

PERFORMANCE REPORT

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FEDERAL AID IN SPORT FISH RESTORATION ACT

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FEDERAL AID PROJECT F-30-R-31

STATEWIDE FRESHWATER FISHERIES MONITORING AND MANAGEMENT PROGRAM

2005 Survey Report

Georgetown Reservoir

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SURVEY AND MANAGEMENT SUMMARY

Fish populations in Georgetown Reservoir were surveyed in 2005 using electrofishing and in 2006 using gill nets. Anglers were surveyed from March 2003 to February 2004 with a creel, attitude/opinion and expenditure survey. This report summarizes the results of the surveys and contains a fisheries management plan for the reservoir based on those findings.

- **Reservoir Description:** Georgetown Reservoir is a 1,297 acre impoundment of the North San Gabriel River located in Williamson County, Texas. The dam was constructed in 1980 by the U.S. Army Corp of Engineers (USACOE) for purposes of flood control, municipal water supply and recreation.
- **Management history:** Important sport fish included white bass, largemouth bass, smallmouth bass, catfish species and palmetto bass. Palmetto bass were stocked in 2003, 2004 and 2005. Anglers supported further stockings of this species. Annual stockings of smallmouth bass were requested in a 2001 fisheries management plan. This species was not stocked due to inadequate hatchery production. Stockings of blue catfish were made in 2000 and 2001 in an attempt to establish a fishery for this species. A prior stocking in 1989 appeared to be unsuccessful in establishing a population. Largemouth bass have been managed since 1993 with a 14- to 18-inch slot-length limit. An analysis of that length limit change suggested it had been successful in increasing density and angler catch rate of bass greater than 14 inches in length. Angler harvest of sub-slot bass was not sufficient to improve growth under the slot length limit. Bass anglers surveyed who had been fishing the reservoir prior to implementation of this length limit indicated fishing quality had improved under the slot length limit. White bass were managed until September 2004 under a 12-inch minimum length limit. This regulation was rescinded after an analysis suggested reservoir inflow during spawning periods, not angler harvest, were probably more influential in determining white bass population density. Trap netting for white crappie was not performed due to historically low catch rates and the high cost/benefit ratio associated with collecting these data.
- **Fish Community**
 - **Prey species:** Sunfishes and gizzard shad were the dominant prey species available. Threadfin shad were available in low density.
 - **Catfishes:** Channel catfish were present in low density, but were still the dominant catfish species present. Blue catfish stocked in 2000 and 2001 were collected in the 2006 gill net survey.
 - **Temperate basses:** White bass and palmetto bass were present in the reservoir. White bass were a popular sport fish. Keeper size (\geq 18 inches) palmetto bass were present.
 - **Largemouth bass:** Largemouth bass were abundant, but the population was dominated by individuals less than 14 inches in length. Growth and body condition were sub-optimal. Anglers seeking largemouth bass and black basses accounted for 44.5% of the directed fishing effort.
 - **Smallmouth bass:** No smallmouth bass were collected in 2005. It appears regular stockings are necessary to sustain a population of this species in Georgetown Reservoir.
- **Management Strategies:** The reservoir should continue to be managed with existing harvest regulations. Smallmouth and palmetto bass stockings should continue to be requested. Natural reproduction of blue catfish should be documented with routine gill net surveys.

INTRODUCTION

This document is a summary of fisheries data collected from Georgetown Reservoir from 2003-2006. The purpose of the document is to provide fisheries information and make management recommendations to protect and improve the sport fishery. While information on other species of fishes was collected, this report deals primarily with major sport fishes and important prey species. Historical data is presented for comparison.

Reservoir Description

Georgetown Reservoir is a 1,297 acre impoundment of the North San Gabriel River located in Williamson County, Texas. The dam was constructed in 1980 by the U.S. Army Corp of Engineers (USACOE) for purposes of flood control, municipal water supply and recreation. Georgetown Reservoir has a drainage area of approximately 246 square miles, a shoreline length of 21.6 miles, and a shoreline development index of 4.9. The basin is steep-sided with relatively few shallow coves and shoal areas. The reservoir lies within the Edwards Plateau vegetational area and land use is predominately ranching. The reservoir is located in a metropolitan area that experienced tremendous population growth from 1990 to 1998 (31 percent) (U.S. Census Bureau). Williamson County was listed among the top ten counties for annual population growth rate (21.5%) in the United States from 2000-2003 (U.S. Census Bureau). Water level has varied widely (Figure 1), which probably has had an impact on electrofishing efficiency and may explain much of the variability in largemouth bass electrofishing catch rates (Bonds and Magnelia 2002). The annual mean water level fluctuation since January 1994 has been 16 feet (range 9.5 - 35.5 feet). Boat access consisted of three public boat ramps. Bank fishing access was good as the entire shoreline was USACOE property. Four fishing piers were available. The upper end of the reservoir had a hiking trail (The Good Water Trail) and primitive camping area (Camp Tejas) which allowed white bass anglers access to the upper end of the reservoir during the spring spawning migration. Other descriptive characteristics for Georgetown Reservoir are in Table 1.

Management History

Previous management strategies and actions: Management strategies and actions from the previous survey report (Bonds and Magnelia 2002) included:

1. Investigate the effectiveness of the 14-to 18-inch slot length limit for largemouth bass.
Action: Annual electrofishing surveys were conducted to verify the presence of bass in the 14- to 18-inch size range. A creel survey was conducted from March 2003 to February 2004. An attitude and opinion survey was also conducted to get angler opinion on perceived increases in fishing quality as a result of the slot length limit. Electrofishing and creel data suggested the slot length limit had been effective in increasing the number of bass greater than 14 inches in the population. More anglers agreed than disagreed that fishing quality for largemouth bass had improved under the new regulation. The length limit was retained.
2. Annually stock smallmouth bass.
Action: Smallmouth bass were requested each year since the last (2001) report, but were not stocked because hatchery production did not meet statewide demand for this species.
3. Investigate the effectiveness of the 12-inch minimum length limit for white bass.
Action: The 12-inch minimum length limit did not prove to be effective at increasing white bass densities. The length limit was rescinded in favor of the statewide harvest regulation in September 2004.
4. Increase knowledge of the white crappie population with supplemental trap net sampling.
Action: Due to a high cost to benefit ratio trap net sampling was curtailed on this reservoir.

Harvest regulation history: Sportfishes in Georgetown Reservoir were managed with statewide regulations with the exception of largemouth bass (Table 2). From 1986 to 1993, largemouth bass were managed with a 14-inch minimum length limit. A 14- to 18-inch slot length limit was implemented on September 1, 1993 to: increase abundance of bass greater than 14 inches in length; increase angler catches of bass greater than 14 inches in length; and, re-direct harvest at individuals less than 14 inches in length. White bass were managed under an experimental 12-inch minimum length limit from September 1, 1995 to September 1, 2004 in an attempt to increase density, help stabilize year-to-year fluctuations in year class strength and increase angler yield. An analysis of this regulation change suggested reservoir inflows during spawning periods were probably more influential in determining white bass density than angler harvest. This regulation was rescinded in favor of the statewide 10-inch minimum length limit.

