

Black Bass Tournament Characteristics and Economic Value at Sam Rayburn Reservoir, Texas

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Abstract: Recent studies have shown that black bass (*Micropterus* spp.) tournament angling continues to increase. The magnitude and implications of tournament-fish mortality have been studied often; however, the economic value of tournament angling has rarely been assessed. We determined the economic value of black bass tournament angling at Sam Rayburn Reservoir, Texas. A total of 25,396 participants competed in 405 tournaments occurring from November 2007 to October 2008. The majority of tournaments (75%) had <50 participants and required an organization membership (bass club). Lower open tournaments (<US\$130/person entry fee and >50 participants) accounted for 40% of tournament participants. Total tournament angler expenditures (\$23.7 million) accounted for 74% of total angling expenditures (\$31.9 million). One 3-day tournament with 3892 participants was responsible for 27% of total tournament expenditures and 20% of total angler expenditures. The annual total economic value of the Sam Rayburn Reservoir fishery was estimated to be \$46.7 million, of which 66% was due to tournament angling. Understanding the economic value of tournament angling allows fisheries managers to weigh economic consequences of management actions that could be detrimental to tournament angling (restrictive harvest regulations and tournament permitting). Furthermore, economic information for tournaments can be important to local municipalities for justifying local infrastructure improvement and tournament recruitment costs.

Key words: creel survey, consumer surplus, expenditures, *Micropterus*

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Black bass (*Micropterus* spp.) tournament angling continues to increase in North America (Shupp 1979, Duttweiler 1985, Schramm et al. 1991b, Kerr and Kamke 2003, Schramm and Hunt 2007). Over 32,000 black bass tournaments were conducted annually from 2002 to 2004 in the U.S (Schramm and Hunt 2007). From 2009 to 2011, the average annual number of black bass tournaments was 41,939 in just 14 southeastern U.S. states (Driscoll et al. 2013). Increasing tournament frequency during the last 30 years has led to numerous studies pertaining to black bass tournament angling, with most evaluating factors associated to post-release survival of released fish (Wilde et al. 1998, Allen et al. 2004). More recent tournament studies have focused on population-level impacts (Allen et al. 2004, Driscoll et al. 2007).

Economic expenditures related to recreational fishing are an important component of modern fisheries management (Riechers and Fedler 1996, Weithman 1999). We found only one study investigating the economic contributions of black bass tournament angling to a reservoir fishery. Dennis et al. (2007) reported that tournament angling did not yield greater economic benefit relative to non-tournament angling at O.H. Ivie Reservoir, Texas. Black bass tournaments vary in terms of eligibility requirements, number of participants, entry fees, and awards. Tournaments can have as few as 10 local participants who pay low entry fees and compete for trophies, or they can have hundreds of participants traveling substantial distances, who pay high entry fees and compete for new ve-

hicles, boats, or substantial monetary awards (\geq US\$10,000). Some tournaments are single-day events whereas other tournaments last multiple days. These large differences in tournament format, as well as tournament frequency, potentially could affect economic contributions of black bass tournament angling to fisheries.

Understanding specific economic contributions by angler type (i.e., tournament and non-tournament) can augment management efforts. For example, biological benefits of fisheries management actions that can result in decreased tournament frequency (e.g., restrictive length and bag limits) can be weighed against potential economic losses. Similarly, negative social conflicts among tournament and non-tournament anglers such as resource overuse and angler crowding (Schramm et al. 1991a, Kerr and Kamke 2003, Schramm and Hunt 2007, Driscoll et al. 2013) can be assessed relative to positive economic impacts of tournament angling. Furthermore, local communities can use these specific estimates to better prioritize funds and activities that promote local economic development associated with tournament (i.e., recruitment of events) or non-tournament angling.

Sam Rayburn Reservoir (45,091 surface ha), located in southeastern Texas about 225 km from Houston and 64 km from Louisiana, is a popular destination for tournament anglers. Anderson et al. (2002) estimated 52% of Sam Rayburn Reservoir anglers participated in black bass tournaments, compared to only 14% of all Texas anglers (Bohnsack and Ditton 1999). The objectives of this

study were to 1) determine the annual number of black bass tournaments and participants by tournament type, and 2) estimate annual direct expenditures, consumer surplus, and economic value for black bass tournaments by tournament type and also for non-tournament angling at Sam Rayburn Reservoir.

