

**Biological, Social, and Economic
Impacts of Exempting a
Largemouth Bass Fishing
Tournament from Slot Length
Limits at Lake Fork Reservoir,
Texas**

by
**J. Warren Schlechte, T.O. Smith,
and Aaron Barkoh**

**Management Data Series
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ABSTRACT

Biological, social, and economic impacts of exempting largemouth bass fishing tournaments from slot length limits were evaluated at Lake Fork Reservoir. Two tournaments were conducted simultaneously. One, organized by Angler's Choice® in cooperation with Texas Parks and Wildlife, in which entrants paid US\$250 per team with a prize of US\$10,000 to the winner. The other was a simulated tournament to investigate mortality associated with catch and release and culling of fish; these data can be difficult to get without being unduly intrusive, and disrupting the normal prize tournament process. Observers accompanied some anglers in both tournaments. Catch-and-release as well as catch-and-cull fish were collected from the simulated-tournament anglers whereas weigh-in fish were collected from the prize-tournament anglers. After the tournament, we used a mail survey to measure stakeholder attitudes and opinions about the exemption from slot length limits and to estimate economic impact of the tournament. The presence of observers had no apparent effect on the catch, in either tournament. There was no significant difference between the two tournaments in angling success, fish size distribution, or bag size. Larger fish had higher mortality rates. Initial mortality was minimal, but delayed (6-d) mortality was highest for the weigh-in fish (38.2%), followed by catch-and-cull fish (19.6%), and catch-and-release fish (2.5%). We estimated 127 fish died as a result of the prize tournament: 84% were weigh-in fish and 77% were within the slot. Most prize-tournament staff (100%), prize-tournament participants (71%), and merchants (61%) supported allowing tournament slot-length-limit exemptions at Lake Fork Reservoir. Most guides (75%), area anglers (67%), and spectators (56%) opposed exemptions. Our survey suggested that support for exemptions would decline as tournament-induced mortality increased. The tournament's total economic impact on the Lake Fork area was US\$126,434 and some US\$36,054 in economic impact to Texas from new money from out of state.

INTRODUCTION

An estimated 5,500 black-bass fishing tournaments were held in Texas during 1993 (Texas Parks and Wildlife 1995) and at least as many tournaments were organized in 1999. Tournament anglers comprise approximately 14% of the Texas licensed freshwater angling population. In contrast, 21% of Texas freshwater anglers think tournaments are an inappropriate use of the fisheries resource (Bohnsack and Ditton 1999). Further, 51% of Texas non-tournament black-bass anglers believe tournaments harm their fishing experience (Wilde et al. 1998a).

The current harvest regulation for largemouth bass at Lake Fork Reservoir (hereafter referred to as Lake Fork) is a 16- to 24-in slot length limit and a 5-fish per day bag, with harvest of no more than one fish over 24 in. Slot length limits are sometimes unpopular among tournament organizers and anglers because anglers must release some of the bass caught during the tournament before they can be weighed-in. As a result, some tournament organizers and local merchants expressed their interest to the Texas Legislature and Texas Parks and Wildlife Department (TPWD) for a rule change that would exempt tournaments from the slot length limit at Lake Fork. Proponents believed the exemption would be reasonable because all of the bass caught during a tournament would be released following weigh-in. Likewise, local (i.e., Rains, Hopkins, and Wood counties) merchants believed that the exemption would encourage additional tournaments at Lake Fork and benefit the local economy. Opponents believed the exemption would be an unfair special privilege granted to a minority group. Opponents also believed that tournament-caught fish could experience high mortality that could decrease the bass population in the reservoir.

In 1999, House Bill 3791 was introduced into the Texas Legislature to give TPWD the authority to grant a regulatory exemption from any fish-size or bag restrictions to fishing tournaments. The bill was not acted upon because of concern that there was insufficient data on the impacts that the tournament exemption could have on affected Texas reservoirs. In response, a request was made in August 1999 by the Chairman of the House of Representatives State Recreational Resources Committee for TPWD to conduct a study on the possible impacts of exempting tournaments from the slot-length-limit regulation. The TPWD Inland Fisheries Division staff evaluated three potential impacts: 1) biological, as measured by angling mortality, 2) social, reflected in the attitudes and opinions of stakeholders, and 3) economic, based upon expenditures associated with the tournament. Additional information was collected for TPWD fisheries management purposes including participation and satisfaction with tournaments, fish care during tournaments, and willingness to support or influence TPWD fisheries management decisions. Lake Fork was selected for this study not only because it is a premier largemouth bass tournament destination in Texas and the nation, but also because the exemption was sought for it. Funding for this study came from the State of Texas and from U.S. Fish and Wildlife Service Sport Fish Restoration Program grants.

MATERIALS AND METHODS

Biological impact

Two independent tournaments were conducted to measure the angling mortality associated with a slot-exempt tournament on Lake Fork, Texas. One tournament was organized by Angler's Choice® in cooperation with TPWD (hereafter referred to as the prize tournament) and was held on October 9-10, 1999. Entrants paid \$250 per team to enter the 2-d tournament, with a prize of \$10,000 to the team with the greatest 2-d weight of bass. The other tournament was a TPWD-organized “simulated” tournament that was conducted simultaneously with the prize tournament. The TPWD staff solicited participants for this tournament from local fishing guides and tournament anglers who did not enter the prize tournament. We conducted the simulated tournament because it allowed us to collect certain data elements without interfering with the fishing activities of prize-tournament anglers. We used historic catch-rate data to estimate we would need 14 teams in the simulated tournament to capture sufficient catch-and-release fish (C-R, fish caught and immediately released by the angler) and catch-and-cull fish (C-C, fish caught, held, and released later when the angler replaced it with a larger fish) for the study. We directed anglers of all 14 teams in the simulated tournament to fish as if they were in the prize tournament so results from both tournaments would be comparable. In both tournaments, participants were subjected to the statewide minimum length limit of 14 in with a 5-fish daily bag limit.

We used TPWD employees as observers in boats of both tournaments. Each day, 20 prize-tournament teams were each randomly paired with a TPWD observer (16.6% observer coverage per day). If a team did not want an observer on board, that team was free to withdraw from the tournament but would forfeit the entry fee. The exception to this rule was any boat too small to carry both anglers and the observer legally. We allowed those anglers to fish in the tournament and re-assigned their observer to another randomly chosen boat. Observers were used to ensure unbiased data collection and were instructed not to help, advise, or hinder tournament participants. Observers counted the number of C-R and C-C fish and noted if fish were released dead or alive. We collected only weigh-in fish (W-I, fish caught, held in a live well, and weighed-in) from the prize tournament.

Similarly, we placed observers in all 14 simulated-tournament boats. In addition to data collection, whenever an angler in the simulated tournament prepared to release a fish (either C-R or C-C), the observer radioed a chase boat to collect the fish. To decrease bias in the mortality estimates for C-R and C-C fish, fish were released back into the reservoir if a chase boat was unable to collect the fish within 10 min after the observer placed the call. Once in the chase boat, fish were put in an aerated live well and immediately taken to one of the holding nets (described below) and monitored for delayed mortality.

Control fish were collected by electrofishing on the night between the two tournament days. A standard paper-hole puncher was used to remove a 0.25-in disc of tissue to mark the fish for each treatment group: top of caudal fin for C-R, pectoral fin for C-C, anal fin for W-I, and bottom of caudal fin for control fish.

We had intended C-C fish to be those fish caught, held, and released later when an angler replaced it with a larger fish. However, we ultimately revised this definition because on the first day no angler in either tournament caught more than five fish above the minimum length limit, which was the daily bag limit. As a result, we changed the working definition to those fish that were caught, held, and could have been released, had a larger fish been caught.

We estimated both initial mortality (mortality of bass when brought to weigh-in) and delayed mortality (mortality of bass over a 6-d period following the tournaments; Plumb et al. 1974; Schramm et al. 1987; Wilde 1998). To estimate delayed mortality, treatment (C-R, C-C, W-I) and control fish were randomly placed and held in four holding nets (cylindrical floating nets, each 18 ft across x 33 ft deep with 0.5-in square mesh). We constrained the randomization to keep approximately equal fish densities and equal numbers of fish for each treatment group in all holding nets. Nets were located under a bridge in water deeper than 50 ft. At 8:00 a.m. each day, we removed floating dead fish from the holding nets and recorded the date, and size and treatment group of each fish. On the morning of the seventh day, we lifted the nets and recorded the treatment group and size of each of the remaining live or dead fish in each net. Water temperatures and dissolved oxygen concentrations in the holding nets were measured at 13-ft depths daily to monitor potential effects on fish survival.

Although unsubstantiated, prize-tournament organizers (tournament staff) feared that some of the public might try to disrupt their tournament. To prevent disruptions to the tournaments, TPWD Law Enforcement officers were present at each pre-tournament meeting, boat launch, and weigh-in. In addition, TPWD employees monitored the fish-holding nets continuously during the entire 6 d of the delayed-mortality study to prevent vandalism.

We calculated the average mortality rates for the control and three treatment groups. The average mortality rates of the treatments were multiplied by the numbers of fish, in their respective groups, caught by the prize-tournament anglers to get estimates of the numbers of fish that died as a result of the prize tournament. There was no estimate for dead C-C fish for the prize tournament because none were caught by these anglers. We used a logistic regression approach (SAS 2011) to test for differences in mortality among the treatments. We included the length of the fish in the analysis to test if size affected mortality, and included holding net as a blocking factor. We used a Kolmogorov-Smirnov test (Zar 1984) to assess whether the size of fish in the control group reflected the size of fish in the other treatments. To test if the simulated tournament and prize tournament were similar, we compared catch rates, size distributions, and bag sizes for teams in both tournaments. We used a G-test (Zar 1984) to test if the prize and simulated tournaments were catching the same sizes and numbers of fish. We grouped fish into 1-in size ranges for the size analysis. To test if observers had a negative influence on the success of the tournament anglers who were observed, we compared catch rates, weights, and bag sizes of fish for boats with and without observers. Further, using only boats that had observers, we compared catch rates for the day that they had the observer to the day that they did not have the observer. We analyzed catch-rate data using both parametric and nonparametric methods to take advantage of their unique strengths. The parametric test we used was an ANOVA, which we ran using PROC MIXED (SAS 2011). We log-transformed the response variable (i.e., $\log_e(\text{catch} + 0.5)$) to meet the distributional assumptions of the test. The nonparametric test we used was a sign-test (Conover 1980). All tests were assessed at $\alpha = 0.05$.

Social and economic impacts

We used a mail survey approach to evaluate the social and economic impacts that could result from tournament slot-length-limit exemptions. The TPWD employees were excluded from the survey. We mailed survey questionnaires (Appendix 1A-F) to six stakeholder groups: prize-tournament participants, spectators, and staff, as well as Lake Fork anglers, merchants, and guides. Names and addresses of stakeholders were obtained from various sources (Table 1). We followed the survey methods of Salant and Dillman (1994). We mailed initial survey packages two weeks after the tournaments. The survey package included a questionnaire, a cover letter, and a return postage-paid envelope. After 12 d, individuals who had not responded to the initial mailing were sent a reminder letter expressing the importance of returning the questionnaire. A second complete survey package was sent to those who had not responded 21 d after the initial mailing. One month after the initial mailing, we attempted to contact non-respondents by telephone. We assumed that respondents for each stakeholder group were representative of their group, but acknowledge that non-response bias might be present. Survey topics included expenditures, motivations for participation in the prize tournament, history of fishing and tournament participation, satisfaction with the tournament, as well as socio-demographic information. To understand attitudes toward a tournament slot-length-limit exemption, we asked stakeholders if they would support or oppose a tournament slot-length-limit exemption at Lake Fork. We then asked if they would support or oppose a tournament slot-length-limit exemption if they were aware that exempted tournaments would cause different hypothetical mortality rates (up to 100%). We primarily used closed-ended questions for measures of motivations, satisfaction, and attitudes related to the prize tournament and open-ended questions for expenditures. Some of the questions were administered to all stakeholder groups and others were designed to obtain specific information from target stakeholder groups. Respondents were allowed to make general comments at the end of each questionnaire.

For economic impact analysis, we stratified tournament participants, spectators, and staff into local, non-local, and out-of-state residents using their permanent-residence zip codes. We estimated the total direct expenditures for all participants, spectators, and staff as the total dollar amounts spent during the prize tournament, including the trip to and from Lake Fork. The estimates for total expenditures were calculated by multiplying the total number of local, non-local, and out-of-state participants, spectators, and staff by the average expenditure for each group. To estimate the local economic impact, we multiplied the total direct local expenditures of non-local and out-of-state participants, spectators, and staff by a multiplier of 2.2 (Hunt and Ditton 1996). Economic impact is the impact realized as expenditures passed throughout the Lake Fork economy. This meant for every \$1.00 spent, the local economy realized \$2.20 of economic impact. Individuals living in the local area were not included in the estimation because we assumed they would have spent the money in the local area whether or not the tournament was held. The economic impact to Texas was calculated by multiplying total direct local and non-local expenditures by out-of-state tournament participants, spectators, and staff by the 3.0 multiplier recognized by the State of Texas Comptroller's office. This state multiplier is higher because it assumes that a dollar brought into Texas would stay in the statewide economy even after it had left the local area around Lake Fork. Texas residents were not included in the estimate because we assumed they would have spent the money in Texas whether or not the tournament was held.

Within the socio-economic data analysis, we used questions that were asked to more than one stakeholder group to test for significant differences among groups. We analyzed responses on the continuous scale using analysis of variance, whereas responses on the categorical scale were analyzed using chi-square tests. All analyses were performed using SAS version 7.0 (SAS 1999), and tests were assessed at $\alpha = 0.05$.