Stocking history: Florida largemouth bass, blue catfish, palmetto bass and smallmouth bass were important species which were requested and/or stocked. A complete stocking history is in Table 3.

Aquatic vegetation/habitat history: Georgetown Reservoir did not support aquatic vegetation. This was probably due to the fluctuating water level and rocky substrate. Shoreline habitat consisted primarily of rocky shoreline and rock bluffs. Some standing timber was available in main lake coves and the upper reaches of the reservoir.

METHODS

Fishes were collected by electrofishing (1.5 hours at 18 5-min stations) and gill netting (5 net nights at 5 stations). Catch per unit effort (CPUE) for electrofishing was recorded as the number of fish caught per hour (fish/h) of actual electrofishing and for gill nets as the number of fish per net night (fish/nn). All survey sites were randomly selected and all surveys were conducted according to the Fishery Assessment Procedures Manual (TPWD, Inland Fisheries Division, unpublished manual revised 2002). A one year creel survey was conducted from March 2003 to February 2004. In addition to the creel survey an angler attitude and opinion and economic impact survey was conducted. The economic impact portion of this study was developed following procedures used in a similar assessment of Lake Fork, Texas anglers in 1995 (Hunt and Ditton 1996). The application of creel intercept and follow-up mail survey procedures (Ditton and Hunt, 2001) were used to reach anglers on Georgetown Reservoir. A self-administered mail questionnaire (Appendix C) was developed in order to measure attitudes, preferences, opinions and expenditures of Georgetown Reservoir anglers. Survey topics included trip expenditures and values, participation, satisfaction, preferences and attitudes regarding fishing quality and management options, and socio-demographic information. Closed-ended questions were used primarily for measures of angler preference, motivation, satisfaction and attitudes. Open-ended questions were used to determine expenditures related to fishing trips.

Sampling statistics (CPUE for various length categories), structural indices [Proportional Stock Density (PSD), Relative Stock Density (RSD)], and condition indices [relative weight (W_r)] were calculated for target fishes according to Anderson and Neumann (1996). Index of vulnerability (IOV) was calculated for gizzard shad (DiCenzo et al. 1996). Relative standard error ($RSE = 100 \times SE \text{ of the estimate/estimate}$) was calculated for all CPUE statistics and for creel statistics and SE was calculated for structural indices and IOV. Ages were determined for largemouth bass and palmetto bass using otoliths. In 2005 otoliths were collected from all largemouth bass stock size (8 inches) and bigger from the electrofishing collection and all palmetto bass sampled from gill nets. A random sub-sample of otoliths from juvenile largemouth bass was also collected. Sample sizes were adequate to meet category 2 age-and-growth sampling design recommendations (TPWD, Inland Fisheries Division, unpublished manual revised 2002). Source for water level data was the USACE Fort Worth District Reservoir Control Office website.

RESULTS AND DISCUSSION

Habitat: Littoral zone habitat consisted primarily of rocks and rock bluff (Table 4). Standing timber provided cover. Stands of aquatic vegetation have never been documented.

Creel Survey: Directed fishing effort by anglers was highest for black basses (44.5%), followed by anglers fishing for any species (28.0%), and white bass (15.4%) (Table 5). There was no directed effort for smallmouth or palmetto bass. Annual directed effort for largemouth bass was 12.2 hours/acre with 40% (4.9 hours/acre) occurring in the spring quarter (March – May). Almost all (93.8%) largemouth bass caught were released. Of the largemouth bass released 89.7% were less than 14 inches, 8.7% were from 14 to 18 inches and 1.6% exceeded 18 inches in length. Of the largemouth bass harvested 45.5% were from 14 to 16 inches (illegal harvest). Only 11% of the bass anglers that reported catching sub-slot bass chose to harvest them. The angler catch rate for anglers targeting largemouth bass was: 0.70/hour in the spring quarter; 0.34/hour in the summer quarter (June – August); 1.67/hour in the fall quarter (September – November); and, 0.19 in the winter quarter (December – February). The spring quarter angler catch rate in 1995, 18 months after implementation of the slot length limit, for anglers targeting largemouth bass was 0.21/hour. The angler catch rate for bass greater than 14 inches in spring quarter 1995 and 2003 was 0.09 and 0.28, respectively, with similar angler effort (6.1 hours/acre in spring 1995, 4.9 acres/acre in spring 2003). White bass angling accounted for 37.9% of all spring angling effort with all of the effort coming from bank anglers in the upper end of the reservoir. During the spring quarter 79.4% of all white bass caught were harvested. Angler catch and harvest rates for white bass were 0.63 fish/hour and 0.40 fish/hour respectively. Total fishing effort for all species at Georgetown Reservoir was 35,585 h (27.4 h/acre) from March 2003 through February 2004 (Table 6).

Economic Impact From Mail Questionnaire: Direct expenditures were estimated at \$68.79 per fishing trip. An estimated total of \$462,702 in direct expenditures were made by anglers within the local area (Williamson, Travis, Burnet, Milam and Bell Counties) during the 12-month creel period. Almost all anglers contacted at Georgetown Reservoir were from the local area (96%), so economic impact (new dollars coming into the local economy) from anglers fishing this reservoir was not substantial.

Angler Demographics, Attitudes and Opinions: One hundred sixty eight questionnaires were mailed to anglers who were contacted on creel surveys. Eighty-three surveys were returned for a response rate of 49%. The typical angler on Georgetown Reservoir was a 44 year old white male who fished from a boat, had been fishing the reservoir for 8.8 years and fished the reservoir on average 26.4 days in the year preceding the survey. Only a few of these anglers participated in bass tournaments (7.1%). Most anglers (57.3%) preferred to catch largemouth bass, but smallmouth bass (13.4%) and white bass (12.2%) were also popular target species. Anglers were neutral (mean score on a 5-point Likert scale of 3.1) when asked if they were satisfied with the fishing on Georgetown Reservoir (Table 7). Anglers indicated that the reservoirs close proximity to their home was a major reason for them fishing this reservoir (Table 8). Anglers had a good understanding of the rationale for implementing the slot length limit for largemouth bass (Table 9), yet few (11%) who caught sub-slot bass harvested them. Among all anglers attitudes were neutral regarding whether the slot length limit had been effective at improving the fishing quality for largemouth bass (mean score of 3.2 on a 5-point Likert scale), yet more agreed than disagreed that fishing quality had improved. Among anglers surveyed who had fished the reservoir prior to implementation of the slot length limit (N = 20) 45% agreed that fishing quality had improved as a result of the regulation change. These anglers supported a change back to the 14-inch minimum length limit if TPWD data suggested only a slight improvement in the bass population under the 14- to 18-inch slot length limit, but not if the population was much improved (Table 10). Among anglers who specifically listed largemouth bass as their number one preference (N = 43), and anglers who had not fished the reservoir prior to implementation of the slot length limit (N = 25), opinions regarding retention of the slot length limit were similar (Tables 11 and 12). However, there was less agreement that the quality of bass fishing had improved, perhaps because these groups had less or no experience fishing the reservoir prior to implementation of the slot length limit. Anglers supported further stockings of palmetto bass, but indicated

they probably wouldn't target them specifically (Table 13). Anglers were also in support of further stockings of smallmouth bass, but were neutral on donating funds for purchasing fingerlings for stocking if TPWD could not supply them (Table 14).