Methods

Tournaments were classified into two general types: bass club and open tournaments. Bass club tournaments were smaller, non-profit events (≤ 50 participants) requiring a membership for eligibility. Open tournaments were larger (> 50 participants), had few restrictions on eligibility, were typically conducted by for-profit organizations, and were publicly advertised to maximize participation. Because of the variability among open tournaments in number of participants, entry fees, and awards, open tournaments were further classified as upper open or lower open. Lower open tournaments had entry fees $\leq \$130/\text{person}$ and upper open tournaments had entry fees $> \$130/\text{person}$.

A census of black bass tournaments was conducted at Sam Rayburn Reservoir to quantify total number of tournaments and participants from November 2007 to October 2008. Tournament organizations were identified via Texas Parks and Wildlife Department roving creel survey interviews (as described below), the tournament permit database maintained by the U.S. Army Corps of Engineers (controlling authority at Sam Rayburn Reservoir), club affiliations (i.e., Texas Association of Bass Clubs, Texas B.A.S.S. Federation), tournament organizer websites, and local publications. The total number of tournaments and number of anglers participating for each tournament event was obtained via tournament websites, email, and telephone. The overall average number of events and participants per event was used to estimate number of events and participants for non-responding tournament organizations.

Creel sampling consisted of random, stratified, non-uniform probability roving surveys (Malvestuto et al. 1978, Malvestuto 1996). A total of 36 days were sampled from day-type strata during November 2007 to October 2008 (20 weekend and 16 weekdays). Each survey day, approximately 33% of the reservoir (two of six creel sections) was randomly selected and sampled. To maximize angler contacts, creel sections were assigned seasonal, non-uniform sampling probabilities based on 1999 to 2003 historical angler count data. Anglers were queried to determine their catch, harvest, angling effort, primary species targeted, and contact information. Black bass anglers were also asked to identify if they were currently competing in a tournament, pre-fishing for a tournament occurring within 30 days, or non-tournament angling. Tournament pre-fishing is angling effort specifically related to preparation for

an upcoming event, and is common among tournament anglers, particularly for those competing in open tournaments. In addition to those derived from creel interviews, angler contact information was collected at boat ramps three days/quarter and for all individuals competing in five specific tournaments which included one bass club, three upper opens, and the Sealy Outdoors McDonald's Big Bass Splash (BBS). Several lower open tournaments were asked to provide participant contact info, but declined.

Anglers were mailed a questionnaire and a postage-paid return envelope within one month of the day when their contact information was recorded or from occurrence of one of the five specific tournaments events described above. Questionnaires and associated instructions varied with respect to angler type (tournament and non-tournament). For example, the questionnaire version received by non-tournament anglers did not request tournament entry fee expenditures or pre-fishing information. Anglers were instructed to complete the questionnaire in regard to only their angling trip during which they provided their contact information to Texas Parks and Wildlife Department staff or in regard to one of the five specific tournaments described above. Anglers were requested to provide details about their angling trip including trip length (days), party size (people per vehicle), and expenditures for each of 13 expense categories. With the exception of BBS participants (who received initial questionnaire only), reminder/thank you postcards were sent to all survey recipients 10 to 14 days after the first survey mailing. A second questionnaire was sent to non-respondents two weeks following the postcard mailing.