RESULTS

Biological impact

The prize tournament attracted 237 participants in 120 teams. In addition, the 2-d experiment involved three tournament staff, 14 simulated-tournament teams, and 68 TPWD employees. Our C-C fish stayed in live wells for an average of 4.9 h, with a minimum of 11 min and a maximum of 8.5 h. The average number of fish in a live well, including the C-C fish, was 2.73.

There was little difference in the angling success (Table 2), fish size distribution (Figure 1), or bag size (Figure 2) between the simulated and prize tournaments. Some anglers in the prize tournament kept fish less than 14 in contrary to the imposed statewide minimum length limit whereas none of the simulated-tournament anglers did. Based solely on a qualitative assessment of the lengths, the sizes of fish caught appear similar (Figure 1). There was some evidence that anglers in the simulated tournament had a somewhat higher percentage of fish in the 14- to 15-in range than did anglers in the prize tournament; however, the difference was not statistically significant ($P(X^2 \geq 2.55, df = 12) = 0.998$). Angler teams in the simulated tournament appeared to be slightly more successful regarding daily bag sizes than the angler teams in the prize tournament (Figure 2); however, the differences were not statistically significant ($P(X^2 \geq 8.23, df = 5) = 0.144$) suggesting these observations could have arisen from the same underlying population. Because we detected no strong evidence of a difference in size structure or number of fish per team, we assumed that fish caught by anglers in the simulated tournament for the delayed-mortality study were a good surrogate for the C-R and C-C fish not collected from the prize tournament.

Observers had no apparent effect on the prize tournament ($P(F_{1,38} \geq 0.03) = 0.86$). Mean catch without an observer was 1.17 fish/team/d and mean catch with an observer was 1.18 fish/team/d. The top five places for teams with observers were 4th, 5th, 6th, 12th, and 15th. Throughout the rankings, there was no evidence that teams with observers fared differently than teams without observers. Using a nonparametric paired sign-test approach, we again found no evidence of any effect of the observer on the catch ($P(K \geq 13|26) = 0.577$). Of the 40 teams that were each paired with an observer, 14 teams had no difference in catch on days with and without the observer, 13 had better catch on the day with the observer, and 13 had better catch on the day without the observer. Conversely, fishing day had an effect on the catch; catch rate was significantly higher on Saturday than on Sunday ($P(F_{1,38} \geq 15.3) < 0.001$).

We estimated that 127 fish died in the prize tournament: 84% were W-I fish and 77% were within the slot. Initial mortalities in all fish groups and delayed mortalities in control and C-R fish were minor ($\leq 1.4\%$; Table 3). In contrast, delayed mortalities in W-I and C-C fish were

substantial. Delayed mortality was highest for W-I fish, followed by C-C fish, and lowest for C-R fish (Table 3). Mortality rates were affected by fish length ($P(X^2 \geq 5.03, df = 1) = 0.025$), and the effect of length differed among treatment groups ($P(X^2 \geq 11.74, df = 3) = 0.008$; Figure 3). Mortality in below-slot (<16 in) fish was 3% for C-R, 0% for C-C, and 23% for W-I fish. Mortalities in within-slot (16-24 in) fish were 0% for C-R, 36% for C-C, and 46% for W-I fish. Three above-slot (>24 in) fish were caught during the study: the two for the W-I treatment died but the one for the control survived the 6-d experiment. Sizes of bass in the control group were representative of the fish caught during the tournaments ($P(D \geq 0.007 = 0.467)$; Figure 4). Water temperatures and dissolved oxygen levels in the fish holding nets (at 5 m) were 23.0 – 24.0°C and 4.1 – 8.2 mg/L, respectively.

Social and economic impacts

We mailed surveys to 737 individuals from six stakeholder groups (Table 4). Effective response rates for questionnaires, after adjusting for non-respondents, ranged from 43 to 100% for all stakeholders and averaged 70% for participants (Table 4). Only 14 non-respondents completed follow-up telephone surveys. Due to this small sample size, we did not conduct a test for non-response bias.

The majority of participants and spectators were white males 43-52 years old with median annual incomes of US\$50,000-60,000 (Tables 5-8). They lived on farms or in small towns (Figure 5), travelled 55-80 miles (median distance) to the tournament, and spent 3 d in the Lake Fork area (Table 9). The tournament staff travelled 230 miles (median distance) to the tournament and stayed 6 d in the Lake Fork area. Most of the participants traveled with other participants whereas most spectators traveled with spouses or friends. Few of either group traveled with children (Table 10).

Equal proportions of participants and spectators had previous tournament experience and both groups had approximately 30 years fishing experience. However, more spectators (64.8%) than participants (36.8%) had fished in Lake Fork in the previous 12 months (Table 11). More than 90% of spectators had a valid Texas fishing license, and had fished in Lake Fork (Table 12). Almost all participants and spectators had fished in tournaments in Texas in the previous 12 months and planned to do the same in the next 12 months (Table 13). Both groups considered themselves skilled anglers (Table 14), but most spectators (63%) did not have fishing club membership whereas approximately 48% of participants did (Table 15). The majority of participants have been very (37%) or extremely (24%) satisfied with their tournament experiences whereas many spectators (40.5%) have not at all been satisfied with their tournament experiences (Table 16). Among participants, the majority not only were aware of actions to take to help keep fish alive during tournaments but routinely took those actions (Table 17).

Several factors motivated participation in this tournament including the excitement of competition, the opportunity to win a prize, the opportunity to catch a trophy bass, interest in assisting with TPWD research, and interest in participating in a slot-limit-exempt tournament (Table 18). Most spectators agreed with the following statements, “I attended this tournament because I knew the tournament was slot-limit exempt” (71%) and “I attended this tournament because of my interest in TPWD Inland Fisheries research” (55%; Table 19). Some 54% of participants did practice fishing for 2 d before the tournament (Table 20). Most participants

agreed that the weigh-in and tournament rules were reasonable, that the Inland Fisheries research did not affect their fishing, and that boat ramp access and parking were adequate (Table 21). The majority of participants and spectators agreed the tournament was well organized, and would attend a similar tournament, but few agreed they caught as many fish or fish as large as expected (Tables 21 and 22). Most participants and spectators (60 vs. 53%) were as satisfied with this tournament as they were with past tournaments; however, about 37% of spectators was less satisfied with this tournament whereas 29% of participants were more satisfied (Table 23). Approximately, equal proportions of participants and spectators (52 vs. 55%) indicated they believed there are things they can do to influence decisions made by TPWD Inland Fisheries (Table 24). The majority of both groups had discussed issues they opposed with others and would do the same if the exemption was granted. A higher percentage of spectators than participants had contacted TPWD, an elected official, a fishing organization, or helped form an organization when they opposed an issue and would do the same if the exemption was granted (Table 25). None of the spectators, but a few (10%) of the participants claimed they would refuse to buy fishing license if the exemption was granted. More than three-quarters of participants (81%) and spectators (79%) would support a decision that a portion of tournament fees be earmarked for black bass research and management (Table 26).

Most fishing guides (75%), anglers (67%), and spectators (56%) opposed allowing a tournament slot-length-limit exemption at Lake Fork whereas all tournament staff (100%), and most participants (71%) and merchants (61%) supported an exemption (Figure 6). By comparing the groups' general support for the exemption to the stated support at various hypothetical mortality rates, we estimated the groups' expectation of mortality rates or the level of fish mortality beyond which support for exemptions declined. These levels of fish mortality were 0-10, 10-20, and 20-30% for staff, participants, and merchants, respectively. Support for an exemption declined as the hypothetical tournament-induced fish mortality rate increased (Figure 7). Less than 40% of any stakeholder group supported an exemption if they believed the exempted tournament would kill 30% or more of the bass caught.

Most participants were non-local, Texas residents. In contrast, local and non-local Texas residents were evenly represented among the spectators (Table 27). Out-of-state participants, non-local spectators, and non-local tournament staff had the greatest average expenditures (Table 28). All groups spent most of their expenditures near Lake Fork: 81% for participants, 93% for spectators, and 74% for tournament staff (Figure 8). The total economic impact to the Lake Fork area was US\$126,434 and some US\$36,054 in economic impact accrued to the state of Texas from expenditure of out-of-state dollars by participants and others (Table 29).

DISCUSSION

Biological impact

The delayed mortality rates of bass caught in this study were substantial, as has been seen in previous studies (e.g., Schramm et al. 1987; Gilliland 1997; Wilde 1998), but were higher than average (Holbrook et al. 1972; Archer and Loyacano 1974; Schramm et al. 1985; Steeger et al. 1994; Gilliland 1997; Weathers and Newman 1997). High mortality occurred despite the fact that most participants knew proper live-well techniques and routinely practiced them. One

possible reason for the higher than average mortalities could be that most of the bass kept were larger, slot-sized (16-24 in) fish. Other studies have suggested that larger fish may be more susceptible to delayed mortality (e.g., Meals and Miranda 1994; Weathers and Newman 1997; Ostrand et al. 2011). Our results not only support these findings but also show that mortality was affected by certain handling procedures unique to different aspects of this tournament. Most of the bass that died were W-I fish. Delayed mortality in W-I and C-C fish appeared to increase as fish size increased, but this was not evident in either the C-R or control fish. The two largest (>24 in) fish brought to weigh-in died, whereas a similar-sized control fish survived. These results suggest that larger size increased the susceptibility of largemouth bass to tournament-induced mortality (Meals and Miranda 1994; Weathers and Newman 1997) and that live-well holding can reduce fish survival (e.g., Kwak and Henry 1995).

In contrast, initial mortality was quite low. The estimated initial mortality for W-I fish (1.4%) was similar to the reported 1.8% for large Texas tournaments (Ostrand et al. 1999), the 1.9% for the Bass Anglers Sportsman Association total-weight tournaments of the 1990s (Wilde et al. 2002), or the large tournaments of California (Lee et al. 1993). Conversely, the initial mortality was less than the rate (4%) reported for Texas total-weight tournaments (Ostrand et al. 1999) or the national average (6.5%) for tournaments of the 1990s (Wilde 1998). The low initial mortality may be due to fewer fish per live well (Meals and Miranda 1994; Wilde et al. 2002; Ostrand et al. 2011), the confinement period, the moderate water temperatures of the lake (Ostrand et al. 1999), or a combination of these factors. Neal and Lopez-Clayton (2001) reported a positive correlation between largemouth bass confinement time (time between catching a fish and weigh-in) and initial mortality rate. We did not monitor live-well conditions or air temperatures at weigh-in but the lake water temperatures were within ranges (e.g., 15-30°C in Gilliland 1997 and 15-23°C in Kwak and Henry 1995) that were associated with low initial tournament-associated mortalities. Further, our study occurred in the fall when initial tournament-associated mortalities are expected to be lower because of prevailing lower water temperatures (Schramm et al. 1987; Ostrand et al. 1999).

The high delayed mortality rates of the C-C and W-I fish compared to the C-R fish indicates that continued handling of fish after the catch contributed significantly to the mortalities. The similarity of the mortalities in the control and C-R fish suggests that the effect of initial fish handling (before putting in live-wells) was probably negligible. The greater mortality rate for slot-size fish compared to that of smaller fish in the C-C group suggests that live-well confinement was particularly stressful to the larger fish. Further, mortality in below-slot fish was higher in W-I than in C-C fish. These results suggest that slot-size fish were more susceptible to the stresses of confinement in live wells (e.g., low dissolved oxygen, limited space, too little water for remaining upright, trauma from rough/fast moving boat; Plumb et al. 1988; Hartley and Morning 1993; Kwak and Henry 1995; Cooke et al. 2002). Smaller fish were more susceptible to stresses associated with weigh-in (e.g., changes in temperature, physical handling, confinement in a bag; Suski et al. 2004). It appears that tournament-induced mortality in largemouth bass could be substantially reduced if alternative formats to live-well holding and weigh-in were used (e.g., paper tournaments where capture weights are collected immediately and the fish released). Several researchers (e.g., Kwak and Henry 1995; Wilde et al. 1998b; Ostrand et al. 1999) have suggested alternative formats to weigh-in tournaments because they have the potential to reduce tournament-associated mortality by eliminating or reducing live-well confinement time, or the number of fish brought to weigh-in.

Mortality estimates made by observing the number of dead fish during or immediately following weigh-in (i.e., initial mortality), which is what tournament organizers usually report (Ostrand et al. 1999), can grossly misrepresent the total mortality that occurs as a result of tournaments. Both initial and delayed mortalities must be measured to obtain a true estimate of tournament-associated mortality. Some fish died in all experimental groups throughout the 6-d holding period; and in all cases, dead fish were found at the bottom of the net on the final day. Just as with previous studies (Schramm et al. 1987; Jamison et al. 2007), we found that tournament-associated stresses could take days to ultimately cause fish mortality. These findings support Kwak and Henry's (1995) conclusion that most of the mortality associated with tournaments is due to the cumulative effects of sublethal stressors, and these take time to manifest. Because direct measurement of total mortality can be difficult, one option is to estimate it using equations developed by Wilde (1998). However, as our study shows, the observed results can differ greatly from the expected value. Using Wilde's (1998) equations based on water temperature would have given an expected total mortality of 19-21%, whereas we observed a total mortality of 38% for our weigh-in fish.

The estimate of the total mortality of fish in the prize tournament (127 fish) should be considered a minimum as some fish probably died after the 6-d holding period; however, the additional mortality after 6 d was probably low (Plumb et al. 1974; Schramm et al. 1987; Jamison et al. 2007). Based on the largemouth bass sampling of Lake Fork (Storey and Jubar 2010), we estimate the number of fish killed during the tournament was a small fraction of the total population of largemouth bass in the lake. Interestingly, however, because of the strong catch-and-release ethic and the wide slot, non-tournament anglers typically harvest less than 2,300 largemouth per year, even with directed effort of up to 30 h/acre (June 2003-May 2010 data; Storey and Jubar 2010). If the observed level of mortality is routine for comparable-sized tournaments, as few as 20 tournaments would double the estimated angling mortality. If slot-length exempt tournaments were allowed on Lake Fork, eventually there could be a negative impact on the abundance of slot-sized fish and on the population size structure of largemouth bass as the majority (77%) of the fish that died were in the slot. This conclusion is sound because tournament anglers typically exert a higher daily fishing pressure, capture larger fish, and harvest higher numbers and weights of black bass than other recreational anglers (Dolman 1991; Hulon et al. 1992).