Prey species: Electrofishing catch rates of gizzard shad, bluegill and redbreast sunfish were 47.3/h, 96.7/h, and 42.0/h, respectively. Threadfin shad, longear sunfish, green sunfish, warmouth and redear sunfish were also available as forage. Index of vulnerability (IOV) for gizzard shad was poor, indicating that only 16.9% of gizzard shad were available to existing predators, which was similar to 2001 (Figure 2). Total CPUE of gizzard shad was considerably higher in 2005 compared to the 2001 survey (Figure 2). Total CPUE of bluegill in 2005 was higher than total CPUE from surveys in 2001 and 2000, and size structure continued to be dominated by small individuals (Figure 3).

Catfishes: The gill net catch rate of channel catfish was 1.8/nn in 2006, which was similar to previous years. Blue catfish from the 2000 and 2001 stockings (1.0/nn) were collected (N = 5). Prior to this survey blue catfish from stockings had not been collected (Bonds and Magnelia 2002). Flathead catfish were present in low density. There was little directed effort for catfishes (Table 5).

White bass: The gill net catch rate of white bass was 4.0/nn in 2006 (Figure 6), which was lower than previous years. Angler interest in white bass was high (Table 5), especially during the spring creel quarter when white bass angling accounted for 37.9% of the angling effort. Overall angler catch rate was good (0.63/hour). Angler catch rate during the spring creel quarter, when the most effort was directed toward white bass was 0.85/hour, which was excellent. Public access along the upper reaches of the reservoir via Camp Tejas and the Good Water Trail made this one of Central Texas' most accessible white bass fisheries for bank anglers.

Palmetto bass: The gill net catch rate of palmetto bass was 4.0/nn in 2006 (Figure 8). Individuals from all three stockings (2003, 2004, 2005) were collected. The 2004 cohort accounted for 80% of the individuals collected. Individuals ranged from 13- to 19-inches in length. On average palmetto bass reached legal size (18 inches) by age 2. Body condition of individuals as expressed by mean relative weight was sub-optimal. No palmetto bass were observed in the creel survey and no anglers were specifically targeting them. Anglers supported future stockings of palmetto bass.

Black basses: The total electrofishing catch rate of largemouth bass was 81.3/h in 2005, which was similar to the catch rate in 2001 (Figure 10). The electrofishing catch rate of bass greater than 14 inches (CPUE₁₄ = 12.0/h) has increased since the 2001 survey (3.0/hour). Pre-slot length limit electrofishing mean CPUE₁₄ was 6.6/hour (N = 2, range = 4 to 9.3/hour). Post-slot length limit mean CPUE₁₄ was 10.2/hour (N = 10, range = 1.3 – 34.0/hour). If post-regulation electrofishing samples from 1996 and 2000, conducted under extreme low water conditions (Appendix D), are omitted post-regulation mean CPUE₁₄ was 12.2/hour. Angler catch rate for bass 14 inches and greater during the spring quarter has increased since the last creel survey conducted in spring 1995. In 1995 the angler CPUE₁₄ during the spring quarter was 0.09/h versus 0.28/h in 2003, and directed angling effort was similar. In 2005 largemouth bass in Georgetown Reservoir were on average 9.9 inches at age 1 (N = 42), 13.3 inches at age 2 (N = 12) and 14.5 inches at age 3 (N = 9). Average age at 14 inches (13.0 to 14.9 inches) was 2.7 years (N = 15; range = 1-6 years). When compared to values for the Edwards Plateau ecological area (Prentice 1987) this was below average. Mean length at age one in 2005 was less than that documented in 2001 (10.7 inches), and in 1992 (10.7 inches) prior to implementation of the slot length limit. While the slot length limit appears to have been successful at increasing electrofishing CPUE₁₄ and angler CPUE₁₄ the objective of redirecting angler harvest at sub-slot bass to increase growth was not accomplished. Most anglers understood the rationale behind the slot length limit (Table 9), yet few (11%) who caught sub-slot bass harvested them. Mean relative weight for most inch classes of adult bass in 2005 was sub-optimal (less than 90), but was similar to values documented in previous surveys (Figure 10). The reservoir was stocked with the Florida sub-species of largemouth bass in 1986. Florida largemouth bass influence in 2005 was 59.4% (Table 18), which was above the threshold level of 20% needed to justify

supplemental stocking. Ten percent of the individuals sampled were pure Florida bass.

No smallmouth bass were caught in the 2005 electrofishing survey and there was no directed effort for this species, although angler catches were documented. Almost all smallmouth bass caught (N = 846) were released (99.5%). This species has always persisted in the reservoir at low densities and a quality fishery may be developed, but annual supplemental stocking will be required. The reservoir record 5.88 pound smallmouth bass was caught in 1990 indicating this species has the potential to grow to quality size in this reservoir. The last stocking of this species occurred in 1999. Anglers supported future stockings of smallmouth bass.

Fisheries management plan for Georgetown Reservoir, Texas

Prepared – July 2005.

ISSUE 1: Harvest of sub-slot largemouth bass was not adequate. Growth rates of sub-slot bass were below the ecological area average.

MANAGEMENT STRATEGY

1. A statewide survey is currently underway looking at angler attitudes and opinions regarding harvest of sub-slot largemouth bass. Results of that survey should be used to implement strategies for increasing harvest of sub-slot bass at Georgetown Reservoir.

ISSUE 2: Blue catfish stocked in 2000 and 2001 have survived. Natural reproduction has not been documented. Anglers may not be aware a fishery for this species exists.

MANAGEMENT STRATEGIES

1. Age blue catfish taken from routine gill net surveys to document natural reproduction.
2. Promote the blue catfish fishery through appropriate media outlets.

ISSUE 3: A palmetto bass fishery was produced through stockings. Anglers supported further stockings of palmetto bass. Anglers may be unaware this fishery exists.

MANAGEMENT STRATEGIES

1. Continue requesting stockings of palmetto bass at 5/acre.
2. Promote the palmetto bass fishery through appropriate media outlets.