For each expense category, total direct expenditures were estimated for black bass tournament anglers by tournament type (club, lower open, upper open, and BBS), tournament angler trip type (event and pre-fishing), and residency location. Residency locations were local (six counties adjacent to Sam Rayburn Reservoir), non-local (all other Texas counties), and out-of-state. Total direct expenditures were estimated separately for the BBS because this tournament was unique in terms of size, typically having > 2000 participants. Likewise, total direct expenditures were estimated for non-tournament anglers by expense category and residency location. Average daily expenditures per person were computed using data contained in returned questionnaires for each of the above-described categorical combinations. For tournament anglers, total direct expenditures were estimated by multiplying daily expenditure rates by average party size, average trip length, and tournament-angler trips. Average party size and trip length were derived from questionnaire return data and tournament-angler trips were determined from the census. Total trips were adjusted for those anglers that traveled with another tournament angler. For non-tournament anglers, average daily expenditure rates were

multiplied by number of one-person, one-day angler trips estimated from the creel survey to obtain total direct expenditures.

Standard errors were calculated for base-level estimates (e.g., average party size for local, non-tournament anglers; average daily expenditures for non-local, upper-open tournament anglers). For estimates derived by multiplying base-level estimates (e.g., total direct expenditures), standard errors were approximated using the Delta method (Seber 1982). Relative standard errors (RSE) are presented to elucidate and compare precision among estimates.

Consumer surplus (CS) was estimated via the questionnaire and similar to methods of Loomis (2006) by asking if anglers would be willing to pay a specific monetary amount (from a pre-determined range of potential bid values) above their actual angling trip expenses. For tournament anglers, we expected that CS would increase with increased entry fees and payback. Potential bid values were \$10, \$30, \$50, \$75, \$100, \$150, \$200, \$300, and \$400 for bass club anglers; \$20, \$40, \$60, \$100, \$150, \$200, \$300, \$400, and \$500 for lower open anglers; and \$40, \$70, \$100, \$150, \$200, \$300, \$450, \$600, and \$800 for upper open and BBS anglers. We did not specifically estimate CS for tournament practice trips. We assumed that CS for practice trips was equal to that from the actual event trip, minus the average tournament entry fee for each tournament type. For non-tournament anglers, we expected that CS would increase relative to residence location distance from Sam Rayburn Reservoir. Potential values were \$10, \$20, \$30, \$50, \$75, \$100, \$150, \$200, and \$250 for local anglers (residence within 96.5 km of shoreline) and \$10, \$20, \$30, \$50, \$75, \$100, \$150, \$250, and \$350 for non-local anglers. Logistic regression was used to determine bid value that 50% of anglers would accept which represented the average angler CS per trip. For tournament anglers, total CS was estimated by multiplying the average CS by the total participants for each tournament type. For non-tournament anglers, total CS was estimated by multiplying the average daily CS by the total number of one-person, one-day trips.

Typically, economic value of recreational angling is defined as the total value above direct expenditures that anglers are willing to pay (Steinback 1999). Therefore, total direct expenditures and total CS were summed to estimate total economic value of tournament angling by tournament type and non-tournament angling.

Results

Eighty-six organizations conducted a total of 405 black bass tournaments at Sam Rayburn Reservoir from November 2007 to October 2008 (Table 1). The large majority of tournaments were club events (75%), which averaged 19 participants/tournament (RSE=8.6). We identified 57 bass clubs, 21 lower open, and 7 upper open organizations that conducted tournaments on the reser-

Table 1. Total number of black bass tournament events, average participation/event (AVG), relative standard errors in parentheses, and total participation (TOT, number of tournament anglers) by tournament type at Sam Rayburn Reservoir, Texas, from November 2007 to October 2008. Also shown is the number of survey questionnaires returned and questionnaire response rate (percent, in parentheses) by tournament type. Bass club tournaments were smaller, non-profit events (≤ 50 participants), whereas open tournaments were larger and for-profit (>50 participants). Lower open tournaments had entry fees $\leq \$130$ /person and upper open tournaments had entry fees $> \$130$ /person. BBS represents Sealy Outdoors McDonald's Big Bass Splash.

Type	Total events	AVG	TOT	Questionnaires returned
Bass club	304	19 (8.6)	5612	132 (59)
Lower open	82	124 (31.4)	10,130	130 (50)
Upper open	18	320 (19.4)	5762	270 (47)
BBS	1		3892	182 (18 ^a)

a. Anglers received initial questionnaire only.

