. How many years have you been fishing?

_____ YEARS

2. Since this time last year, how many days did you go fishing?
(At any location)

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

- _____ IN RIVERS
- _____ IN LAKES FROM SHORE OR PIERS
- _____ IN LAKES FROM A BOAT
- _____ 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. 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 water	1	2	3	4	5
f)	To obtain fish for eation.	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 natural surroundings	1	2	3	4	5
l)	To win a trophy.	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

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

1 YES

2 NO

If YES, what length is the longest one?

_____ FEET

6. 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

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

	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) When I go fishing, I'm just as happy if I don't catch a fish.	1	2	3	4	5
d) I usually eat the fish I catch.	1	2	3	4	5
e) A successful fishing trip is one in which many fish are caught	1	2	3	4	5
f) I would rather catch one or two big fish than ten smaller 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

8. Briefly describe your most memorable fishing trip.

THE REMAINING QUESTIONS DEAL WITH YOUR RECREATIONAL FISHING
ACTIVITIES IN THE STATE OF TEXAS.

9. Name the kinds fish you most prefer to catch in Texas.

_____ FIRST CHOICE

_____ SECOND CHOICE

_____ THIRD CHOICE

10. Do you put most of your effort into fishing for one
particular species of fish in Texas?

1 YES

2 NO

If YES, what species? _____

11. Do you participate in fishing tournaments while in Texas?

1 YES

2 NO

If YES, how many tournaments did you participate in since this
time last year?

_____ FRESHWATER TOURNAMENTS

_____ SALTWATER TOURNAMENTS

12. Since this time last year, how many trips have you
made to Texas where fishing was NOT the primary reason
for the trip?

NUMBER OF TRIPS: _____

13. Since this time last year, how many trips have you made to Texas where fishing was the PRIMARY reason for the trip?

NUMBER OF TRIPS: _____

(IF NO TRIPS WERE MADE SINCE THIS TIME LAST YEAR, PLEASE GO TO QUESTION 14)

For each trip made to Texas since this time last year, please tell us the month you were here, the area you visited, the total days you remained in Texas, the species you sought and your total expenditures in Texas. Please refer to the area map insert for area references. (Only include those trips where fishing was the PRIMARY MOTIVATION for the trip).

	MONTH -----	AREA -----	DAYS THERE -----	SPECIES SOUGHT -----	TOTAL EXPENDITURES IN TEXAS -----
TRIP 1	_____	_____	_____	_____	_____
TRIP 2	_____	_____	_____	_____	_____
TRIP 3	_____	_____	_____	_____	_____
TRIP 4	_____	_____	_____	_____	_____

14. Please indicate your favorite area in Texas for fishing. Refer to area map for reference. (CIRCLE ONLY ONE)

- | | | | |
|--------|--------|---------|---------|
| AREA 1 | AREA 5 | AREA 9 | AREA 12 |
| AREA 2 | AREA 6 | AREA 10 | AREA 13 |
| AREA 3 | AREA 7 | AREA 11 | |
| AREA 4 | AREA 8 | | |

15. Overall, how would you grade sport fishing in Texas?

(EXCELLENT) A . . . B . . . C . . . D . . . F (POOR)

Please explain your answer: _____

16. Do you plan to fish in Texas again?

- 1 YES
- 2 NO

Please explain your answer: _____

17. TO WHAT EXTENT DO YOU MAKE USE OF THE FOLLOWING FOR INFORMATION ABOUT FISHING IN TEXAS?

	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

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

Please indicate below whether you support or oppose these tools.

	1	2	3	4	5
	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 able to keep only a certain number of fish you catch in a day (daily bag limit)	1	2	3	4	5
e) Not being able 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 (for example, blasting, poison or bows)	1	2	3	4	5
h) Prohibiting the use of certain types of bait	1	2	3	4	5
i) Not being able to retain certain species in certain areas	1	2	3	4	5
j) Stocking fish	1	2	3	4	5

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

1 YES

2 NO

20. How many years previously have you purchased a non-resident fishing license to fish in the State of Texas?

YEARS: _____

21. THE FOLLOWING QUESTION PROVIDES VALUABLE INFORMATION FOR ESTIMATING THE IMPORTANCE OF 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. Use numbered lines to list individual purchases, then specify whether purchased in Texas or not.