ISSUE 4: Anglers supported further stockings of smallmouth bass. Production of this species by TPWD hatcheries was not sufficient to meet demand. Georgetown Reservoir has not been stocked since 1999.

MANAGEMENT STRATEGIES

1. Continue requesting stocking of smallmouth bass each year.
2. Solicit alternative sources of funding for procuring smallmouth bass fingerlings.

ISSUE 5: Angler catch rates for largemouth bass in the summer and winter quarters were low.

MANAGEMENT STRATEGIES

1. Anglers and the USACE have expressed interest in installing fish attractors on this reservoir to improve angler catch rates. Install cedar brush fish attractors in the reservoir at or above the average depth of the August thermocline in January 2007.

SAMPLING SCHEDULE JUSTIFICATION:

The proposed sampling schedule included electrofishing in 2007 and mandatory monitoring in 2009/2010 (Table 19). Additional electrofishing in 2007 is necessary to continue monitoring the slot length limit for largemouth bass. If needed, gill net surveys beyond 2009 will be used to document reproduction of introduced blue catfish. Trap net sampling for white crappie should be permanently eliminated on this reservoir because of low historical trap net catches and low directed angler effort for this species.

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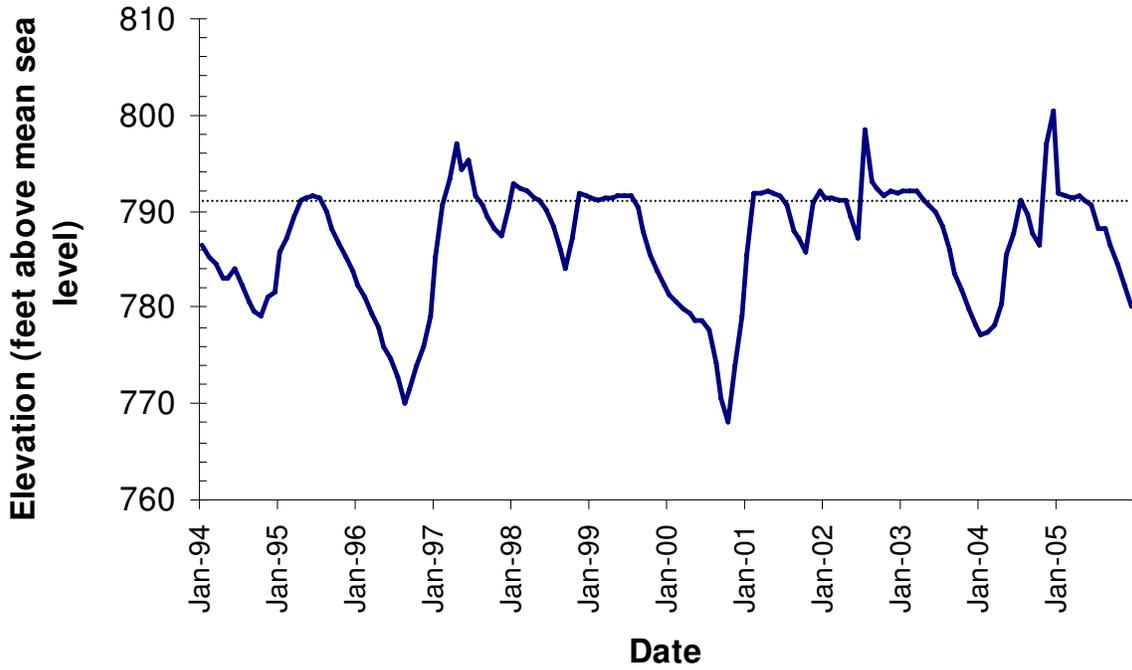


Figure 1. Monthly mean water level elevations in feet above mean sea level (msl) recorded for Georgetown Reservoir, Texas January, 1994 to December 2005. Dotted line is conservation elevation (791 msl).

Table 1. Characteristics of Georgetown Reservoir, Texas.

Characteristic	Description
Year constructed	1980
Controlling authority	United States Army Corp of Engineers
County	Williamson
Reservoir type	Mainstream
Shoreline Development Index (SDI)	4.90
Conductivity	360 umhos/cm

Table 2. Harvest regulations for Georgetown Reservoir.

Species	Bag Limit	Length Limit (inches)
Catfish: channel and blue catfish, their hybrids and subspecies	25 (in any combination)	12 minimum
Catfish, flathead	5	18 minimum
Bass, white	25	10 minimum
Bass, palmetto	5	18 minimum
Bass: smallmouth	5	14 minimum
Bass: largemouth	5	14 – 18 slot
Bass: spotted, Guadalupe	5 (in any combination)	No Limit
Crappie: white and black crappie, their hybrids and subspecies	25 (in any combination)	10 minimum

Table 3. Stocking history of Georgetown Reservoir, Texas. Size Categories are: FRY =<1 inch; FGL = 1-3 inches; AFGL = 8 inches, and ADL = adults.

Year	Number	Size
<u>Blue catfish</u>		
1989	13,240	FGL
2000	167,173	FGL
2001	131,019	FGL
2001	<u>4,030</u>	ADL
Species Total	315,462	
<u>Channel catfish</u>		
1978	14,998	FGL
1979	<u>40,000</u>	FGL
Species Total	54,998	
<u>Florida largemouth bass</u>		
1986	3,000	FGL
<u>Palmetto bass</u>		
1980	13,000	FGL
1982	13,179	FGL
2003	6,485	FGL
2004	6,494	FGL
2005	<u>6,475</u>	FGL
Species Total	46,633	
<u>Smallmouth bass</u>		
1978	30,000	FGL
1979	100,000	FRY
1980	100,552	FRY
1981	107,264	FRY
1992	32,774	FGL
1995	32,721	FGL
1999	<u>31,392</u>	FGL
Species Total	434,703	
<u>Walleye</u>		
1981	2,000,000	FRY
1985	<u>2,514,729</u>	FRY
Species Total	4,514,729	

Table 4. Survey of littoral zone and physical habitat types, Georgetown Reservoir, Texas, 2005. A linear shoreline distance (miles) was recorded for each habitat type found. Surface area (acres) and percent of reservoir surface area was determined for each type of aquatic vegetation found. No aquatic vegetation was documented.

Shoreline habitat type	Shoreline Distance		Surface Area	
	Miles	Percent of total	Acres	Percent of reservoir surface area
Concrete	0.06	0.28		
Eroded bank	0.86	3.96		
Riprap	0.41	1.88		
Rock bluff	7.26	33.51		
Rocky shoreline	7.61	35.13		
Sand	0.10	0.47		
Terrestrial vegetation	5.37	24.77		
Standing timber			410.60	31.66

Table 5. Percent directed angler effort by species for Georgetown Reservoir, Texas, March, 2003 to February, 2004.