Table 2. Number of angling trips, average daily expenditures (\$), and total direct expenditures (\$) for tournament anglers by tournament angler and trip type. Pre represents tournament pre-fishing trips, T is tournament event trips, and relative standard errors are in parentheses. Combined tournament angler expenditures are the sum of pre-fishing and tournament event total expenditures. Bass club tournaments were smaller, non-profit events (≤ 50 participants), whereas open tournaments were larger and for-profit (>50 participants). Lower open tournaments had entry fees $\leq \$130$ /person and upper open tournaments had entry fees $> \$130$ /person. BBS represents Sealy Outdoors McDonald's Big Bass Splash.

Type	Trips		Daily expenditures		Total expenditures		Combined expenditures
	Pre	T	Pre	T	Pre	T	
Bass club	\$1807	\$4602	\$86 (10.3)	\$120 (5.3)	\$739,782 (19.7)	\$2,120,493 (16.2)	\$2,860,275 (17.1)
Lower open	\$4170	\$7851	\$69 (7.5)	\$165 (7.5)	\$1,506,378 (20.0)	\$7,465,938 (16.1)	\$8,972,316 (16.8)
Upper open	\$2857	\$4034	\$88 (6.0)	\$190 (3.8)	\$1,693,089 (14.3)	\$3,825,579 (10.3)	\$5,518,668 (11.5)
BBS	\$1160	\$3114	\$132 (23.3)	\$141 (5.0)	\$1,248,016 (40.5)	\$5,075,031 (14.1)	\$6,323,047 (19.3)

voir. Average participation was 124 (RSE = 31.4) and 320 anglers/tournament (RSE = 19.4) for lower and upper open tournaments, respectively.

Tournament participation totaled 25,396 anglers during the one-year period (Table 1). Lower opens accounted for 40% of tournament participants, and the BBS tournament, which lasted for three days, accounted for 15% of all tournament participants. A total of 3107 questionnaires were mailed to Sam Rayburn Reservoir anglers, 2333 to tournament anglers and 774 to non-tournament anglers. Questionnaire response rate was 56% overall which was within the range reported in similar studies (46%–72%; Hunt et al. 1998, Thailing and Ditton 2000, Anderson et al. 2002, Dennis et al. 2007). Response rates ranged from 47%–59% among tournament angler types and were 18% for BBS anglers and 58% for non-tournament anglers (Table 1).

Average daily expenditures for tournament anglers were greater than non-tournament anglers, but varied among tournament an-

Table 3. Total direct angling expenditures (US\$) by angler residency location and angler type at Sam Rayburn Reservoir, Texas, from November 2007 to October 2008. Anglers residing in six surrounding counties (Jasper, Tyler, Angelina, Nacogdoches, San Augustine, and Sabine) were considered local. Anglers residing in other Texas counties were considered non-local, and anglers residing outside of Texas were classified as out-of-state. Relative standard errors are in parentheses. Bass club tournaments were smaller, non-profit events (≤ 50 participants), whereas open tournaments were larger and for-profit (> 50 participants). Lower open tournaments had entry fees $\leq \$130$ /person and upper open tournaments had entry fees $> \$130$ /person. BBS represents Sealy Outdoors McDonald's Big Bass Splash.

Angler type	Residency location			Angler type total
	Local	Non-local	Out-of-state	
Bass club	\$514,850 (36.1)	\$1,744,768 (21.0)	\$600,657 (36.0)	\$2,860,275 (17.1)
Lower open	\$2,960,864 (21.8)	\$5,024,497 (23.9)	\$986,955 (46.2)	\$8,972,316 (16.8)
Upper open	\$1,379,667 (29.7)	\$3,256,014 (15.9)	\$882,987 (37.5)	\$5,518,668 (11.5)
BBS	\$316,152 (47.1)	\$3,667,367 (20.7)	\$2,339,528 (26.8)	\$6,323,047 (19.3)
Non-tournament	\$2,543,514 (36.4)	\$4,020,393 (38.8)	\$1,640,976 (41.3)	\$8,204,883 (38.6)
Location total	\$7,715,047 (30.0)	\$17,713,039 (24.9)	\$6,451,103 (35.8)	\$31,879,189 (22.0)

gler types (Table 2). Average daily expenditures for all tournament angler types were \$94 (RSE = 11.8) for tournament practice trips and \$154 (RSE = 5.4) for tournament event trips, whereas daily expenditures averaged \$68 (RSE = 4.7) for non-tournament anglers.