Social and economic impacts

There was a strong difference of opinion among stakeholder groups about the slot-length-limit tournament exemption. Tournament anglers and staff, and merchants strongly supported the exemption whereas non-tournament anglers, spectators, and fishing guides opposed it. However, stakeholder groups who initially supported the exemption readily changed their attitudes to opposition when they became aware that mortality in the W-I fish exceeded their expectations. At the observed mortality (38%), which was greater than the maximum of the expectations range (0-30%) for the supporters of the exemption, more than 80% of all stakeholders would oppose the exemption for Lake Fork. Once the results of this tournament were known, groups advocating the slot-limit-exempt tournaments were unable to gain sufficient support to conduct a second tournament study. In the future, we suggest managers consider measuring levels of support that various stakeholder groups have for alternative outcomes (in our case, different levels of a hypothetical mortality rate). They can then use that information to

guide discussions on whether an agreement can be reached among groups with divergent opinions.

Fishing activities make substantial contributions to the economies of most states. In 1996, U.S. anglers spent US\$37.8 billion on fishing, with US\$2.9 billion of these expenditures in Texas (USFWS 1996). With 14% of all Texas freshwater anglers and 18-21% of Texas black-bass anglers participating in tournaments (Ditton and Hunt 1996; Wilde et al. 1998a; Bohnsack and Ditton 1999), sizable expenditures from tournaments could contribute to local economies throughout Texas. Black-bass tournaments in Texas range from small, local-club, single-day events with less than 50 participants to large (>50 participants), well-organized, highly-publicized, multi-day events (Driscoll et al. 2010). The economic impacts of these tournaments to local economies around the host lakes and to Texas tend to increase with the size, duration, or the winning prize of the tournament (Marcouiller et al 2007; Driscoll et al. 2010). Larger tournaments, like BASS Masters Classics, are estimated to bring between US\$4.8 million to US\$40 million to the local economies (Bryan 1995; Green 1996, 1997). Indeed, the 1996 BASS Masters Classic brought the Birmingham, AL area an estimated \$15.1 million (Green 1997). The economic impacts of these large, once a year events are at the high end of the black-bass tournament economic-impact spectrum and probably do not reflect the impacts to states of most black-bass tournaments, including the one in this study. In contrast, at the other end of the spectrum, Dennis et al. (2006) found that at O. H. Ivie Reservoir, Texas, the annual economic impact from all tournaments was only US\$117, 938. Over 90% of these tournaments were small, local, club tournaments.

Our study, with 237 participants, US\$250 entry fee, and US\$10,000 winning prize, falls more closely within the range of larger tournaments that occur in Texas and other states throughout the year (Schramm et al. 1991a; Schramm et al. 1991b; Ostrand et al. 1999; Anderson et al. 2001; Anderson et al. 2002; Driscoll et al. 2010). Hence, it was expected to provide a substantial economic impact to the local area surrounding Lake Fork and Texas. The non-local tournament participants in our study stayed an average of 3 d per trip and spent on average US\$213 per trip in the local area surrounding the reservoir. In contrast, Hunt and Ditton (1996) reported that non-local, non-tournament anglers at Lake Fork stayed an average of 2 d per trip and spent on average of US\$60 per trip in the local area surrounding the reservoir. Others (Schramm et al. 1991a; Driscoll et al. 2010) have also found that tournament anglers tend to spend more money per trip than non-tournament anglers do. The overall direct economic impact of our study to the local economy was US\$126,434 of which US\$101,061 was contributed by non-local tournament participants. Anderson et al. (2002) reported an economic impact of US\$168,515 to the local Sam Rayburn Reservoir area by the 323 tournament participants of the 2001 Bass N Buck (BNB). New monies to Texas were US\$20,475 and US\$26,400 from out-of-state tournament participants in the BNB and our study, respectively. Further, a 2002 Texas BASS Federation State Championship (BASS) tournament (284 participants) contributed US\$177,533 and US\$4,381 in new monies to the local Sam Rayburn area and Texas, respectively (Anderson et al. 2002). Total direct economic impact by tournament participants (Texas plus local area) was substantially less for our study tournament compared to the BNB or BASS tournament. Our results suggest only minimal economic impact to the local Lake Fork area or Texas could be expected from allowing slot-length-exempt tournaments on Lake Fork.

Texas anglers remain interested in what TPWD does. About three-quarters of tournament attendees were interested in TPWD research and over three-quarters would support a decision to earmark a portion of tournament fees for black bass research and management. Other studies have documented similar findings (e.g., Ditton and Hunt 1996; Hunt and Ditton 1996). Further, while few have done so, tournament attendees apparently believe they can influence TPWD Inland Fisheries decisions in various ways including direct contact of TPWD or an elected official about issues they oppose. The Texas Freshwater Fisheries Advisory Committee meetings provide one forum for discussions of fisheries issues. This committee will be most beneficial to TPWD if it reflects the diversity of the anglers. The divergent opinions on the slot-limit exemption bill demonstrate the disparate interests of anglers that drive their motivation to oppose or support TPWD. Results of this study suggest that the need to provide fishing opportunities to all Texans in a fair and equitable manner cannot be over-emphasized. Although the proportion of anglers who refuse to buy a fishing license because of issues they oppose is currently small, TPWD should at least try to prevent this segment of the angler population from increasing.

MANAGEMENT IMPLICATIONS

The economic impact of this slot-limit-exempt tournament was substantial but was not much different from the impacts of other non-slot-limit exempt tournaments of comparable size held in the state. Further, the impact from this tournament was a small fraction of the overall impact of recreational fishing at Lake Fork (Chen et al. 2003; Hunt and Ditton 1996). Chen et al. (2003) reported that the Lake Fork largemouth bass fishery alone generated economic outputs of \$19 million and \$10 million and 390 and 160 jobs in the local area and in the state, respectively. Because of the high mortality rate of the within-slot fish during this tournament, the long-term adverse biological impact to the Lake Fork black-bass fisheries could be detrimental if an exemption resulted in frequent large tournaments on the lake. Maintaining the current regulation (slot length limit) would likely maintain the lake's role as largemouth-bass trophy fishery. Further, Lake Fork could continue to deliver substantial positive economic impacts to the local area and the state.

Since tournament-associated mortality of fish was generally high for all size groups of fish and extremely high for larger fish, we suggest that tournament organizers be encouraged to replace weigh-in tournaments with other formats where stress and physiological disturbance that cause mortality are dramatically reduced. For example, paper tournaments, where fish are measured and released immediately after capture, should be considered.

Lastly, the TPWD should have a mechanism in place that seeks to satisfy the needs of stakeholders that hold opposing views of fisheries management issues. The TPWD should, as much as possible, work to satisfy the concerns and needs of all anglers in the state.

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TABLE 1.—Stakeholder group and origin of the names and addresses used for the social and economic impacts of slot-limit-exempt survey.

Stakeholder group	Origin of names and address
Tournament participants	Tournament entrants list
Tournament staff	Tournament organizer
Tournament spectators	TPWD-sponsored drawing for prizes
Lake Fork anglers	TPWD creel Oct. 1, 1999 – Sept. 31, 2000
Lake Fork merchants	Lake Fork Chamber of Commerce
Lake Fork guides	TPWD volunteer fishing guide registration

TABLE 2.—Observed catch rates (fish/d) for anglers in the simulated and prize tournaments.

	Day 1		Day 2		Days 1 and 2 combined	
	Simulated tournament	Prize tournament	Simulated tournament	Prize tournament	Simulated tournament	Prize tournament
Catch type ¹						
C-R	4.4	4.3	5.3	5.9	4.8	5.1
W-I	1.6	1.5	1.6	0.9	1.6	1.2

¹C-R is catch-and-release; W-I is weigh-in.

TABLE 3.—Percent initial and delayed (6-d) mortality estimates (SE) for control and treatment groups. Sample size refers to the number of fish placed in the holding nets to study delayed mortality.

Group ¹	Initial mortality	Delayed mortality (all fish)	Delayed mortality (16-24-in fish)	Sample size
Control	0.0 (0.1)	4.2 (1.5)	3.3 (1.9)	189
C-R ²	0.5 (0.5)	2.5 (1.7)	0.0 (0.0)	90
C-C	0.0 (0.0)	19.6 (5.8)	36.0 (9.6)	46
W-I	1.4 (0.7)	38.2 (3.4)	46.0 (4.4)	199

¹Control is fish caught by electrofishing; C-R is catch-and-release fish; C-C is catch-and-cull fish; W-I is weigh-in fish.

²One C-R fish out of 203 caught in the prize tournament was released “dead”.

TABLE 4.—Effective response rates of participant, spectator, tournament staff, angler, merchant, and guide surveys used to study potential social and economic impacts of a slot-length- limit exemption on Lake Fork Reservoir.

Stakeholder	Mailed	Returned	Non-deliverable	Effective response rate (%)
Participants	237	165	2	70
Spectators	72	45	4	66
Tournament staff	3	3	-	100
Anglers	201	72	33	43
Merchants	51	23	5	50
Guides	173	47	97	62

TABLE 5.—Percentage (%) of respondents by race.

Stakeholder	Black	White	Hispanic	Other
Participants (n = 164)	0.6	98.8	0	0.6
Spectators (n = 43)	0	95.2	2.4	2.4

TABLE 6.—Percentage (%) of male and female respondents.

Stakeholder	Male	Female
Participants (n = 164)	95.7 ^Z	4.3 ^Z
Spectators (n = 43)	78.0 ^Y	21.4 ^Y

^{Y, Z}Values in the same column with different letters are significantly ($P < 0.05$) different.

TABLE 7.—Median age of respondents.

Stakeholder	Age (years)
Participants (n = 161)	43 ^Y
Spectators (n = 39)	52 ^Z

^{Y, Z}Values in the same column with different letters are significantly ($P < 0.05$) different.

TABLE 8.—Median level of annual income (dollars) of respondents.

Stakeholder	Median level of income (dollars)
Participants (n = 158)	50,000 to 60,000
Spectators (n = 39)	50,000 to 60,000

TABLE 9.—The median distance traveled and mean number of days spent at Lake Fork by respondents.

Stakeholder	Median distance (miles) traveled one way	Mean number of days spent on trip to Lake Fork
Participants (n = 165)	80 ^Y	2.9 ^Y
Spectators (n = 43)	55 ^Y	3.4 ^Y
Staff (n = 3)	230 ^Z	6.3 ^Z

^{Y, Z}Values in the same column with different letters are significantly ($P < 0.05$) different.

TABLE 10.—Percentage (%) of respondents who traveled with spouse, children, friends, participants, spectators, or staff to the tournament.

Stakeholder	Spouse	Children	Friends	Participants	Spectators	Staff
Participants (n = 162)	14.0 ^Y	2.4 ^Y	29.9	52.4 ^Z	0	0
Spectators (n = 40)	39.0 ^Y	7.3 ^Y	24.4	12.2 ^Y	4.9	0

^{Y, Z}Values in the same column with different letters are significantly ($P < 0.05$) different.

TABLE 11.—Percentage (%) of respondents that had previous tournament experience, the mean number of the year's respondents had been fishing, and the mean number of days they fished at Lake Fork during the previous 12 months.

Stakeholder	Had previous tournament experience (% of respondents)	Years fishing (mean)	Days fishing at Lake Fork during previous 12 months (mean)
Participants (n = 164)	94.5	29.5	36.8 ^Z

Spectators (n = 43)	95.1	32.9	64.8 ^Y
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^{X, Y, Z}Values in the same column with different letters are significantly ($P < 0.05$) different.

TABLE 12.—Percentage (%) of spectators that had a valid Texas fishing license and had fished at Lake Fork and species preference.

	Had a valid Texas license	Had fished at Lake Fork	Species preferences	
			Bass	Crappie
Spectators	95.2	92.9	92.9	7.1

TABLE 13.—Percentage (%) of participants that had fished in prior tournaments and the mean number of previous and planned tournaments.

Stakeholders	Had fished in a previous tournament	Tournaments fished during past 12 months		Planned tournaments during the next 12 months	
		Inside Texas	Outside Texas	Inside Texas	Outside Texas
Participants	94.5	10	1	10	1
Spectators	95.1	6	1	6	1

TABLE 14.—Percentage (%) of respondents indicating their skill as an angler when compared with other anglers.

Stakeholder	Less skilled	Equally skilled	More skilled
Participants (n = 164)	6.7	67.7	25.6
Spectators (n = 43)	7.5	60.0	32.5

TABLE 15.—Percentage (%) of respondents by membership in a fishing club or organization.

Stakeholder	Yes	No
Participants (n = 163)	48.2	51.8
Spectators (n = 42)	36.6	63.4

TABLE 16.—Percentage (%) of respondents indicating their level of satisfaction with their tournament experience.

Stakeholder	Not at all satisfied	Slightly satisfied	Moderately satisfied	Very satisfied	Extremely satisfied
Participants (n = 164)	9.3	8.0	21.6	37.0	24.1
Spectators (n = 43)	40.5	10.8	5.4	24.3	18.9

TABLE 17.—Percentage (%) of participants aware of actions that can help keep bass alive during tournaments and the percentage (%) that routinely took action.