Species	Year
	2003/2004
Black basses	9.05
Catfishes	3.79
White bass	15.44
Bluegill	0.56
Largemouth bass	35.42
White Crappie	3.79
Any species	28.00
Common carp	1.03
Channel catfish	2.91

Table 6. Total fishing effort (h) for all species and total directed expenditures at Georgetown Reservoir, Texas, March 2003 to February 2004.

Creel Statistic	Year
	2003/2004
Total fishing effort	35,585
Total directed expenditures	\$116,107*

*Calculated from on-the-water interviews conducted during the 2003/04 creel survey.

Table 7. Georgetown Reservoir angler levels of agreement with the following statements.

Statements	N	Mean score
Overall, I'm satisfied with the fishing at Lake Georgetown.	81	3.1
The bank fishing opportunities aren't adequate (not enough bank fishing access, fishing piers, etc.).	80	3.2
There is too much pleasure boat activity (i.e., water skiers, jet skis, etc.), which detracts from the fishing experience.	82	3.8
There are too many anglers fishing the lake, which takes away from the fishing experience.	82	2.3

*Mean scores were measured on a 5-point Likert-type scale, with 5.0 = "strongly agree" and 1.0 = "strongly disagree."

Table 8. Georgetown Reservoir angler levels of agreement with the following statements regarding motivations for fishing this reservoir.

Statements	N	Mean score
It's close to home and convenient.	82	4.4
The lake is pretty.	79	4.1
Overall, the fishing is better than at the other Central Texas lakes.	81	2.4
My primary purpose is to locate fish for an upcoming bass tournament.	80	1.9
My primary purpose for coming to the lake was for another activity (camping, swimming, etc.) and I decided to go fishing.	82	2.0
I fish here seasonally for a certain species such as for white bass during the spring run.	81	2.9
I fish this lake to relax and really don't care if I catch anything or not.	82	3.1

*Mean scores were measured on a 5-point Likert-type scale, with 5.0 = "strongly agree" and 1.0 = "strongly disagree."

Table 9. Angler response to statements used to measure angler understanding regarding rationale for implementing a 14- to 18-inch slot length limit for largemouth bass.

Statements	N	Percentage
The slot limit is used to protect scarce young bass under 14 inches and bass over 18 inches while encouraging harvest of plentiful mid-size bass (14- to 18-inches).	1	1.2
The slot limit is used to protect all bass less than 18 inches to keep bass abundance high since there aren't many bass in Lake Georgetown.	5	6.2
The slot limit protects bass in the 14- to 18-inch size range from harvest to increase abundance of bigger bass, while encouraging harvest of abundant bass smaller than 14 inches for the purpose of increasing growth rates.	65	80.3
I'm not really sure why the slot length limit is used on Lake Georgetown	7	8.6
I don't agree with using slot limits.	3	3.7

Table 10. Opinions (percentages) on largemouth bass length limit of bass anglers who had fished Lake Georgetown prior to implementation of the slot length limit in 1993*. Sample sizes are in parentheses below each percentage.

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I support the use of the statewide 14-inch minimum length limit if TPWD fisheries data showed only slight improvement to the bass population under the 14- to 18-inch slot limit.	10.5 (2)	26.3 (5)	21.0 (4)	31.6 (6)	10.5 (2)
I would support a change back to the 14-inch minimum length limit even if TPWD fisheries data showed much improvement in the bass population under the 14- to 18-inch slot limit.	22.2 (4)	22.2 (4)	27.8 (5)	27.8 (5)	0.0 (0)
I am not in favor of any length limits for largemouth bass.	68.4 (13)	15.8 (3)	5.3 (1)	5.3 (1)	5.3 (1)
I am not in favor of regulations that differ from the statewide 14-inch minimum length limit for largemouth bass.	15.8 (3)	21.0 (4)	52.6 (10)	5.3 (1)	5.3 (1)
Length limits for largemouth bass are not important to me because I release all the bass I catch.	5.3 (1)	21.0 (4)	26.3 (5)	31.6 (6)	15.8 (3)

*Among these anglers 45.0% agreed the quality of fishing had improved because of the slot length limit, 20% were neutral and 35% disagreed.

Table 11. Opinions (percentages) on largemouth bass length limits of Lake Georgetown anglers who listed bass as their number one species preference*. Sample sizes are in parentheses below each percentage.

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I support the use of the statewide 14-inch minimum length limit if TPWD fisheries data showed only slight improvement to the bass population under the 14- to 18-inch slot limit.	15.9 (7)	20.4 (9)	20.4 (9)	31.8 (14)	11.4 (5)
I would support a change back to the 14-inch minimum length limit even if TPWD fisheries data showed much improvement in the bass population under the 14- to 18-inch slot limit.	16.3 (7)	30.2 (13)	25.6 (11)	18.6 (8)	9.3 (4)
I am not in favor of any length limits for largemouth bass.	50.0 (22)	31.8 (14)	6.8 (3)	4.5 (2)	6.8 (3)
I am not in favor of regulations that differ from the statewide 14-inch minimum length limit for largemouth bass.	11.9 (5)	40.5 (17)	40.5 (17)	2.4 (1)	4.8 (2)
Length limits for largemouth bass are not important to me because I release all the bass I catch.	8.9 (4)	24.4 (11)	24.4 (11)	24.4 (11)	17.8 (8)

*Among these anglers 35.5% agreed the quality of fishing had improved because of the slot length limit, 42% were neutral and 22.2% disagreed.

Table 12. Opinions (percentages) on largemouth bass length limits of Lake Georgetown anglers who started fishing the reservoir after implementation of the slot length limit*. Sample sizes are in parentheses below each percentage.

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I support the use of the statewide 14-inch minimum length limit if TPWD fisheries data showed only slight improvement to the bass population under the 14- to 18-inch slot limit.	20.0 (5)	16.0 (4)	20.0 (5)	32.0 (8)	12.0 (3)
I would support a change back to the 14-inch minimum length limit even if TPWD fisheries data showed much improvement in the bass population under the 14- to 18-inch slot limit.	12.0 (3)	36.0 (9)	24.0 (6)	12.0 (3)	16.0 (4)
I am not in favor of any length limits for largemouth bass.	36.0 (9)	44.0 (11)	8.0 (2)	4.0 (1)	8.0 (2)
I am not in favor of regulations that differ from the statewide 14-inch minimum length limit for largemouth bass.	8.7 (2)	56.5 (13)	30.4 (7)	0.0 (0)	4.3 (1)
Length limits for largemouth bass are not important to me because I release all the bass I catch.	11.5 (3)	26.9 (7)	23.1 (6)	19.2 (5)	19.2 (5)

* Among these anglers 28.0% agreed the quality of fishing had improved because of the slot length limit, 60% were neutral and 12% disagreed.

Table 13. Georgetown Reservoir angler levels of agreement with the following statements regarding stockings of palmetto bass (hybrid striped bass).