Pre-fishing for specific tournament events was frequent and accounted for a considerable portion of tournament angler expenditures (Table 2). Forty-one percent of club, 56% of lower open, 67% of upper open, and 40% of BBS anglers made one or more separate trips for practice. Pre-fishing trip expenditures represented from 17% to 31% of total tournament-angler expenditures across tournament types.

Expenditures totaled \$31.9 million (RSE = 22.0) for all anglers during the one-year period, and total tournament angler expenditures accounted for 74% of this total (Table 3 and Figure 1). Expenditures by lower open anglers were more than three times those by club anglers (Table 3 and Figure 2). Total expenditures of BBS anglers represented 27% of total tournament expenditures and 20% of total angler expenditures.

Non-local Texas residents were responsible for 56% of expenditures associated to angling at Sam Rayburn Reservoir (Table 3). Tournament anglers residing outside the six-county reservoir area (non-local) spent a total of \$13.7 million (RSE = 20.8), whereas local and out-of-state tournament anglers spent \$5.2 (RSE = 26.9) and \$4.8 million (RSE = 33.9), respectively. Similarly, non-local non-tournament anglers spent substantially more (\$4.0 million; RSE = 38.8) than local (\$2.5 million; RSE = 36.4) and out-of-state non-tournament anglers (\$1.6 million; RSE = 41.3). Expenditures by out-of-state BBS anglers accounted for 49% of all out-of-state tournament angler expenditures and exceeded out-of-state non-tournament angler expenditures by 43% (Table 3).

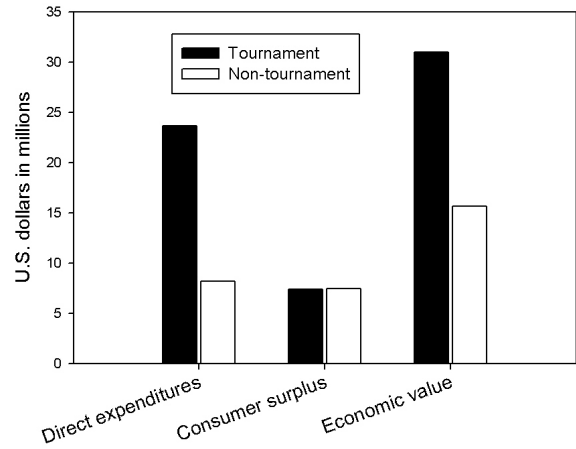


Figure 1. Total direct expenditures, consumer surplus, and total economic value for tournament and non-tournament anglers at Sam Rayburn Reservoir, Texas, from November 2007 to October 2008.

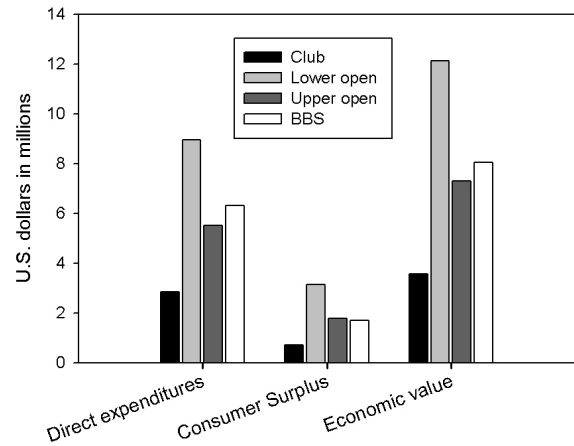


Figure 2. Total direct expenditures, consumer surplus, and total economic value by tournament type at Sam Rayburn Reservoir, Texas, from November 2007 to October 2008.