Statement	% that are aware of the action	% that routinely take the action
Occasionally refreshing the water in your live-well	98.8	98.8
Operating your live-well aerators continuously	96.3	91.9
Adding salt or commercially available additives to live-wells	90.9	85.1
Adding fresh water to your holding bag during weigh-in	90.9	87.0
Adding ice to your live-well during warm weather months	97.0	83.8
Handling the fish as little as possible	99.4	99.4

TABLE 18.—Percentage (%) of responding participants indicating the importance of reasons for making the decision to fish in the October 9-10 tournament.

Reasons for participating in October 9-10 Lake Fork tournament	Not at all or slightly important	Moderately important	Very or extremely important
For the excitement of competing against other anglers	12.2	22.0	65.8
For the opportunity to win money and prizes	13.5	22.7	63.8
Because of my interest in assisting with TPWD Inland Fisheries research	11.0	26.2	62.8
Because I knew the tournament was slot-limit exempt	19.5	23.8	56.7
For the opportunity to catch a trophy bass	25.6	23.8	50.6
For the opportunity to fish at Lake Fork	34.2	28.1	37.7
To be around other tournament anglers	39.3	30.1	30.7
Because the tournament was close to my home	51.8	24.4	23.7
Because of the quality of lodging and restaurants in the Lake Fork area	57.3	27.4	15.3

TABLE 19.—Percentage (%) of spectators indicating the importance of reasons for making the decision to attend the October 9-10 tournament.

Reason for attending the October 9-10 Lake Fork tournament	Not or slightly important	Moderately important	Very or extremely important
Because I know the tournament was slot-limit exempt	24.4	4.9	70.7
Because of my interest in TPWD Inland Fisheries research	26.2	19.1	54.7
Because I expected to see large fish at the weigh-in	45.0	17.5	37.5
Because I expected to see a lot of fish at the weigh-in	47.5	17.5	35.0
Because I just happened to be in the area	51.2	17.1	31.7
To be around other tournament anglers and friends	80.0	12.5	7.5
Because of the quality of lodging and restaurants in the Lake Fork area	82.5	10.0	7.5

TABLE 20.—Percentage (%) of responding participants who practice-fished before the October 9-10 tournament, the mean number of practice days, and mean number of total fish caught.

	Practice fished	Number of practice days (mean)	Bass caught (all practice days combined)
Participants	53.7	2	13

TABLE 21.—Percentage (%) of responding participants indicating agreement with statements about the October 9-10 tournament.

Statement	Disagree ¹	Neutral	Agree ²
Weigh-in procedures were reasonable	1.8	6.7	91.5
Tournament was well organized	6.2	2.5	91.3
Inland Fisheries research did not affect my fishing	4.9	4.3	90.8
Tournament rules were reasonable	5.6	5.4	89.0
I would participate in another similar type tournament	8.6	3.7	87.7
Boat ramp access and parking were adequate	5.5	11.0	83.5
I would have fished the tournament even if it had not been slot-limit exempt	29.9	18.9	51.2
I caught as many fish as I had expected	79.9	8.5	11.6
There were more anglers on the lake than I had expected	67.5	23.3	9.2
I caught fish as large as I had expected	85.4	6.1	8.5

¹Includes participants that responded strongly disagree or disagree.

²Includes participants that responded strongly agree or agree.

TABLE 22.—Percentage (%) of spectators indicating their agreement with statements about the October 9-10 tournament.

Statement	Disagree ¹	Neutral	Agree ²
Tournament was well organized	26.2	14.3	59.5
I would attend another similar type tournament	33.4	9.5	57.1
I saw fish as large as I had expected	42.8	16.7	40.5
I would have attended the tournament even if it had not been slot-limit exempt	59.5	9.5	31.0
I saw as many fish as I had expected	69.0	9.5	21.5

¹Includes spectators that responded strongly disagree or disagree.

²Includes participants that responded strongly agree or agree.

TABLE 23.—Percentage (%) of respondents indicating their level of satisfaction with the October 9-10 tournament compared with tournaments they had experienced in the past.

Stakeholder	More satisfied	Less satisfied	Satisfied about the same
Participants (n = 164)	28.6	11.0	60.4
Spectators (n = 43)	10.5	36.8	52.6

TABLE 24.—Percentage (%) of respondents indicating their level of agreement with the statement “There are things I can do to influence the decisions made by TPWD Inland Fisheries.”

Stakeholder	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Participants (n = 164)	2.0	17.7	28.1	37.3	15.0
Spectators (n = 43)	10.0	22.5	12.5	40.0	15.0

TABLE 25.—Percentage (%) of respondents indicating they had taken actions in the past in response to a fishery management issue they opposed.

Action	Had taken the action in the past		Would take the action if an exemption was granted	
	Participants (n = 50)	Spectators (n = 29)	Participants (n = 51)	Spectators (n = 29)
Discuss it with others	72.6	72.4	82.0	89.7
Fish less often	17.7	13.8	28.0	41.4
Fish more often	15.7	3.6	32.0	10.3
Contact TPWD	19.6 ^Y	41.4 ^Z	36.0 ^W	65.5 ^X
Contact a fishing organization	21.6 ^Y	41.4 ^Z	30.0 ^W	55.2 ^X
Contact an elected official	7.8 ^Y	34.5 ^Z	32.0 ^W	62.1 ^X
Help form an organization	3.9 ^Y	24.1 ^Z	18.0 ^W	48.3 ^X
Refuse to purchase a license	NA	NA	10.0	0.0

^{W, X}Values in the same row bearing these letters are significantly ($P < 0.05$) different between participants and spectators.

^{Y, Z}Values in the same row bearing these letters are significantly ($P < 0.05$) different between participants and spectators.

TABLE 26.—Percentage (%) of respondents indicating their level of support for requiring that a portion of tournament fees be earmarked for bass research and management activities.

Stakeholder	Strongly oppose	Oppose	Neutral	Support	Strongly support
Participant (n = 164)	7.9	3.7	7.3	26.8	54.3
Spectator (n = 43)	7.1	2.4	11.9	33.3	45.2

TABLE 27.—Number of respondents having their current residence in the local area (Hopkins, Rains and Wood counties) surrounding Lake Fork, non-local counties of Texas, and out-of-state.

Stakeholder	Local	Non-local	Out-of-state
Participants	30	121	14
Spectators	17	19	5
Tournament Staff	0	2	1

TABLE 28.—Average trip expenditures of participants, spectators, and tournament staff in the local area (Hopkins, Rains and Wood counties), non-local area, and out-of-state by the area where they live. Values are rounded to the nearest dollar.

Stakeholder subgroup	Average dollars spent in the Lake Fork area	Average dollars spent in other areas of Texas	Average dollars spent outside of Texas
Participants			
Local (n = 30)	135	16	0
Non-local (n = 121)	213	54	0
Out-of-state (n = 14)	355	45	34
Spectators			
Local (n = 17)	24	1	0
Non-local (n = 19)	255	26	0
Out-of-state (n = 5)	212	0	6
Tournament Staff			
Non-local (n = 1)	450	35	0
Out-of-state (n = 2)	105	20	80

TABLE 29.—Total economic impact to the Lake Fork area and to Texas of a proposed slot-length-limit exemption for Lake Fork during tournaments.

Stakeholder	Total impact to local area (dollars)	New economic impact to Texas (dollars)
Participants	101,061	26,400
Spectators	23,921	8,904
Tournament staff	1,452	750
Total	126,434	36,054

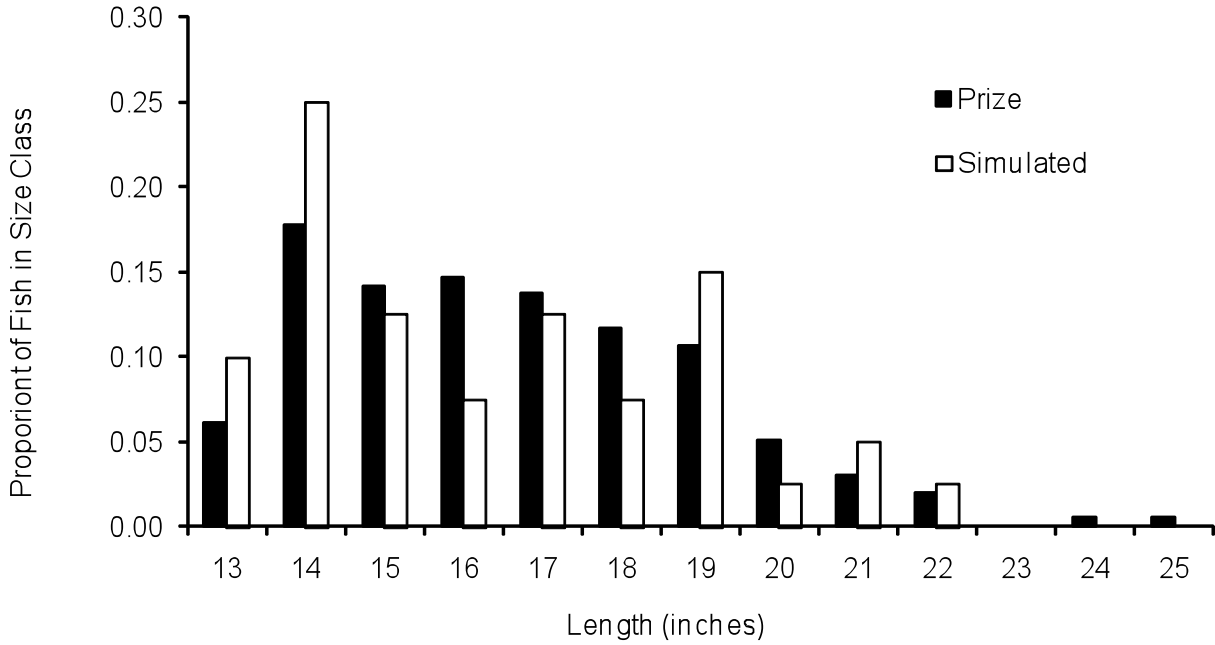


FIGURE 1.—Sizes of black bass brought to weigh-in by anglers in the prize and simulated tournaments.

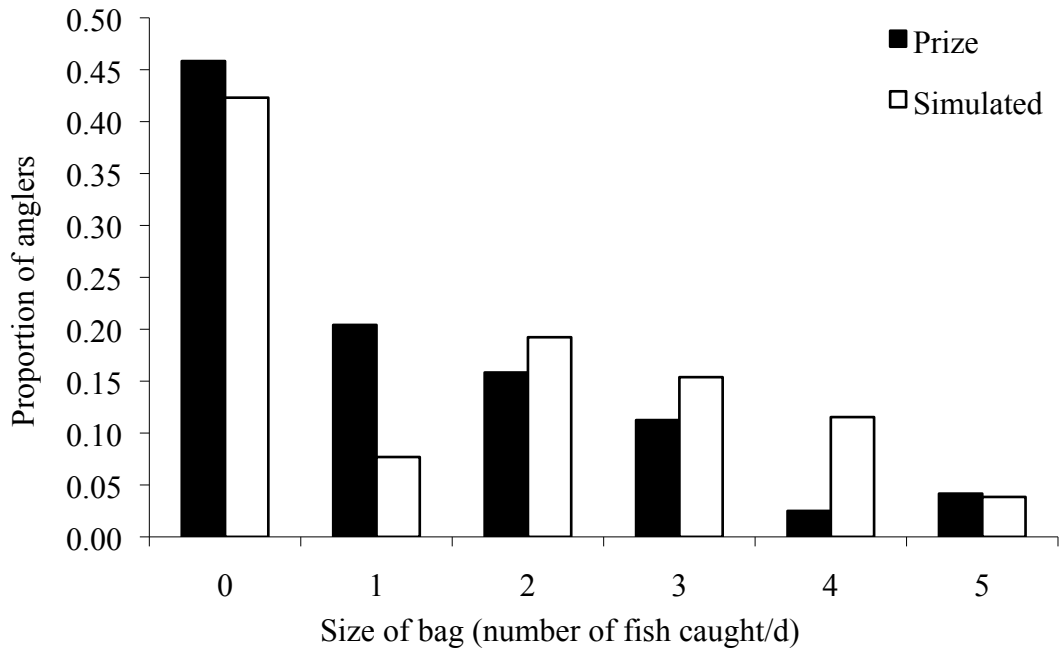


FIGURE 2.—Proportions of anglers in the simulated and prize tournaments that weighed-in given daily bag sizes of black bass.