Statements	N	Mean score
I support further stockings of hybrid striped bass in Lake Georgetown.	81	3.7
I will specifically fish for hybrid striped bass in Lake Georgetown if a population is developed.	80	3.3
I'd like to catch a hybrid striped bass but probably won't fish for them specifically.	82	3.2
Hybrid striped bass will hurt other sport fish populations in the reservoir.	80	3.0

*Mean scores were measured on a 5-point Likert-type scale, with 5.0 = "strongly agree" and 1.0 = "strongly disagree."

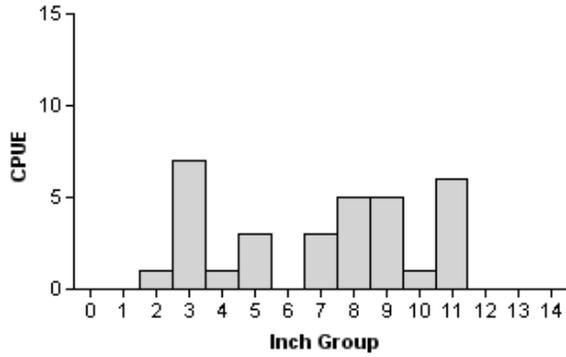
Table 14. Georgetown Reservoir angler levels of agreement with the following statements regarding stockings of smallmouth bass.

Statements	N	Mean score
I've never caught a smallmouth bass in Lake Georgetown.	81	2.9
I catch a few smallmouth bass from time to time but don't specifically target them.	81	3.1
I routinely catch smallmouth bass while fishing for other species but don't specifically target them.	80	2.6
I specifically target smallmouth bass and frequently catch them.	79	2.2
I support the future stocking of smallmouth bass in Lake Georgetown.	82	4.3
I would consider donating money to purchase additional smallmouth bass fingerlings for stocking in Lake Georgetown.	81	3.0

*Mean scores were measured on a 5-point Likert-type scale, with 5.0 = "strongly agree" and 1.0 = "strongly disagree."

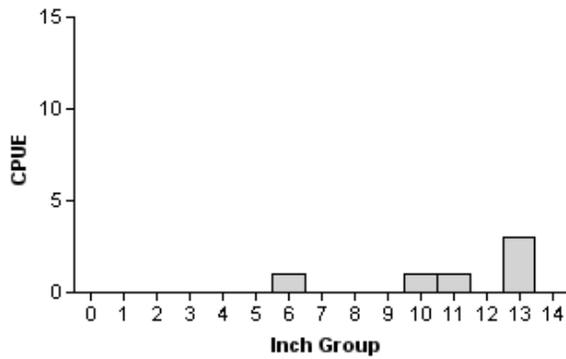
Gizzard Shad

2000



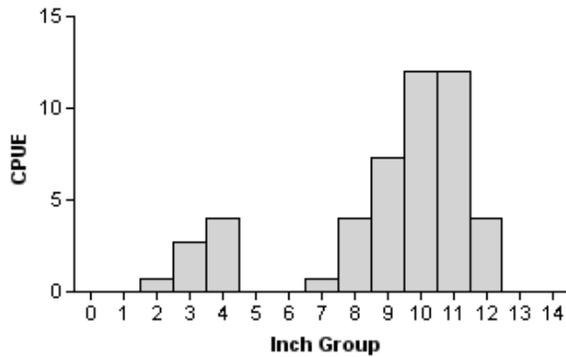
Effort = 1.0
 Total CPUE = 32.0(40; 32)
 IOV = 46.9 (0.12)

2001



Effort = 1.0
 Total CPUE = 6.0(29; 6)
 IOV = 16.7 (0.21)

2005

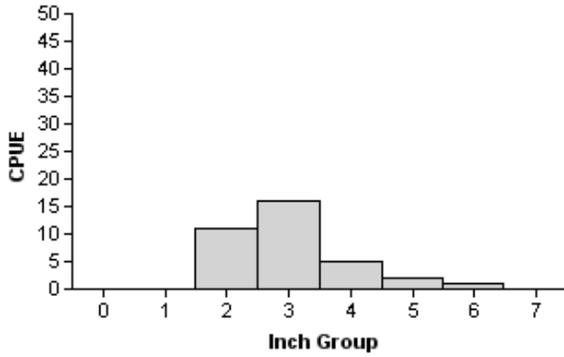


Effort = 1.5
 Total CPUE = 47.3 (42; 71)
 IOV = 16.9 (0.11)

Figure 2. Number of gizzard shad caught per hour (CPUE) and population indices (RSE and N for CPUE and SE for IOV are in parentheses) for fall electrofishing surveys, Georgetown Reservoir, Texas, 2000, 2001 and 2005.

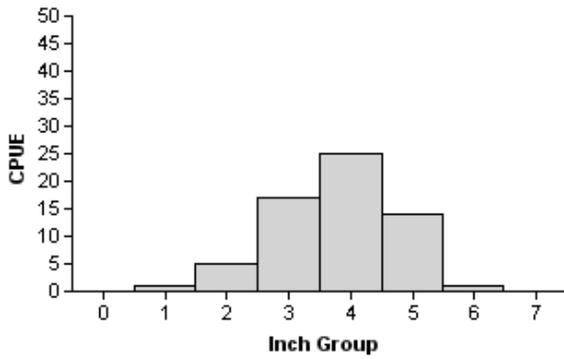
Bluegill

2000



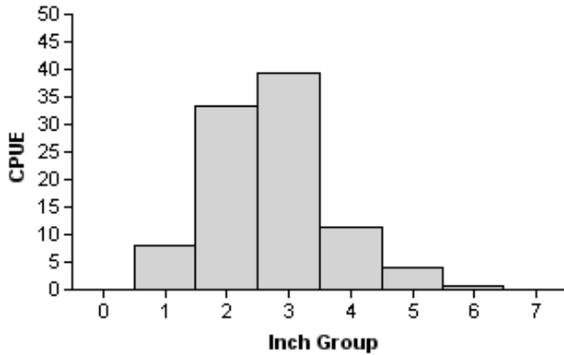
Effort = 1.0
 Total CPUE = 35.0 (24; 35)
 PSD = 4.0 (0.04)

2001



Effort = 1.0
 Total CPUE = 63.0 (44; 63)
 PSD = 2.0 (0.01)

2005



Effort = 1.5
 Total CPUE = 96.7 (25; 145)
 PSD = 1.0 (0.01)

Figure 3. Number of bluegill caught per hour (CPUE) and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, Georgetown Reservoir, Texas, 2000, 2001 and 2005.