Categorical expenditures were similar for tournament and non-tournament anglers, with the exception of entry fees which accounted for 25% of all tournament angler expenses (Table 4). The highest expenses for tournament anglers were entry fees (\$5.8 million; RSE = 9.5), automobile operation (\$5.2 million; RSE = 25.4), and boat operation (\$3.9 million; RSE = 11.8); collectively, these categories were the highest categorical expenses and accounted for 63% of all expenses. For non-tournament anglers, expenses associated with automobile (\$2.2 million; RSE = 32.7) and boat operation (\$1.4 million; RSE = 33.0) were highest and together accounted for 46% of all expenses.

Relative to expenditures, CS (willingness to pay more) was similar among tournament angler types (Figure 2) and substantially greater for non-tournament anglers than tournament anglers

Table 4. Total direct angling expenditures (US\$) by expense category for tournament and non-tournament anglers at Sam Rayburn Reservoir, Texas, from November 2007 to October 2008. Relative standard errors are in parentheses.

Expense type	Tournament	Non-tournament
Tournament entry fees	\$5,821,297 (9.5)	
Automobile operation	\$5,228,195 (25.4)	\$2,183,691 (32.7)
Boat operation	\$3,854,472 (11.8)	\$1,418,201 (33.0)
Lodging	\$1,898,064 (19.5)	\$902,932 (34.3)
Restaurant meals	\$1,817,841 (14.3)	\$700,199 (33.2)
Tackle	\$1,548,022 (17.1)	\$609,712 (33.1)
Groceries	\$1,337,085 (12.9)	\$883,175 (32.8)
Fishing license	\$665,345 (23.4)	\$700,935 (33.8)
Other expenses	\$349,530 (49.4)	\$58,030 (43.5)
Launch fees	\$258,065 (12.3)	\$148,636 (33.8)
Other transportation	\$248,955 (79.9)	\$38,403 (56.9)
Fishing guide	\$45,061 (76.8)	\$76,014 (56.2)
Boat rental	\$38,204 (76.1)	\$43,192 (59.5)

(Figure 1). Tournament anglers were willing to spend from 25% (bass club) to 35% (lower open) more for their angling, whereas non-tournament anglers were willing to spend an additional 91% more for their angling. Consumer surplus totaled \$7.4 million (RSE = 36) for tournament anglers and \$7.5 million (RSE = 33) for non-tournament anglers.

Total annual economic value of the Sam Rayburn Reservoir fishery was estimated to be \$46.7 million (RSE = 26) (Figure 1). Tournament angling (including pre-fishing) accounted for \$31.1 million (66%; RSE = 21) of the total.

Discussion

Our results indicated that black bass tournament angling contributed a greater percentage of annual economic expenditures and value (74% and 66%, respectively) than non-tournament angling at Sam Rayburn Reservoir. Dennis et al. (2007) reported that although tournament angling was frequent at O. H. Ivie Reservoir, Texas (147 annual events), tournament anglers only contributed 14% of the annual expenditures in 2002. Much of the difference in tournament expenditures between reservoirs was likely due to tournament type. Most (93%) of the tournaments at O. H. Ivie Reservoir were smaller bass club events (<50 participants), whereas larger open tournaments with higher entry fees, potential rewards, and expenditures were most popular at Sam Rayburn Reservoir (78% of total participation). Since 2005, tournament frequency in Texas has increased by >40% (Driscoll et al. 2013), which could also account for some of the expenditure differences between studies. In addition, Dennis et al. (2007) did not account for expenditures related to tournament pre-fishing, which accounted for 28% of annual tournament expenditures at Sam Rayburn Reservoir.

Estimated average daily expenditures for tournament anglers were considerably higher than that of non-tournament anglers, even with entry fees excluded from daily expenses of tournament anglers, and may demonstrate increased willingness to spend money when tournament angling for a prize (i.e., increased angler specialization). Ditton et al. (1992) suggested that angler specialization fits a continuum from least-specialized beginners to experienced anglers, and that frequency of participation and incurred costs increased with specialization. Similarly, Wilde et al. (1998) found that tournament anglers represented a more specialized group than non-tournament anglers, as they fished more frequently and differed relative to angling motives (e.g., to win a trophy or prize, to obtain a trophy fish, to develop my skills, and for the challenge or sport). Conversely, non-tournament anglers at Sam Rayburn Reservoir were more willing to incur proportionally more trip expenses, as average CS for non-tournament anglers was considerably higher in proportion to direct expenditures (91%) than for tournament anglers (31%).