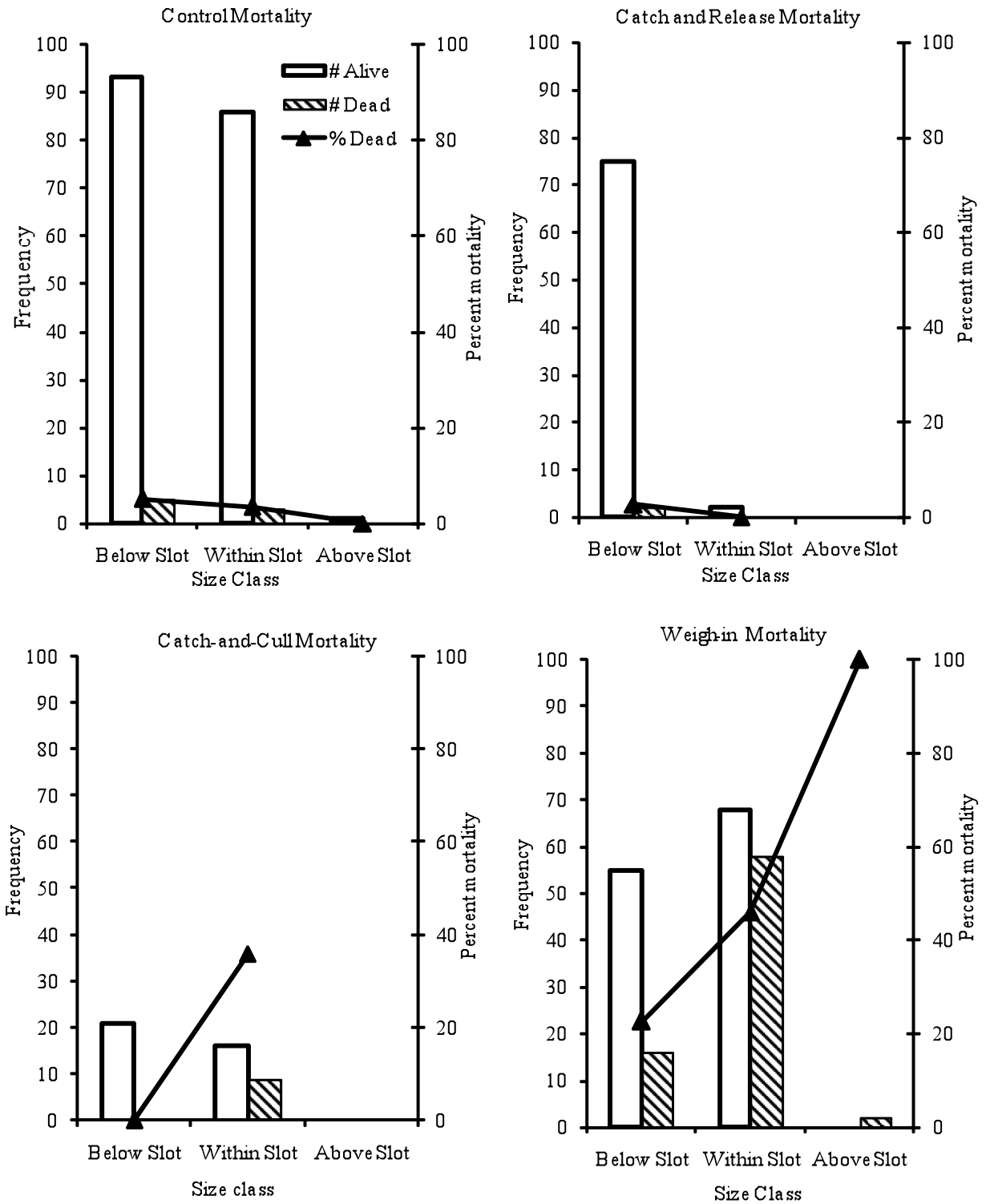


FIGURE 3.—Relationship between mortality rate and class size of control, catch-and-release, catch-and-cull, and weigh-in black bass. Below slot is less than 16 in, within slot is 16-24 in, and above slot is greater than 24 in.

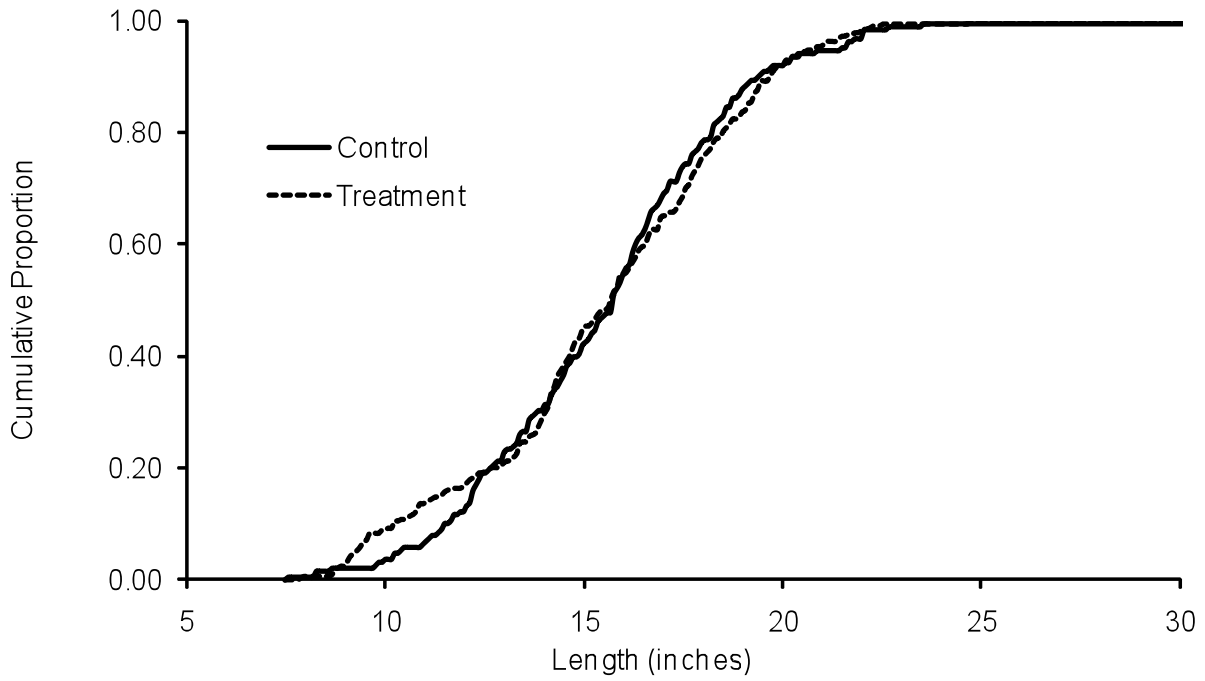


FIGURE 4.—Cumulative length frequency for control and treatment (catch-and-release, catch-and-cull, and weigh-in) fish.

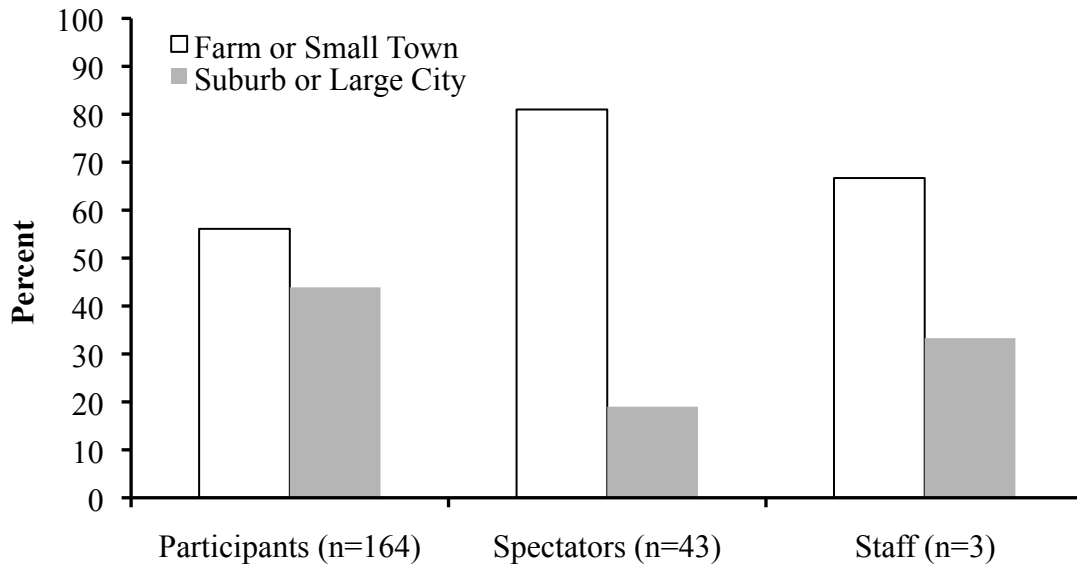


FIGURE 5.—Percent of respondents by type of area where they currently live.

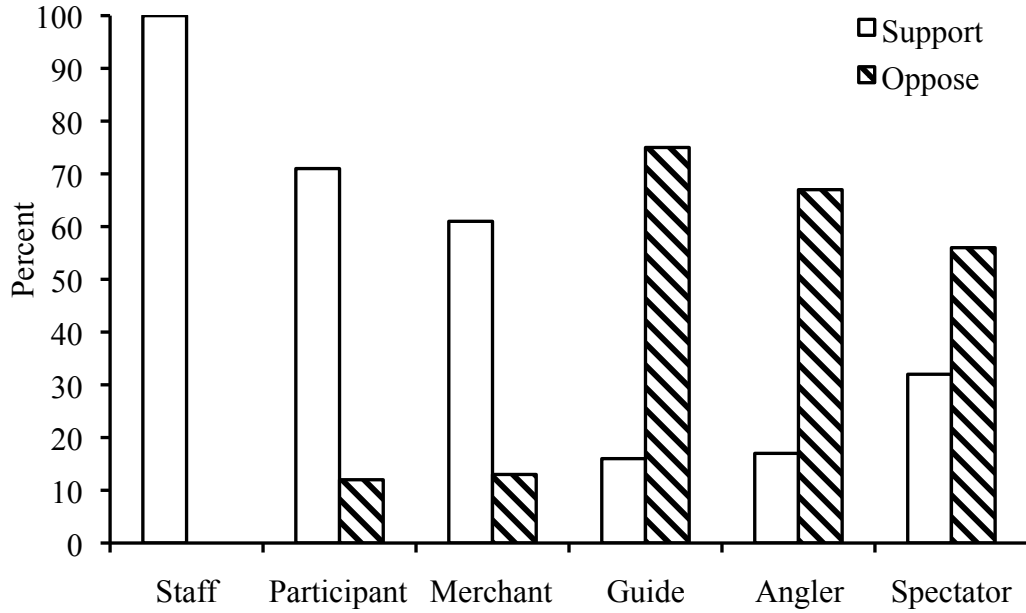


FIGURE 6.—Percent of stakeholders supporting or opposing exemptions from the slot-length-limit exemption for black bass tournaments on Lake Fork Reservoir.

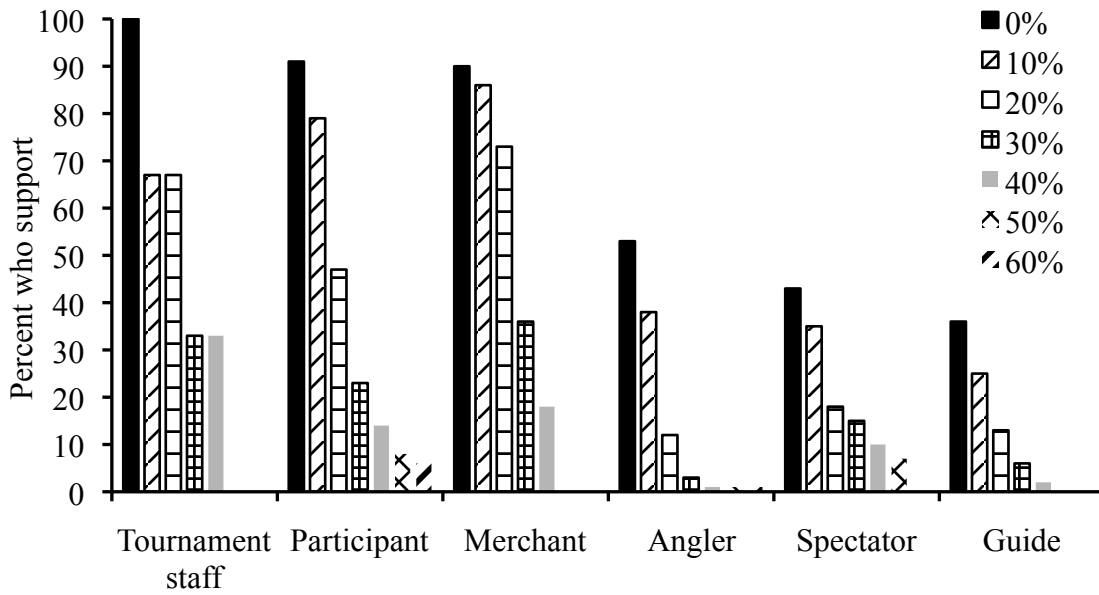


FIGURE 7.—Percent of stakeholders indicating support for slot-length-limit exemption for black bass tournaments on Lake Fork Reservoir if they were aware tournaments would cause different hypothetical levels of mortality.