Did you purchase any of the following items since this time last year				Purchase price	Was this item purchased in Texas?	
(please circle)						
TACKLE:						
A) Rod(s) (1)	YES	NO		\$ _____	YES	NO
and						
Reel(s) (2)	YES	NO		\$ _____	YES	NO
			(3)	YES	NO	\$ _____
						YES
						NO
b) Lures, tackle boxes, landing nets	YES	NO		\$ _____	YES	NO
c) Live bait equip	YES	NO		\$ _____	YES	NO
d) Fish attracting lights	YES	NO		\$ _____	YES	NO
e) Lure color selector	YES	NO		\$ _____	YES	NO
CAMPING EQUIPMENT:						
a) Trailer or pickup camper insert	YES	NO		\$ _____	YES	NO
b) Tents, sleeping bags, lanterns, stoves, ice chests, etc.	YES	NO		\$ _____	YES	NO
BOATING:						
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

Did you purchase any of the following items since this time last year				Purchase price	Was this item purchased in Texas?	
(please circle)						
BOATING CONTINUED:						
d) Boat motor(\$)	(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
VEHICLES:						
Auto, van, pickup, recreational vehicle, all terrain vehicles. Specify type:						
A) _____	(1)	YES	NO	\$ _____	YES	NO
B) _____	(2)	YES	NO	\$ _____	YES	NO
OTHER EQUIPMENT:						
Expenditures not listed above (specify):						
A) _____	(1)	YES	NO	\$ _____	YES	NO
B) _____	(2)	YES	NO	\$ _____	YES	NO

22. Since this time last year, while fishing in Texas have you:

- | | | |
|------------------------------------|-----|----|
| Rented a boat | YES | NO |
| Rented a boat slip | YES | NO |
| Rented dry boat storage | YES | NO |
| Used a fishing guide | YES | NO |
| Chartered a saltwater charterboat | YES | NO |
| Gone out on a saltwater partyboat | YES | NO |
| Used the services of a taxidermist | YES | NO |

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

23. What is your age?

_____ YEARS

24. Are you:

1 MALE

2 FEMALE

25. 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 | |

26. At this time are you:
(circle only one)

- 1 EMPLOYED FULL TIME
- 2 EMPLOYED PART TIME
- 3 UNEMPLOYED
- 4 RETIRED
- 5 STUDENT

27. What is the zip code of your current home residence? _____

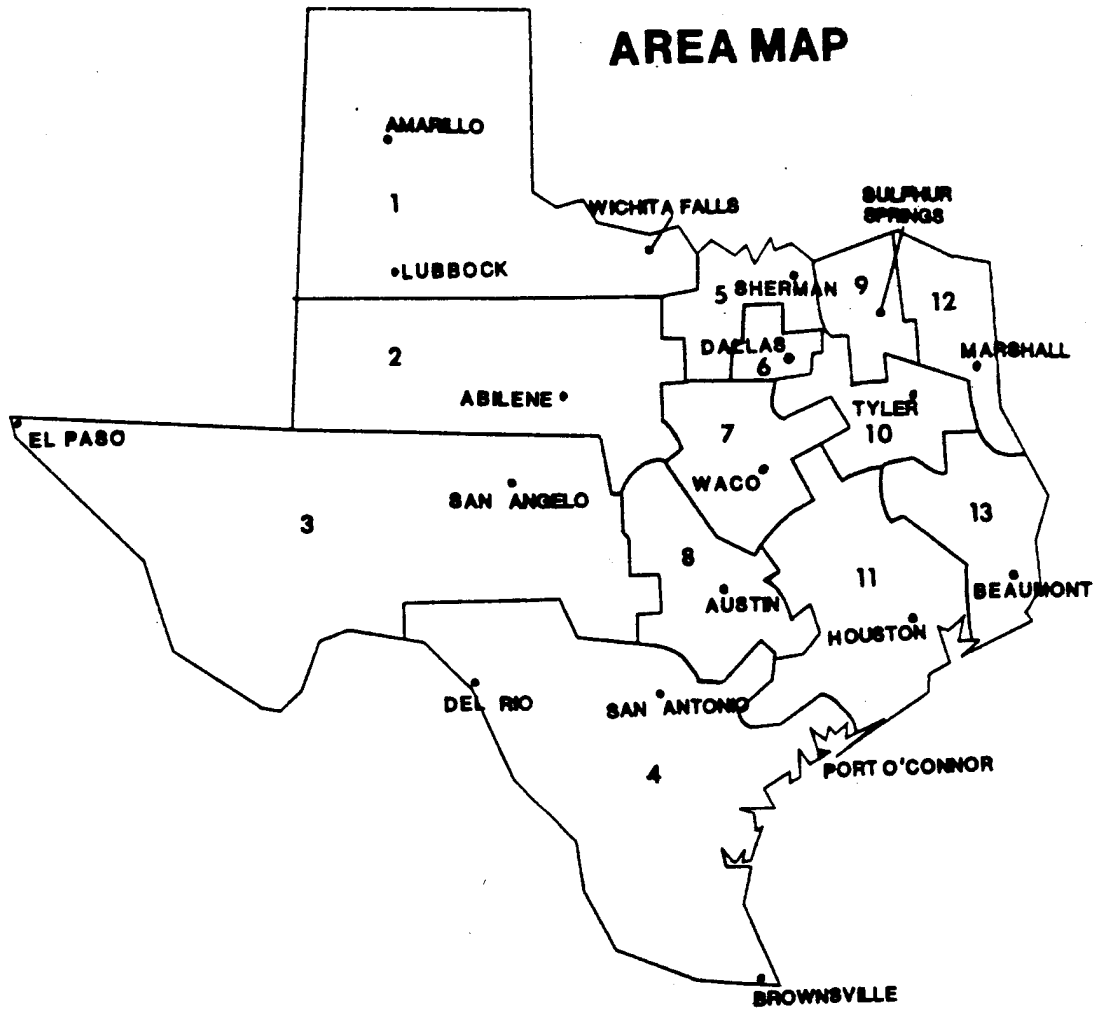
IS THERE ANYTHING ELSE YOU WOULD LIKE TO SHARE WITH US?