Channel Catfish

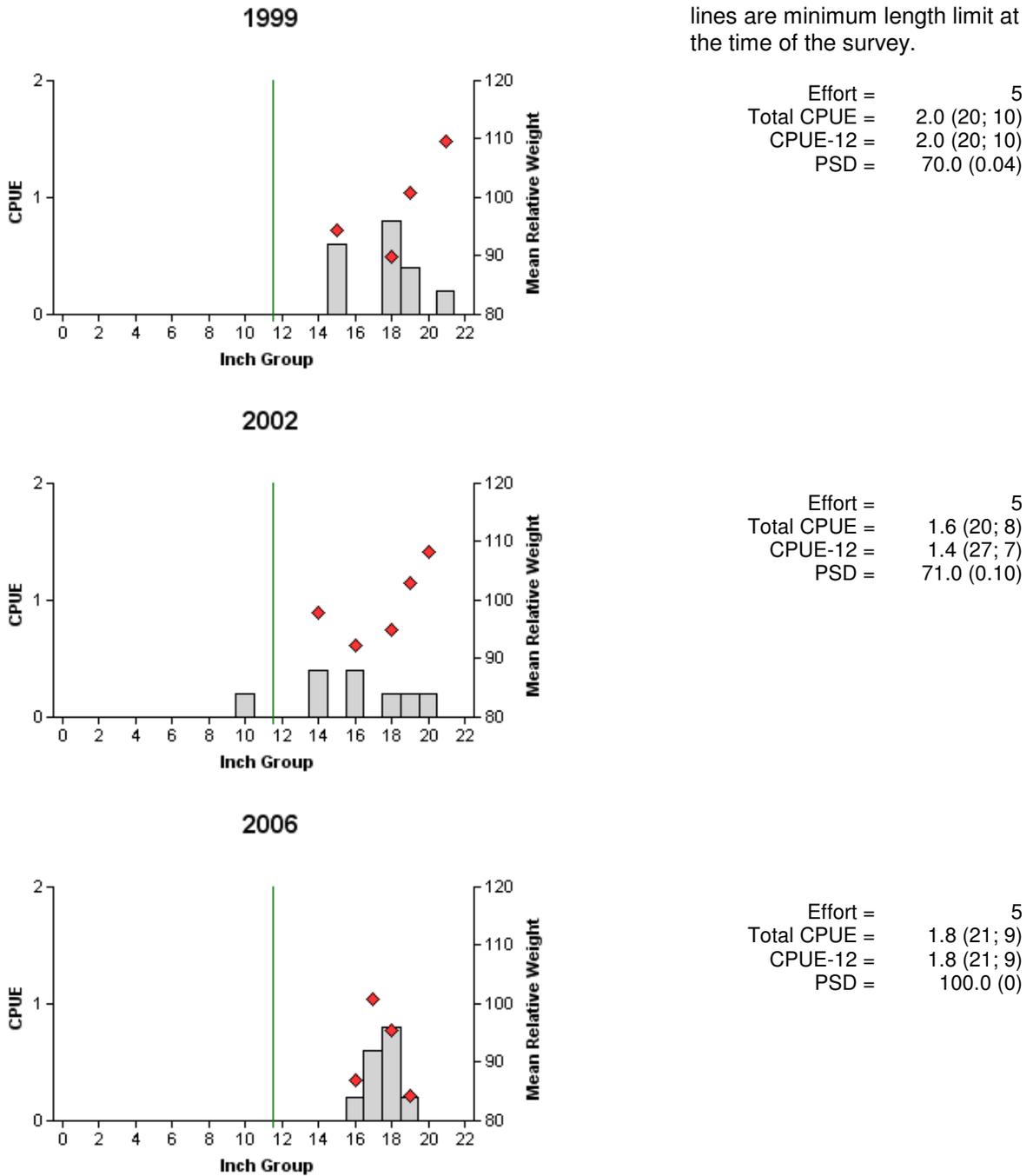


Figure 4. Number of channel catfish caught per net night (CPUE) and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring gill net surveys, Georgetown Reservoir, Texas, 1999, 2002 and 2006. Vertical

Channel Catfish

Table 15. Creel survey statistics for channel catfish at Georgetown Reservoir from March 2003 through February 2004 where total catch per hour is for anglers targeting channel catfish and total harvest is the estimated number of channel catfish harvested by all anglers. Relative standard errors (RSE) are in parentheses.

Creel Survey Statistic	Year	
	2003/2004	
Directed effort (h)	1,035.27 (37)	
Directed effort/acre	0.80 (37)	
Total catch per hour	0.00 (0)	
Total harvest	84.67 (134)	
Harvest/acre	0.06 (134)	
Percent legal released	33.3	

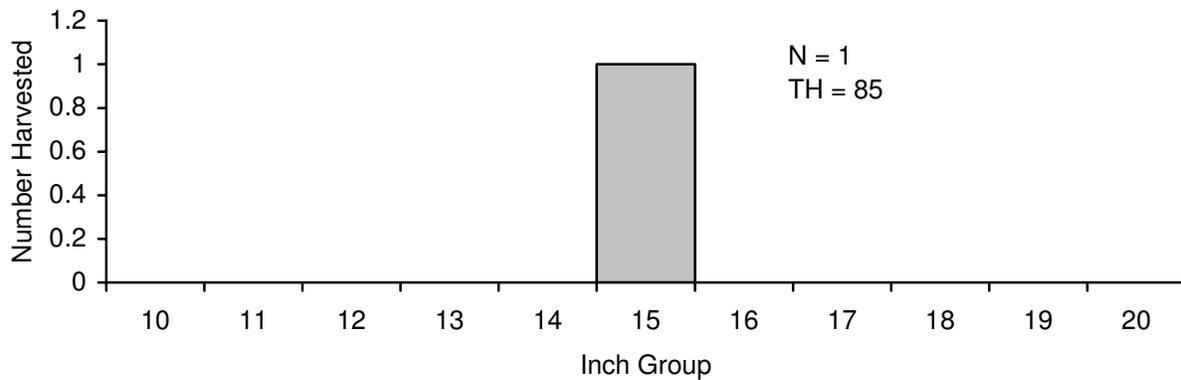


Figure 5. Length frequency of harvested channel catfish observed during creel surveys at Georgetown Reservoir, Texas, March 2003 through February 2003, all anglers combined. N is the number of harvested channel catfish observed during creel surveys, and TH is the total estimated harvest for the creel period.