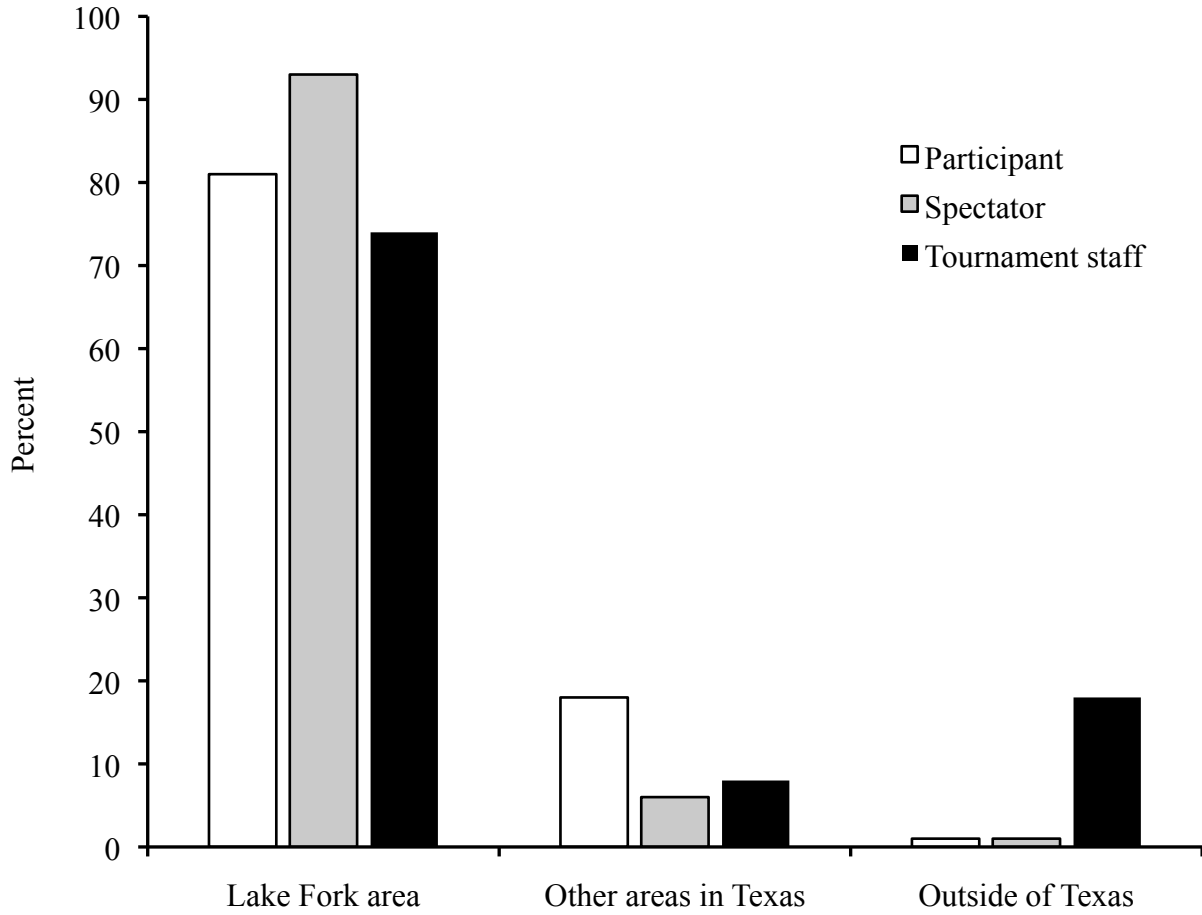


FIGURE 8.—Percent of money spent by participants, spectators, and tournament staff in the Lake Fork area, other areas of Texas, and outside Texas.

Appendix 1

A. TOURNAMENT PARTICIPANTS



Life's better outside.®

**LAKE FORK RESERVOIR
TOURNAMENT EXEMPTION SURVEY
TEXAS PARKS AND WILDLIFE DEPARTMENT
DIVISION OF INLAND FISHERIES**

If “YES”, how many bass did you catch during all of your practice days combined? _____ Bass Total

8. Please indicate your support or opposition for allowing an exemption from the slot length limit for bass tournaments held at Lake Fork. An exemption means that anglers fishing in tournaments at Lake Fork could temporarily hold slot limit bass until "weighed-in" at a tournament event. Bass would be released following the "weigh-in". (Circle one)

Strongly Opposed Opposed Neutral Support Strongly Support

If you responded “**STRONGLY OPPOSED**”, “**OPPOSED**” or “**NEUTRAL**” to question 8, please complete questions 9 and 10.

If you responded “**SUPPORT**” or “**STRONGLY SUPPORT**” to question 8, please skip to question 11.

9. In the past, have you ever taken the following actions in response to an issue you **opposed**? (Circle either “YES” or “NO” for each action).

Discussed any issue with others	Yes	No
Fished at a lake less often as a result of tournaments	Yes	No
Fished at a lake more often as a result of tournaments	Yes	No
Contacted the responsible agency to express your opposition	Yes	No
Contacted an organization to express your opposition	Yes	No
Contacted an elected official to express your opposition	Yes	No
Helped form an organization to oppose the responsible agency	Yes	No

10. If regulations were changed to allow slot length limit exempt bass tournaments at Lake Fork, would you take any of the following actions to **oppose** the change? (Circle either “YES” or “NO” for each action)

Discuss the Lake Fork regulation change with others	Yes	No
Fish less often at Lake Fork	Yes	No
Fish more often at Lake Fork	Yes	No
Contact Texas Parks and Wildlife to express your opposition	Yes	No
Contact a fishing organization to express your opposition	Yes	No
Contact an elected official to express your opposition	Yes	No
Help form an organization to oppose Texas Parks and Wildlife regulation change	Yes	No
Refuse to purchase a fishing license next year	Yes	No

11. How well do you agree with the statement that “there are things I can do to influence the decisions made by TPW Inland Fisheries”? (Circle one)

Strongly Disagree Disagree Neutral Agree Strongly Agree

12. Were you awarded a prize at the October 9-10, 1999 Lake Fork Tournament? (Circle one)

Yes No

13. There is always some mortality associated with catching fish, even when they are released. (mortality means the death of a fish) Please indicate your level of support or opposition for allowing an exemption from the slot length limit for bass tournaments at Lake Fork if you were aware that tournaments would result in the following levels of bass mortality. (Circle one response for each level of mortality)

If the number of bass mortalities caused by slot length limit exempted bass tournaments was:	Strongly Oppose	Oppose	Neutral	Support	Strongly Support
0 mortalities per 100 bass	1	2	3	4	5
10 mortalities per 100 bass	1	2	3	4	5
20 mortalities per 100 bass	1	2	3	4	5
30 mortalities per 100 bass	1	2	3	4	5
40 mortalities per 100 bass	1	2	3	4	5
50 mortalities per 100 bass	1	2	3	4	5
60 mortalities per 100 bass	1	2	3	4	5
70 mortalities per 100 bass	1	2	3	4	5
80 mortalities per 100 bass	1	2	3	4	5
90 mortalities per 100 bass	1	2	3	4	5
100 mortalities per 100 bass	1	2	3	4	5

14. Please indicate your level of agreement with the following statements about the October 9-10 bass fishing tournament at Lake Fork. (Circle one response for each statement)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The tournament was well organized	1	2	3	4	5
TPW Inland Fisheries tournament research did not affect my fishing success	1	2	3	4	5
There were more anglers on the lake than I expected	1	2	3	4	5
Boat ramp access and parking was sufficient	1	2	3	4	5
I would participate in another similar type tournament at Lake Fork	1	2	3	4	5
I caught as many fish as I had expected during the slot length limit exempt Lake Fork tournament	1	2	3	4	5
I caught fish as large as I had expected during the slot length limit exempt Lake Fork tournament	1	2	3	4	5
The weigh-in procedures were reasonable	1	2	3	4	5
The tournament rules were reasonable	1	2	3	4	5
I would have fished the Lake Fork tournament even if it would not have been exempt from the slot length limit	1	2	3	4	5

15. Had you ever competed in a bass fishing tournament prior to the October 9-10, 1999 Lake Fork tournament ? (Circle one)

Yes

(If "YES" please complete questions 16, 17 and 18)

No

(If "NO" please skip to question 19)

16. How many bass fishing tournaments did you compete in during the **last** 12 months, excluding the October 9-10, 1999 tournament?
 In the State of Texas _____ Outside the State of Texas _____

17. Please indicate how satisfied you were with the October 9-10 Lake Fork bass fishing tournament compared to other bass fishing tournaments you have competed in? (Circle one)

More satisfied **Less Satisfied** **Satisfied about the same**
1 **2** **3**

18. Was this the first bass fishing tournament you have competed in at Lake Fork? (Circle one)
 Yes No

19. How many bass fishing tournaments in **Texas** do you plan on competing in during the next 12 months?
 Tournaments in Texas _____

20. How many more bass fishing tournaments would you plan on competing in during the next 12 months (in addition to the total in question 16) if tournaments at Lake Fork were exempt from slot length limit?
 Additional Tournaments _____

21. Please indicate the importance of the following reasons for making the decision to participate in the October 9-10 Lake Fork tournament. (Circle one response for each reason)

	Not at all important	Slightly important	Moderately important	Very important	Extremely important
For the opportunity to fish at Lake Fork	1	2	3	4	5
Because the tournament was close to my home	1	2	3	4	5
For the opportunity to win money and prizes	1	2	3	4	5
Because I knew that the tournament would be slot length limit exempt	1	2	3	4	5
To be around other tournament anglers and friends	1	2	3	4	5
Because the entry fee was reasonable	1	2	3	4	5
Because of the quality of lodging and restaurants in the Lake Fork area	1	2	3	4	5
Because of my interest in assisting with TPW Inland Fisheries research	1	2	3	4	5

28. How many years have you been fishing? _____ Years

29. How do you compare your fishing abilities to other freshwater anglers? (Circle one)

Less Skilled

Equally Skilled

More Skilled

30. Are you a member of a fishing club or organization? (Circle one)

Yes

No

31. How would you describe your current residence? (Circle one)

Farm/rural non-farm area

Small town

Suburb of a large city

Large city

32. Did the person to whom this survey was address complete the survey? (Circle one)

Yes

No

33. Please use this space to provide us with any comments you may have.

B. Tournament Spectators

I. We are interested in the economic aspects of Lake Fork tournaments. Your answers to the following questions are very important to us. Please provide your most accurate estimates for the following questions.

1. How many miles did you travel from your home (one-way) to get to Lake Fork? _____ Miles
2. How many days did you spend on this trip to Lake Fork? _____ Day(s)
3. Did the following people travel with you to the October 9-10 Lake Fork tournament?

Circle one

Spouse	Yes	No	If "YES" how many
Children	Yes	No	_____
Friends/other family	Yes	No	_____
Other Contestants	Yes	No	_____

4. On your trip to Lake Fork, how much did **YOU** spend on the following items **IN TEXAS**?

	Within the 35 miles of Lake Fork	Elsewhere in Texas
Automobile transportation (fuel rental cars, repairs, etc...)	\$	\$
Other transportation (airplane, etc...)	\$	\$
Entrance or parking fees	\$	\$
Boat operation (fuel, oil, service, etc...)	\$	\$
Lodging (hotel, camping site, resort rental, etc...)	\$	\$
Restaurant meals	\$	\$
Groceries (food, drink, ice, etc...)	\$	\$
Bait and tackle (purchased during this trip)	\$	\$
Other expenses (please list below)	\$	\$
	\$	\$
If you traveled from another state, how much did you spend outside Texas ?	\$	

5. How much money would you have spent (over the total costs in question 4) before the cost would have prevented you from making this trip to fish in the Lake Fork tournament? \$ _____

II. Your opinions are important to us. For questions 6 through 19, please tell us your attitudes, opinions and preferences concerning Lake Fork.

6. Overall, how satisfied were you with the October 9-10 Lake Fork Tournament experience? (Circle one)

Not at all Satisfied Slightly Satisfied Moderately Satisfied Very Satisfied Extremely Satisfied

7. Please indicate your support or opposition for allowing an exemption from the slot length limit for bass tournaments held at Lake Fork. An exemption means that anglers fishing in tournaments at Lake Fork could temporarily hold slot length bass until “weighed-in” at a tournament event. Bass would be released following the “weigh-in”. (Circle one)
- Strongly Opposed Opposed Neutral Support Strongly Support

If you responded “**STRONGLY OPPOSED**”, “**OPPOSED**” or “**NEUTRAL**” to question 7, please complete questions 8 and 9.

If you responded “**SUPPORT**” or “**STRONGLY SUPPORT**” to question 7, please skip to question 10.

8. In the past, have you ever taken the following actions in response to an issue you **opposed**? (Circle either “YES” or “NO” for each action).

Discussed any issue with others	Yes	No
Fished at a lake less often as a result of tournaments	Yes	No
Fished at a lake more often as a result of tournaments	Yes	No
Contacted the responsible agency to express your opposition	Yes	No
Contacted an organization to express your opposition	Yes	No
Contacted an elected official to express your opposition	Yes	No
Helped form an organization to oppose the responsible agency	Yes	No

9. If regulations were changed to allow slot length limit exempt bass tournaments at Lake Fork, would you take any of the following actions to **oppose** the change? (Circle either “YES” or “NO” for each action)

Discuss the Lake Fork regulation change with others	Yes	No
Fish less often at Lake Fork	Yes	No
Fish more often at Lake Fork	Yes	No
Contact Texas Parks and Wildlife to express your opposition	Yes	No
Contact a fishing organization to express your opposition	Yes	No
Contact an elected official to express your opposition	Yes	No
Help form an organization to oppose Texas Parks and Wildlife regulation change	Yes	No
Refuse to purchase a fishing license next year	Yes	No

10. How well do you agree with the statement that “there are things I can do to influence the decisions made by TPW Inland Fisheries”? (Circle one)
- Strongly Disagree Disagree Neutral Agree Strongly Agree

11. Have you ever attended a bass fishing tournament prior to the October 9-10 Lake Fork tournament? (Circle one)

Yes No
 (If “**YES**” please complete questions 12, 13 and 14) (If “**NO**” please skip to question 15)

12. How many bass fishing tournaments did you attend in during the **last** 12 months?
 In the State of Texas _____ Outside the State of Texas _____

13. Please indicate how satisfied you were with the October 9-10 Lake Fork bass fishing tournament compared to other bass fishing tournaments you have attended? (Circle one)

More satisfied
1

Less Satisfied
2

Satisfied about the same
3

14. Was this the first bass fishing tournament you have attended in at Lake Fork? (Circle one)

Yes

No

15. How many bass fishing tournaments in **Texas** do you plan on attending in during the next 12 months?
Tournaments in Texas _____

16. How many more bass fishing tournaments would you plan on attending during the next 12 months (in addition to the total in question 12) if tournaments at Lake Fork were exempt from slot length limit?
Tournaments at Lake Fork _____

17. Please indicate the importance of the following reasons for making the decision for making decision to attend the October 9-10 Lake Fork tournament. (Circle one response for each reason)

	Not at all important	Slightly important	Moderately important	Very important	Extremely important
Because I just happened to be in the area during the tournament	1	2	3	4	5
Because the tournament was close to my home	1	2	3	4	5
Because I knew that the tournament would be slot length limit exempt	1	2	3	4	5
To be around other tournament anglers and friends	1	2	3	4	5
Because of the quality of lodging and restaurants in the Lake Fork area	1	2	3	4	5
Because I expected to see large fish at the weigh-in	1	2	3	4	5
Because I expected to see a lot of fish at the weigh-in	1	2	3	4	5
Because of my interest in TPW Inland Fisheries research	1	2	3	4	5

18. There is always some mortality associated with catching fish, even when they are released. (mortality means the death of a fish) Please indicate your level of support or opposition for allowing an exemption from the slot length limit for bass tournaments at Lake Fork if you were aware that tournaments would result in the following levels of bass mortality. (Circle one response for each level of mortality)

If the number of bass mortalities caused by slot length limit exempted bass tournaments was:	Strongly Oppose	Oppose	Neutral	Support	Strongly Support
0 mortalities per 100 bass	1	2	3	4	5
10 mortalities per 100 bass	1	2	3	4	5
20 mortalities per 100 bass	1	2	3	4	5
30 mortalities per 100 bass	1	2	3	4	5
40 mortalities per 100 bass	1	2	3	4	5
50 mortalities per 100 bass	1	2	3	4	5
60 mortalities per 100 bass	1	2	3	4	5
70 mortalities per 100 bass	1	2	3	4	5
80 mortalities per 100 bass	1	2	3	4	5
90 mortalities per 100 bass	1	2	3	4	5
100 mortalities per 100 bass	1	2	3	4	5

19. Please indicate your level of agreement with the following statements about the October 9-10 bass fishing tournament at Lake Fork. (Circle one response for each statement)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The tournament was well organized	1	2	3	4	5
I would attend another similar type tournament at Lake Fork	1	2	3	4	5
I saw as many fish as I had expected weighed in during the slot exempt Lake Fork tournament	1	2	3	4	5
I saw fish as large as I had expected weighed in during the slot exempt Lake Fork tournament	1	2	3	4	5

III. The following questions will help us understand the types of people who were interested in the October 9-10 Lake Fork tournament.