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

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

Appendix B. Map of the fishing areas based on major metropolitan regions.

Figure B.1. Map of the fishing areas based on major metropolitan regions.



Appendix C. Distribution data for licensed non-resident anglers' age by gender, length of longest boat owned, number of years have purchased a Texas non-resident license and number of years fishing variables.

Figure C.1. Percent of male non-resident anglers (n=588) by age.

Figure C.2. Percent of female non-resident anglers (n=95) by age.

Figure C.3. Percent of non-resident anglers (n=407) by the length of the longest boat owned.

Figure C.4. Percent of non-resident anglers (n=524) by the number of years they have purchased a Texas non-resident fishing license.

Figure C.5. Percent of non-resident anglers (n=681) by the number of years of fishing experience.

Figure C.1. Percent of male non-resident anglers (n=588) by age.

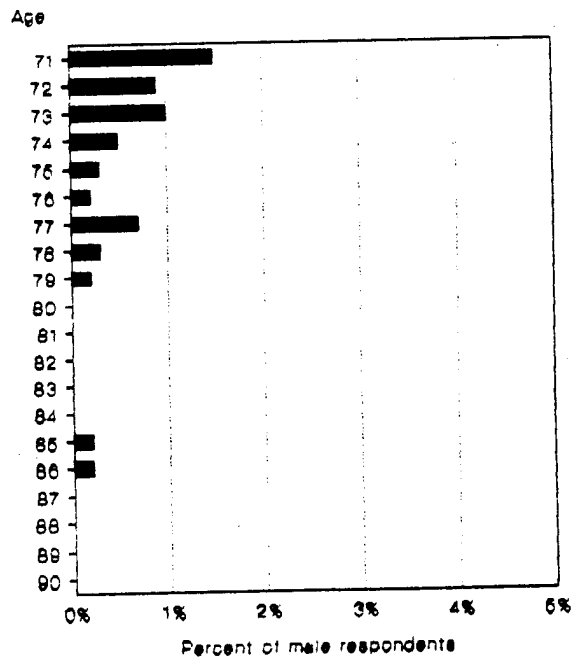
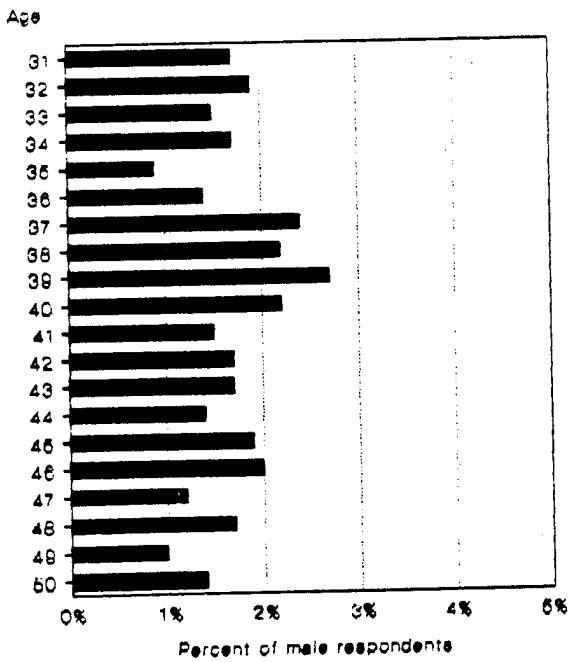
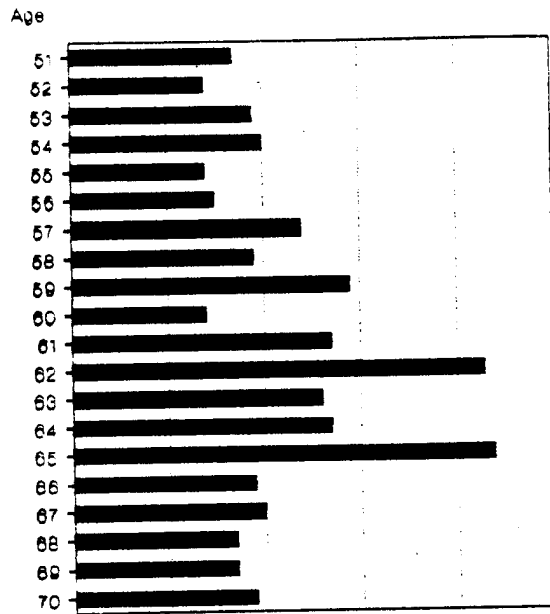
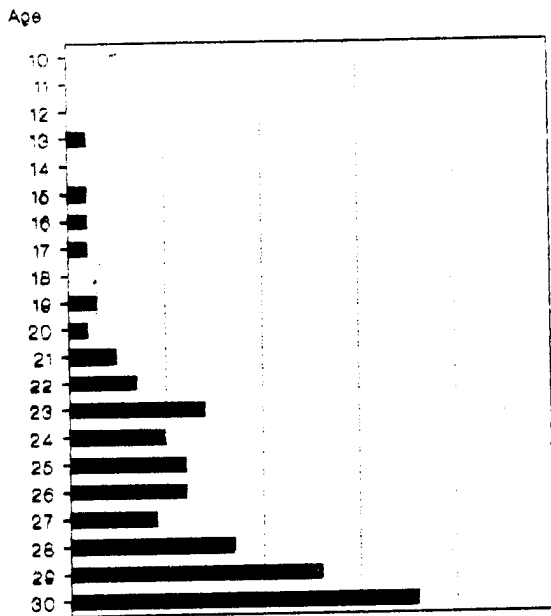


Figure C.2. Percent of female non-resident anglers (n=95) by age.