We included tournament angler entry fees (\$5.8 million) as part of our economic estimates. However, 70% to 100% of entry fees are typically redistributed among tournament anglers as payback (remaining percentages are profit for tournament organizers), and the end result of these earnings is uncertain. Tournament anglers may use earnings to pay for current or future tournament-related expenses at Sam Rayburn Reservoir (i.e., providing direct expenditures to the local economies). Conversely, tournament anglers also could retain and spend these earnings non-locally at their residency location (e.g., 78% of overall tournament expenditures were from non-local anglers). Nonetheless, even if tournament entry fees were excluded from our economic estimates, tournament anglers still contributed the majority of direct expenditures and economic value at Sam Rayburn Reservoir (69% and 62%, respectively).

Average participation per event in lower and upper open tournaments at Sam Rayburn Reservoir was 124 and 320 anglers, respectively. Frequent tournaments of this size contribute substantial economic expenditures. In addition, the annual three-day BBS tournament attracted 3892 anglers from 37 states and two foreign countries and was likely the largest black bass tournament in the United States in 2008. Generally, large (i.e., >8000 surface ha) or dendritic waters like Sam Rayburn Reservoir are more favorable to open tournament organizations because they reduce typical issues related to tournament angling (i.e., resource overuse and angler crowding; Schramm and Hunt 2007, Driscoll et al. 2013). Also, available angling quality likely affects selection of waters by tournament organizations. Sam Rayburn Reservoir has consistently supported a high-quality black bass fishery, and average winning

weights and big bass from open events averaged 10.1 and 3.9 kg, respectively from 2006 to 2010 (Driscoll and Ashe 2011). However, current infrastructure at Sam Rayburn Reservoir (i.e., numerous access points with multiple boat ramp lanes, large parking lots, weigh-in pavilions, lodging, and restaurants) is vital to recruiting and supporting larger open events that contribute to the \$33.1 million tournament and \$46.7 million recreational fishery. Economic development entities (e.g., local Chambers of Commerce) may provide increased tax revenue and employment near other waters by investing in sufficient infrastructure and spending development funds to recruit tournament organizations.

It is economically important to examine local and non-local expenditures. Non-local and out-of-state expenditures are new monies to the Sam Rayburn Reservoir area, which in our study were more than 75% of total annual direct angling expenditures. These monies provide great economic benefit to area businesses, even those unassociated with Sam Rayburn Reservoir, as local dollars are likely spent on items other than those associated with the fishing trip (Bohnsack et al. 2002).

Knowledge of economic contributions is essential to responsible fisheries management (Weithman 1999). Coupled with biological and sociological information, economic contributions of tournament angling would be beneficial to future management decisions regarding black bass fisheries on other waters in the United States, especially actions that may reduce tournament frequency. Generally, lower minimum length (i.e., 305 to 381 mm) and 5-fish bag limits for black bass are conducive to most tournament formats (e.g., Sam Rayburn Reservoir is managed with a 356-mm minimum length and 5-fish daily bag limit). More restrictive minimum length, slot length, or bag limits can often result in increased fishing quality (summary by Wilde 1997), but also have the potential to reduce tournament activity due to a lower proportion of catch available to retain for weigh-ins. In addition, reducing tournament frequency via agency permitting has been discussed as a potential solution for adverse biological and social issues (Shupp 1979, Schramm et al. 1991a, Driscoll et al. 2013), and several states have restricted tournament frequency at individual waters (Schramm et al. 1991b). At Sam Rayburn Reservoir, and other waters where tournament activity and related economic expenditures are relatively high, we suggest that fisheries agencies consider the negative economic implications of management actions that may reduce tournament frequency.

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