20. Are you (Circle one)

Black

White

Hispanic

Other (please specify)

21. What is your approximate gross annual income (dollars)? (Circle one)

Under \$10,000	\$30 - \$40,000	\$60 - \$70,000	\$90 - \$100,000
\$10 - \$20,000	\$40 - \$50,000	\$70 - \$80,000	Over \$100,000
\$20 - \$30,000	\$50 - \$60,000	\$80 - \$90,000	

22. What is your age? _____ Years

23. Are you? (Circle one)

Male

Female

24. Do you have a valid Texas freshwater fishing license? (Circle one)

Yes

No

25. Have you ever fished at Lake Fork?

Yes

No

(If "NO" please skip to questions 26 and 27)

26. How many days did you go fishing at Lake Fork in the last 12 months? _____ Days

27. How many years have you been fishing at Lake Fork? _____ Years

28. How many years have you been fishing? _____ Years

29. What species do you prefer to fish for? (Circle one)

Bass

Crappie

Catfish

Sunfish

Other _____

30. How do you compare your fishing abilities to other freshwater anglers? (Circle one)

Less Skilled

Equally Skilled

More Skilled

31. Are you a member of a fishing club or organization? (Circle one)

Yes

No

32. How would you describe your current residence? (Circle one)

Farm/rural non-farm area

Small town

Suburb of a large city

Large city

33. Did the person to whom this survey was address complete the survey? (Circle one)

Yes

No

34. Please use this space to provide us with any comments you may have.

C. Lake Fork Business Owners

I. We are interested in the economic aspects of Lake Fork tournaments. Your answers to the following questions are very important to us. Please answer the following questions as accurately as possible.

1. Are you the owner of the business where this survey was received? (Circle one)
Yes No

2. Are you aware that Texas Parks & Wildlife (TPW) Inland Fisheries conducted an experimental slot length limit exempt bass tournament at Lake Fork on October 9-10, 1999? (Circle one)
Yes No

If "YES" did you expect the tournament to increase your direct business income while the tournament was taking place? (Circle one)
Yes No

3. Did your business receive any direct income as a result of the slot length limit exempt bass tournament that was held at Lake Fork on October 9-10, 1999? (Circle one)
Yes No

If "YES", please estimate the gross direct income your business received as a result of these tournaments
\$ _____

4. Do you think your business received any indirect income as a result of the slot length limit exempt bass tournament that was held at Lake Fork on October 9-10, 1999? (Circle one)
Yes No

5. How many miles from Lake Fork is your business located? _____ Miles

6. Please indicate how important Lake Fork fishing activities are to the overall success of your business. (Circle one)

Not at all important Slightly important Moderately important Very important Extremely important

7. What percentage of your business's annual gross income do you attribute to Lake Fork fishing related activities? _____ %

8. Would you describe your business as: (Circle one)

Retail Hotel/Lodging Other service related industry
Wholesale Restaurant
Manufacturing Marina/boat repair Other: _____

9. How many years has your current business been in the Lake Fork area? _____ Years

10. How many people does your business employ? _____ People

II. Your opinions are important to us. The following questions will help us understand your attitudes, opinions and preferences concerning Lake Fork.

11. Do you support or oppose allowing an exemption from the slot length limit for bass tournaments held at Lake Fork? An exemption means that anglers fishing in tournaments at Lake Fork could temporarily hold slot length limit bass. Bass would be released following the “weigh-in”. (Circle one)
 Strongly Opposed Opposed Neutral Support Strongly Support

If you responded “**STRONGLY OPPOSED**”, “**OPPOSED**” or “**NEUTRAL**” to question 11, please complete questions 12 and 13.

If you responded “**SUPPORT**” or “**STRONGLY SUPPORT**” to question 11, please skip to question 14.

12. If regulations were changed to allow slot length limit exempt bass tournaments at Lake Fork, would you take any of the following actions to **oppose** the change? (Circle either “YES” or “NO” for each action)

Discuss the Lake Fork regulation change with others	Yes	No
Fish less often at Lake Fork	Yes	No
Fish more often at Lake Fork	Yes	No
Contact Texas Parks and Wildlife to express your opposition	Yes	No
Contact a fishing organization to express your opposition	Yes	No
Contact an elected official to express your opposition	Yes	No
Help form an organization to oppose Texas Parks and Wildlife regulation change	Yes	No
Refuse to purchase a fishing license next year	Yes	No

13. In the past, have you ever taken any of the following actions in response to an issue you opposed? (Circle either “YES” or “NO” for each action)

Discussed any issue with others	Yes	No
Fished at a lake less often	Yes	No
Fished at a lake more often	Yes	No
Contacted the responsible agency to express your opposition	Yes	No
Contacted an organization to express your opposition	Yes	No
Contacted an elected official to express your opposition	Yes	No
Helped form an organization to oppose the responsible agency	Yes	No

14. How well do you agree with the statement that “there are things I can do to influence the decisions made by TPW Inland Fisheries”? (Circle one)
 Strongly Disagree Disagree Neutral Agree Strongly Agree

15. There is always some mortality associated with catching fish, even when they are released. (mortality means the death of a fish) Please indicate your level of support or opposition for allowing an exemption from the slot length limit for bass tournaments at Lake Fork if you were aware that tournaments would result in the following levels of bass mortality. (Circle one response for each level of mortality)

If the number of bass mortalities caused by slot length limit exempted bass tournaments was:	Strongly Oppose	Oppose	Neutral	Support	Strongly Support
0 mortalities per 100 bass	1	2	3	4	5
10 mortalities per 100 bass	1	2	3	4	5
20 mortalities per 100 bass	1	2	3	4	5
30 mortalities per 100 bass	1	2	3	4	5
40 mortalities per 100 bass	1	2	3	4	5
50 mortalities per 100 bass	1	2	3	4	5
60 mortalities per 100 bass	1	2	3	4	5
70 mortalities per 100 bass	1	2	3	4	5
80 mortalities per 100 bass	1	2	3	4	5
90 mortalities per 100 bass	1	2	3	4	5
100 mortalities per 100 bass	1	2	3	4	5

16. Please indicate your level of agreement with the following statements. (Circle one response for each statement)

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Allowing slot length limit exempt bass tournaments at Lake Fork will benefit the local economy	1	2	3	4	5
Allowing slot length limit exempt bass tournaments at Lake Fork will hurt the local economy	1	2	3	4	5
Additional businesses would open if regulations were changed to allow slot length limit exempt bass tournaments at Lake Fork	1	2	3	4	5
Personally, I would like the opportunity to fish a slot length limit exempt bass tournament at Lake Fork	1	2	3	4	5
Slot length limit exempt bass tournaments are unfair to non-tournament anglers	1	2	3	4	5
Allowing slot length limit exempt tournaments at Lake Fork will reduce the number of fish I catch at Lake Fork	1	2	3	4	5
Allowing slot length limit exempt tournaments at Lake Fork will reduce the size of fish I catch at Lake Fork	1	2	3	4	5
Allowing slot length limit exempt tournaments at Lake Fork will cause overcrowding on the water at Lake Fork	1	2	3	4	5
My business made special preparations in anticipation of the TPW experimental slot length limit exempt bass tournaments	1	2	3	4	5
My business would suffer if slot length limit	1	2	3	4	5

exempt bass tournaments were allowed at Lake Fork					
My business would suffer if slot length limit exempt bass tournaments were not allowed at Lake Fork	1	2	3	4	5
My business experienced more economic impact than I had expected from the experimental Lake Fork bass tournaments	1	2	3	4	5
My business experienced less economic impact than I had expected from the experimental Lake Fork bass tournaments	1	2	3	4	5

17. Do you think that the local economy at Lake Fork (Hopkins, Rains and Wood counties) has been declining recently? (Circle one)

Yes

No

If “YES” how long has it been declining? _____

If “YES” what do you think is causing the decline? _____

III. The following questions will help us understand the types of people who are interested in Lake Fork.

18. Do you own Lake Fork “lakefront” property?

Yes

No

If “NO”, how many miles is your current resident from Lake Fork? _____ Miles

19. Are you? (Circle one)

Black

White

Hispanic

Other (please specify) _____

20. Are you? (Circle one)

Male

Female

21. What is your approximate gross annual income (dollars)? (Circle one)

Under \$10,000	\$30 - \$40,000	\$60 - \$70,000	\$90 - \$100,000
\$10 - \$20,000	\$40 - \$50,000	\$70 - \$80,000	Over \$100,000
\$20 - \$30,000	\$50 - \$60,000	\$80 - \$90,000	

22. What is your age? _____ Years

23. Are you a licensed freshwater Texas angler? (Circle one)

Yes

No

24. Do you participate in bass fishing tournaments? (Circle one)

Yes

No

25. How many days did you go fishing at Lake Fork in the last 12 months? _____ Days

26. How many years have you been fishing at Lake Fork? _____ Years

27. How many years have you been fishing? _____ Years

28. What species do you prefer to fish for? (Circle one)

Bass

Crappie

Catfish

Sunfish

Other

29. How do you compare your fishing abilities to other freshwater anglers? (Circle one)

Less Skilled

Equally Skilled

More Skilled

30. Are you a member of a fishing club or organization? (Circle one)

Yes

No

31. How would you describe your current residence? (Circle one)

Farm/rural non-farm area

Small town

Suburb of a large city

Large city

32. Do you have access to the Internet?

Yes

No

33. Did the person to whom this survey was addressed complete the survey? (Circle one)

Yes

No

34. Please use this space to provide us with any comments you may have.

Contacted an elected official to express your opposition	Yes	No
Helped form an organization to oppose the responsible agency	Yes	No

7. How well do you agree with the statement that “there are things I can do to influence the decisions made by TPW Inland Fisheries”? (Circle one)

Strongly Disagree Disagree Neutral Agree Strongly Agree

8. There is always some mortality associated with catching fish, even when they are released. (mortality means the death of a fish) Please indicate your level of support or opposition for allowing an exemption from the slot length limit for bass tournaments at Lake Fork if you were aware that tournaments would result in the following levels of bass mortality. (Circle one response for each level of mortality)

If the number of bass mortalities caused by slot length limit exempted bass tournaments was:	Strongly Oppose	Oppose	Neutral	Support	Strongly Support
0 mortalities per 100 bass	1	2	3	4	5
10 mortalities per 100 bass	1	2	3	4	5
20 mortalities per 100 bass	1	2	3	4	5
30 mortalities per 100 bass	1	2	3	4	5
40 mortalities per 100 bass	1	2	3	4	5
50 mortalities per 100 bass	1	2	3	4	5
60 mortalities per 100 bass	1	2	3	4	5
70 mortalities per 100 bass	1	2	3	4	5
80 mortalities per 100 bass	1	2	3	4	5
90 mortalities per 100 bass	1	2	3	4	5
100 mortalities per 100 bass	1	2	3	4	5

9. Please indicate your level of agreement with the following statements. (Circle one response for each statement)

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Allowing slot length limit exempt bass tournaments at Lake Fork will benefit the local economy	1	2	3	4	5
Allowing slot length limit exempt bass tournaments at Lake Fork will hurt the local economy	1	2	3	4	5
Additional businesses would open if regulations were changed to allow slot length limit exempt bass tournaments at Lake Fork	1	2	3	4	5
Personally, I would like the opportunity to fish a slot length limit exempt bass tournament at Lake Fork	1	2	3	4	5
Slot length limit exempt bass tournaments are unfair to non-tournament anglers	1	2	3	4	5
Allowing slot length limit exempt tournaments at Lake Fork will reduce the number of fish I catch at Lake Fork	1	2	3	4	5
Allowing slot length limit exempt tournaments at Lake Fork will reduce the size of fish I catch at Lake Fork	1	2	3	4	5
Allowing slot length limit exempt	1	2	3	4	5

tournaments at Lake Fork will cause overcrowding on the water at Lake Fork					
--	--	--	--	--	--

10. Do you support or oppose a requirement that a portion of tournament fees be earmarked for bass research and management activities? (Circle one)
 Strongly Opposed Opposed Neutral Support Strongly Support

II. The following questions will help us understand the types of people who are interested in Lake Fork.

11. Do you own land in the Lake Fork area (Rains, Hopkins or Wood counties)? (Circle one)
 Yes No

If "YES", is the property lakefront? (Circle one)
 Yes No

12. Do you own a business in the Lake Fork area (Rains, Hopkins or Wood counties)? (Circle one)
 Yes No

13. Are you? (Circle one)
 Black White Hispanic Other (please specify)

14. Are you? (Circle one)
 Male Female

15. What is your approximate gross annual income (dollars)? (Circle one)

Under \$10,000	\$30 - \$40,000	\$60 - \$70,000	\$90 - \$100,000
\$10 - \$20,000	\$40 - \$50,000	\$70 - \$80,000	Over \$100,000
\$20 - \$30,000	\$50 - \$60,000	\$80 - \$90,000	

16. What is your age? _____ Years

Do you participate in fishing tournaments? (Circle one)

Yes No

17. How many days did you go fishing at Lake Fork in the last 12 months? _____ Days

18. How many years have you been fishing at Lake Fork? _____ Years

19. How many years have you been fishing? _____ Years

20. What species do you prefer to fish for? (Circle one)
 Bass Crappie Catfish Sunfish Other

21. How do you compare your fishing abilities to other freshwater anglers? (Circle one)
 Less Skilled Equally Skilled More Skilled

22. Are you a member of a fishing club or organization? (Circle one)

Yes

No

23. How would you describe your current residence? (Circle one)

Farm/rural non-farm area

Small town

Suburb of a large city

Large city

24. Do you have access to the Internet?

Yes

No

25. Did the person to whom this survey was addressed complete the survey? (Circle one)

Yes

No

26. Please use this space to provide us with any comments you may have.

E. Tournament Staff

I. We are interested in the economic aspects of Lake Fork tournaments. Your answers to the following questions are very important to us. Please provide your most accurate estimates for the following questions.