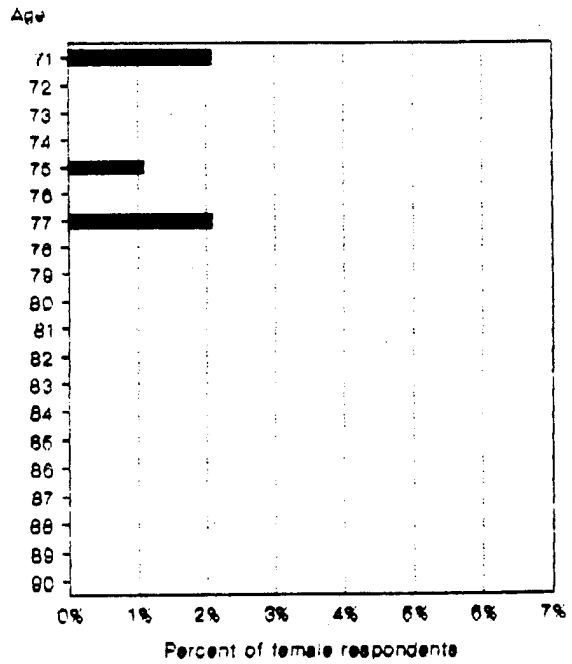
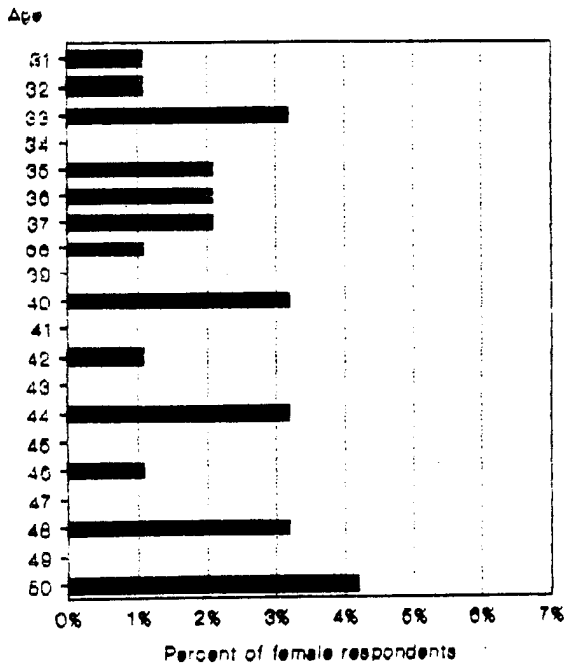
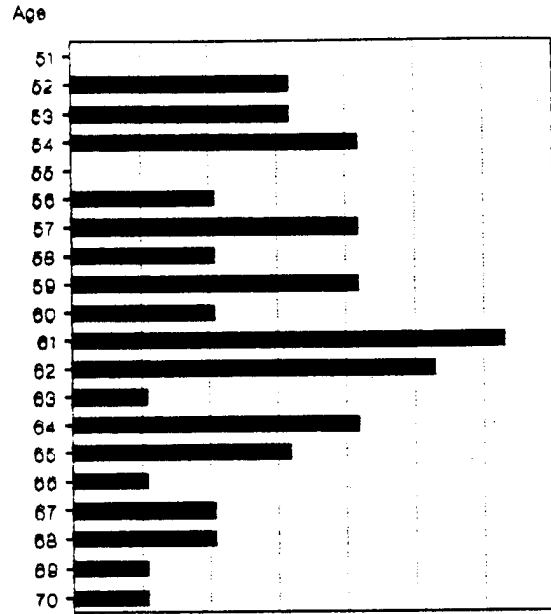
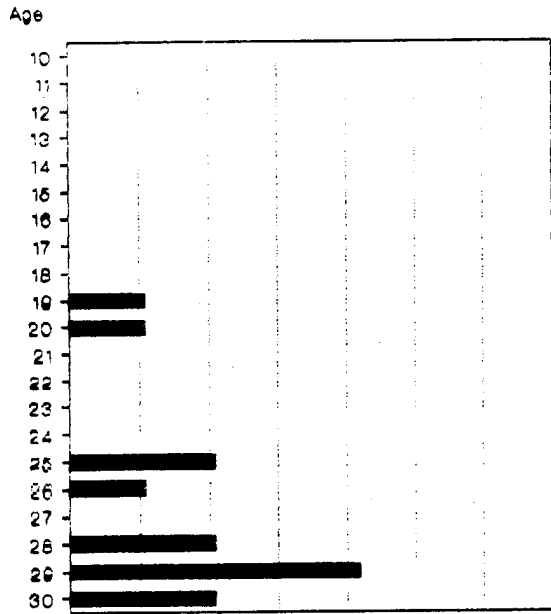


Figure O3 Percent of non-resident anglers (n=407) by the length of longest boat owned

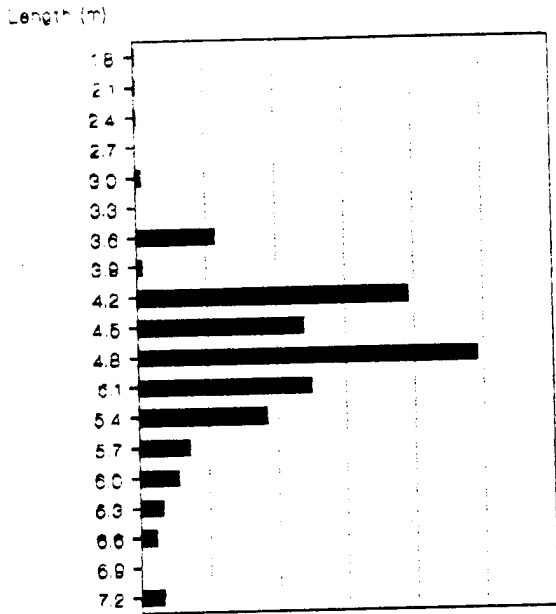


Figure O4 Percent of non-resident anglers (n=524) by the number of years they have purchased a Texas non-resident fishing license