1. How many miles did you travel from your home (one-way) to get to Lake Fork? _____ Miles
2. How many days did you spend (round-trip) on this trip to Lake Fork? _____ Day(s)
3. Did the following people accompany you to the October 9-10 Lake Fork tournament?

Circle one

Spouse	Yes	No	If "YES" how many
Children	Yes	No	_____
Friends/other family	Yes	No	_____
Other Contestants	Yes	No	_____

4. On your trip to Lake Fork, how much did **YOU** spend on the following items **IN TEXAS**?

	Within the 3 counties surrounding Lake Fork (Rains, Hopkins and Wood)	Elsewhere in Texas
Automobile transportation (fuel rental cars, repairs, etc...)	\$ _____	\$ _____
Other transportation (airplane, etc...)	\$ _____	\$ _____
Entrance or parking fees	\$ _____	\$ _____
Lodging (hotel, camping site, resort rental, etc...)	\$ _____	\$ _____
Restaurant meals	\$ _____	\$ _____
Groceries (food, drink, ice, etc...)	\$ _____	\$ _____
Other expenses (please list below)	\$ _____	\$ _____
	\$ _____	\$ _____
If you traveled from another state, how much did you spend outside Texas ?	\$ _____	

5. How much money would you have spent (over the total costs in question 4) before the cost would have prevented you from making this trip to fish in the Lake Fork tournament? \$ _____

II. The following questions will help us understand more about bass fishing tournament procedures.

6. Had you worked at other tournaments prior to the October 9-10 Lake Fork tournament? (Circle one)
 Yes No

7. The following are actions that tournament organizers can take to help keep bass alive. Please indicate if you are aware the action can help keep bass alive and if tournaments you worked at in the past have routinely taken the action. (Circle one response for each action)

	Are you aware this action can help keep bass alive?			Have tournaments you worked at in the past routinely taken these actions?	
	YES	NO		YES	NO
Moving anglers quickly through the weigh-in line	YES	NO		YES	NO
Having dip-tanks of water available for anglers to put weigh-in bags into while waiting in line	YES	NO		YES	NO
Adding ice to the dip-tanks during warm weather	YES	NO		YES	NO
Dipping bass in a concentrated salt-dip to reduce infection and help restore the slim coat	YES	NO		YES	NO
Minimizing the amount of handling a fish receives during weigh-in	YES	NO		YES	NO
Releasing bass into aerated deep water areas of the lake (such as near a main lake point)	YES	NO		YES	NO

8. How well do you agree with the following statements about bass fishing tournaments? (Circle one response for each statement)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Bass released after weigh-in disperse to others areas of the lake	1	2	3	4	5
Using perforated bags with dip-tanks at weigh-in helps keep more bass alive than using non-perforated bags at weigh-in	1	2	3	4	5
More bass caught during hot weather tournaments die than bass caught during cool weather tournaments	1	2	3	4	5
All bass should be dipped in a medicated "hospital tank" at the weigh-in	1	2	3	4	5
All bass caught in deepwater during a tournament should be "fizzed" (puncturing the air bladder)	1	2	3	4	5

9. Overall, how satisfied were you with your October 9-10 Lake Fork tournament experience? (Circle one)

Not at all Satisfied Slightly Satisfied Moderately Satisfied Very Satisfied Extremely Satisfied

10. Please indicate your support or opposition for allowing an exemption from the slot length limit for bass tournaments held at Lake Fork. An exemption means that anglers fishing in tournaments at Lake Fork could temporarily hold slot length bass until “weighed-in” at a tournament event. Bass would be released following the “weigh-in”. (Circle one)

Strongly Opposed Opposed Neutral Support Strongly Support

III. The following questions will help us understand the types of people who worked at the October 9-10 Lake Fork tournament.

11. Are you? (Circle one)

Black White Hispanic Other (please specify)

12. What is your approximate gross annual income (dollars)? (Circle one)

Under \$10,000	\$30 - \$40,000	\$60 - \$70,000	\$90 - \$100,000
\$10 - \$20,000	\$40 - \$50,000	\$70 - \$80,000	Over \$100,000
\$20 - \$30,000	\$50 - \$60,000	\$80 - \$90,000	

13. What is your age? _____ Years

14. Are you? (Circle one)

Male Female

15. Do you have a valid Texas freshwater fishing license? (Circle one)

Yes No

16. Have you ever fished at Lake Fork?

Yes No (If “NO”, please skip questions 17 and 18)

17. How many days did you go fishing at Lake Fork in the last 12 months? _____ Days

18. How many years have you been fishing at Lake Fork? _____ Years

19. Have many years have you been fishing? _____ Years

20. What species do you prefer to fish for? (Circle one)

Bass Crappie Catfish Sunfish Other

21. How do you compare your fishing abilities to other freshwater anglers? (Circle one)

Less Skilled Equally Skilled More Skilled

22. Are you a member of a fishing club or organization? (Circle one)

Yes No

23. How would you describe your current residence? (Circle one)

Farm/rural non-farm area Small town Suburb of a large city Large city

24. Do you have access to the Internet?

Yes

No

25. Did the person to whom the survey was addressed complete the survey? (Circle one)

Yes

No

26. Please use this space to provide us with any comments you may have.

F. Lake Fork Fishing Guides

I. The following questions are to help us understand more about the fishing guides at Lake Fork. Please answer the following questions as accurately as possible.

1. Are you aware that Texas Parks and Wildlife (TPW) Inland Fisheries conducted an experimental slot length limit exempt bass tournaments at Lake Fork on October 9-10, 1999? (Circle one)

Yes

No

2. Are you aware of the results from the tournament held on October 9-10, 1999? (Circle one)

Yes

No

3. Overall, how satisfied are you with your fishing experiences at Lake Fork? (Circle one)

Not at all Satisfied

Slightly Satisfied

Moderately
Satisfied

Very Satisfied

Extremely
Satisfied

4. How many years have you been a fishing guide at Lake Fork? _____ Years

5. At what Lake Fork Marina or boat ramp do you most often meet your customers prior to a trip? _____

6. Approximately how many days did you guide customers fishing at Lake Fork between:

October 1, 1998 and October 1, 1999? _____ Days

January 1999, February 1999, and March 1999 _____ Days

April 1999, May 1999, and June 1999 _____ Days

July 1999, August 1999 and September 1999 _____ Days

October 1999, November 1999 and December 1999 _____ Days

7. What percentage of your annual income is generated from your fishing guide services? _____
_____ % of income

II. Your opinions are important to us. The following questions will help us understand your attitudes, opinions and preferences concerning Lake Fork.

8. As you are aware there is a slot length limit regulation on largemouth bass at Lake Fork. Please indicate your support or opposition for allowing an exemption from the slot length limit for bass tournaments held at Lake Fork. (Circle one)

Strongly Opposed

Opposed

Neutral

Support

Strongly Support

If you responded "STRONGLY OPPOSED", "OPPOSED" or "NEUTRAL" to question 8, please complete questions 9 and 10.

If you responded "SUPPORT", or "STRONGLY SUPPORT" to question 8, please skip to question 11.

9. If regulations were changed to allow slot length exempt bass tournaments at Lake Fork, would you take any of the following actions to oppose the change? (Circle either “YES” OR “NO” for each action)

Discuss the Lake Fork regulation change with others	Yes	No
Fish less often at Lake Fork	Yes	No
Fish more often at Lake Fork	Yes	No
Contact Texas Parks and Wildlife to express your opposition	Yes	No
Contact a fishing organization to express your opposition	Yes	No
Contact an elected official to express your opposition	Yes	No
Help form an organization to oppose Texas Parks and Wildlife regulation change	Yes	No
Refuse to purchase a fishing license next year	Yes	No

10. In the past, have you ever taken the following actions in response to an issue you opposed? (Circle either “YES” or “NO” for each action)

Discussed any issue with others	Yes	No
Fished at a lake less often as a result of tournaments	Yes	No
Fished at a lake more often as a result of tournaments	Yes	No
Contacted the responsible agency to express your opposition	Yes	No
Contacted an organization to express your opposition	Yes	No
Contacted an elected official to express your opposition	Yes	No
Helped form an organization to oppose the responsible agency	Yes	No

11. How well do you agree with the statement that “there are things I can do to influence the decisions made by TPW Inland Fisheries”? (Circle one)

Strongly Disagree Disagree Neutral Agree Strongly Agree

12. There is always some mortality associated with catching fish, even when they are released. (mortality means the death of a fish) Please indicate your level of support or opposition for allowing an exemption from the slot length limit for bass tournaments at Lake Fork if you were aware that tournaments would result in the following levels of bass mortality. (Circle one response for each level of mortality)

If the number of bass mortalities caused by slot length limit exempted bass tournaments was:	Strongly Oppose	Oppose	Neutral	Support	Strongly Support
0 mortalities per 100 bass	1	2	3	4	5
10 mortalities per 100 bass	1	2	3	4	5
20 mortalities per 100 bass	1	2	3	4	5
30 mortalities per 100 bass	1	2	3	4	5
40 mortalities per 100 bass	1	2	3	4	5
50 mortalities per 100 bass	1	2	3	4	5
60 mortalities per 100 bass	1	2	3	4	5
70 mortalities per 100 bass	1	2	3	4	5
80 mortalities per 100 bass	1	2	3	4	5
90 mortalities per 100 bass	1	2	3	4	5
100 mortalities per 100 bass	1	2	3	4	5

13. Please indicate your level of agreement with the following statements. (Circle one response for each statement)

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Allowing slot length limit exempt bass tournaments at Lake Fork will benefit the local economy	1	2	3	4	5
Allowing slot length limit exempt bass tournaments at Lake Fork will hurt the local economy	1	2	3	4	5
Additional businesses would open if regulations were changed to allow slot length limit exempt bass tournaments at Lake Fork	1	2	3	4	5
Personally, I would like the opportunity to fish a slot length limit exempt bass tournament at Lake Fork	1	2	3	4	5
Slot length limit exempt bass tournaments are unfair to non-tournament anglers	1	2	3	4	5
Allowing slot length limit exempt tournaments at Lake Fork will reduce the number of fish I catch at Lake Fork	1	2	3	4	5
Allowing slot length limit exempt tournaments at Lake Fork will reduce the size of fish I catch at Lake Fork	1	2	3	4	5
Allowing slot length limit exempt tournaments at Lake Fork will cause overcrowding on the water at Lake Fork	1	2	3	4	5

14. Do you support or oppose a requirement that a portion of tournament fees be earmarked for bass research and management activities? (Circle one)

Strongly Opposed Opposed Neutral Support Strongly Support

III. The following questions will help us understand the types of people who guide on Lake Fork.

15. Are you? (Circle one)

Black White Hispanic Other (please specify)

16. Are you? (Circle one)

Male Female

17. What is your approximate gross annual income (dollars)? (Circle one)

Under \$10,000	\$30 - \$40,000	\$60 - \$70,000	\$90 - \$100,000
\$10 - \$20,000	\$40 - \$50,000	\$70 - \$80,000	Over \$100,000
\$20 - \$30,000	\$50 - \$60,000	\$80 - \$90,000	

18. What is your age? _____ Years

19. How many days did you go fishing at Lake Fork in the last 12 months? _____ Days

20. How many years have you been fishing at Lake Fork? _____ Years

21. How many years have you been fishing? _____ Years

22. What species do you prefer to fish for? (Circle one)

Bass Crappie Catfish Sunfish Other

23. How do you compare your fishing abilities to other freshwater anglers? (Circle one)

Less Skilled

Equally Skilled

More Skilled

24. Are you a member of a fishing club or organization? (Circle one)

Yes

No

25. How would you best describe your current residence? (Circle one)

Farm/rural non-farm area

Small town

Suburb of a large city

Large city

26. Do you have access to the Internet? (Circle one)

Yes

No

27. Did the person to whom this survey was addressed complete the survey? (Circle one)

Yes

No

28. Please use this space to provide us with any comments you may have.

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

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