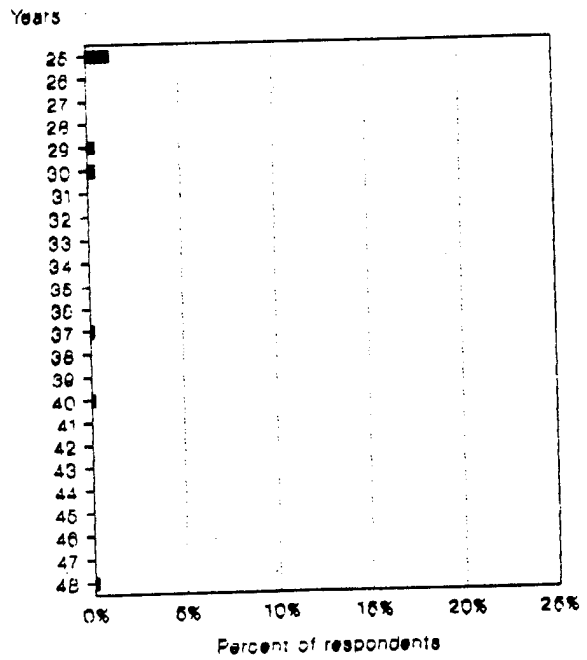
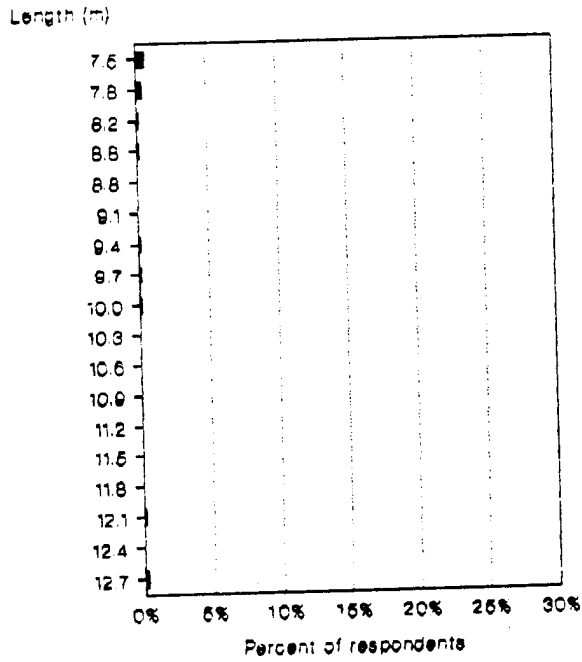
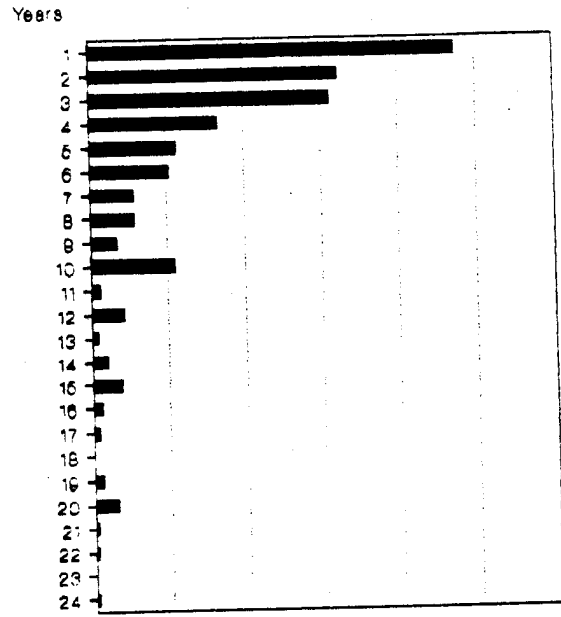
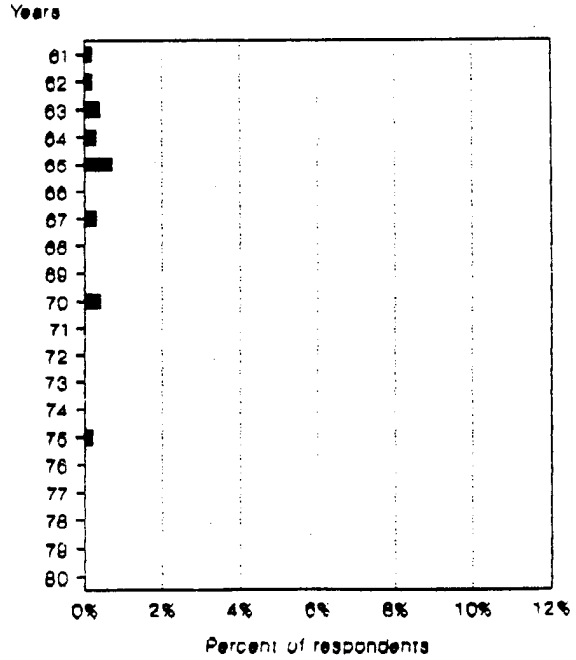
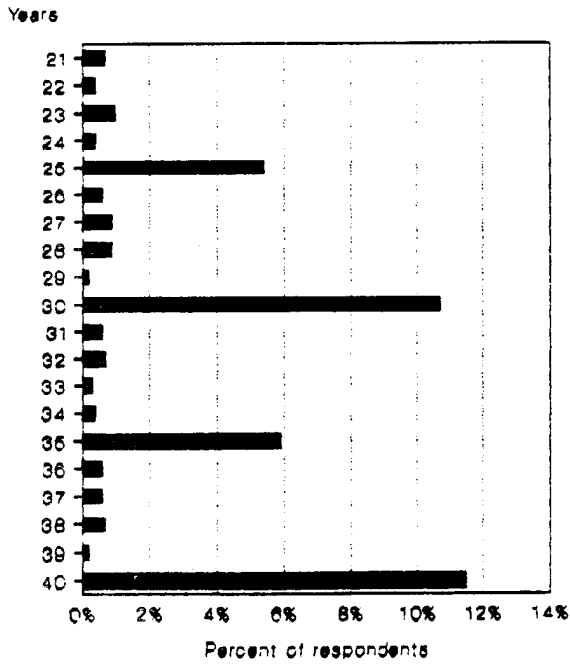
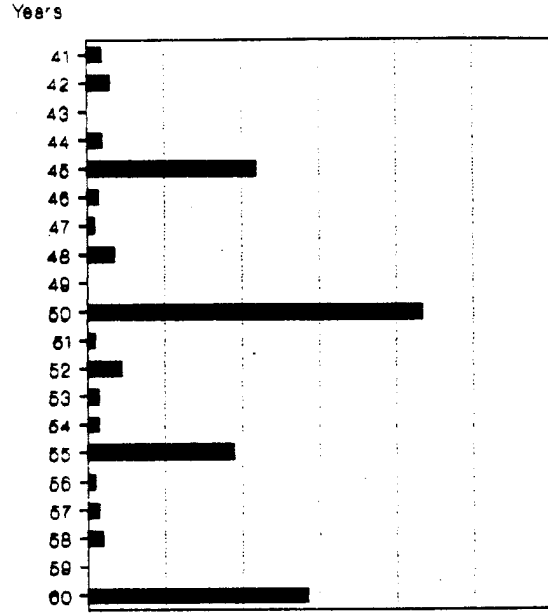
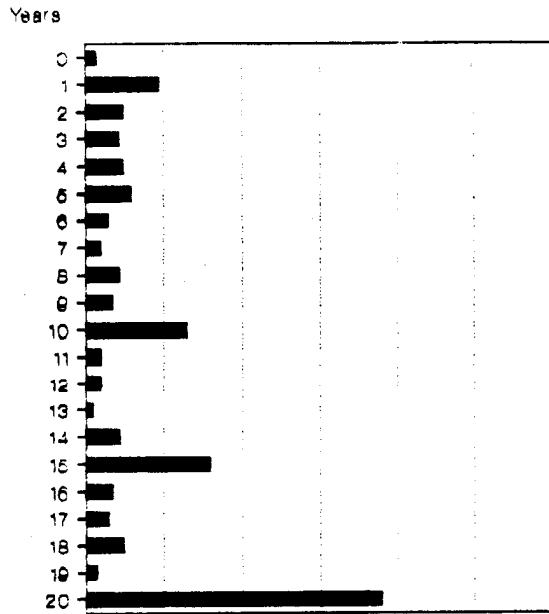


Figure C.5. Percent of non-resident anglers (n=681) by the number of years of fishing experience.



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