White Bass

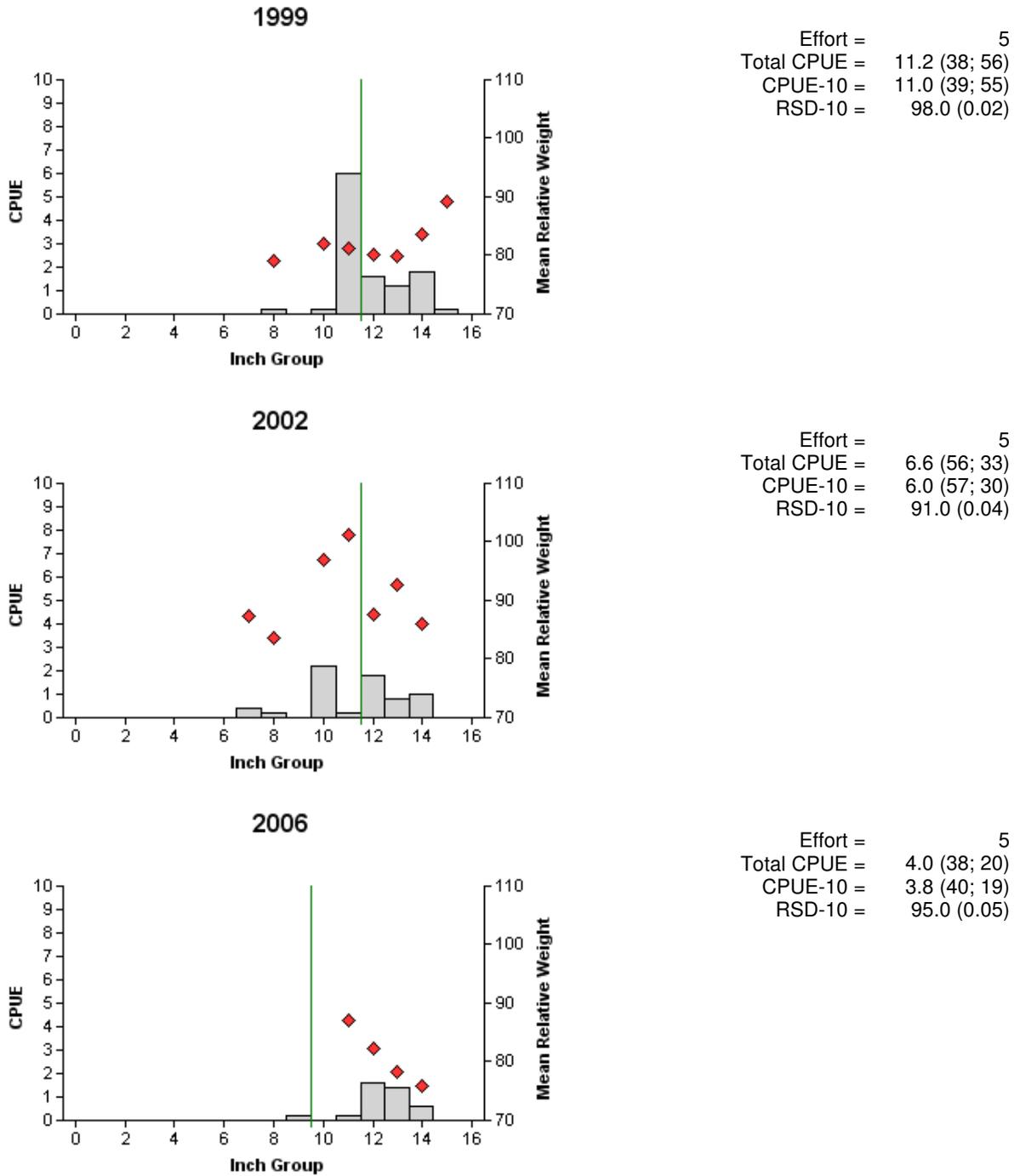


Figure 6. Number of white bass caught per net night (CPUE) and population indices (RSE and N are in parentheses) for spring gill net surveys, Georgetown Reservoir, Texas, 1999, 2002 and 2006. Vertical lines represent the length limit at the time of the survey.

White Bass

Table 16. Creel survey statistics for white bass at Georgetown Reservoir from March 2003 through February 2004, where total catch per hour is for anglers targeting white bass and total harvest is the estimated number of white bass harvested by all anglers. Relative standard errors (RSE) are in parentheses.

Creel Survey Statistic	Year	
	2003/2004	
Directed effort (h)	5,493.33 (24)	
Directed effort/acre	4.23 (24)	
Total catch per hour	0.63 (47)	
Total harvest	4,709.48 (42)	
Harvest/acre	3.63 (42)	
Percent legal released	20.8	

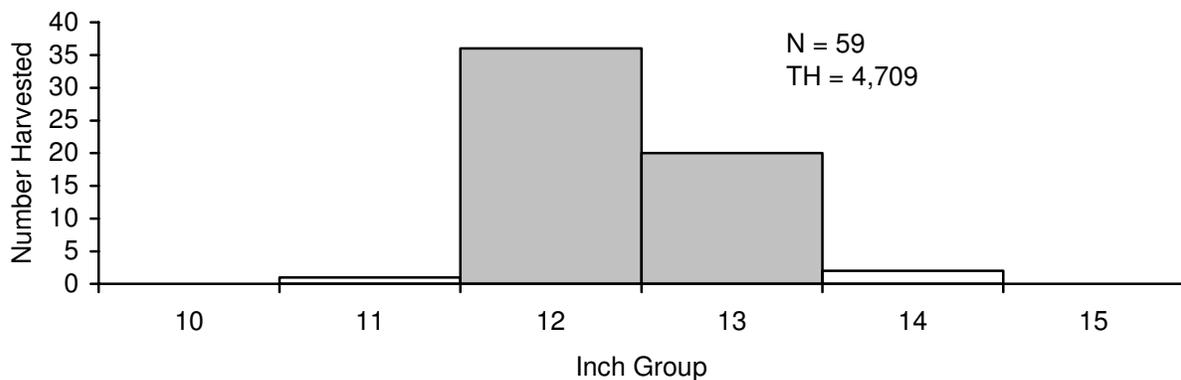
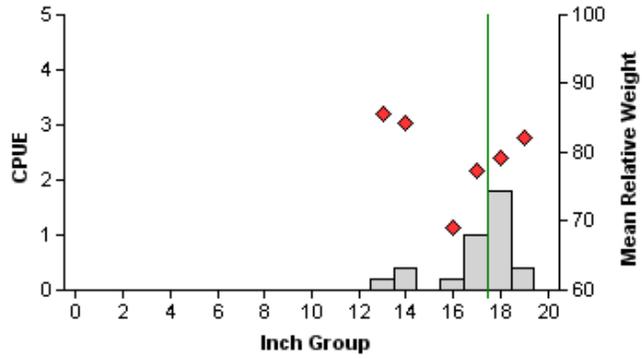


Figure 7. Length frequency of harvested white bass observed during creel surveys at Georgetown Reservoir, Texas, March 2003 through February 2004, all anglers combined. N is the number of harvested white bass observed during creel surveys, and TH is the total estimated harvest for the creel period.

Palmetto Bass 2006



Effort = 5
 Total CPUE = 4.0 (85; 20)
 CPUE-18 = 2.2 (100; 1.1)
 RSD-18 = 55.0 (0.08)

Figure 8. Number of palmetto bass caught per net night (CPUE) and population indices (RSE and N are in parentheses) for spring gill net surveys, Georgetown Reservoir, Texas, 2006. Vertical line represents length limit at the time of the survey.

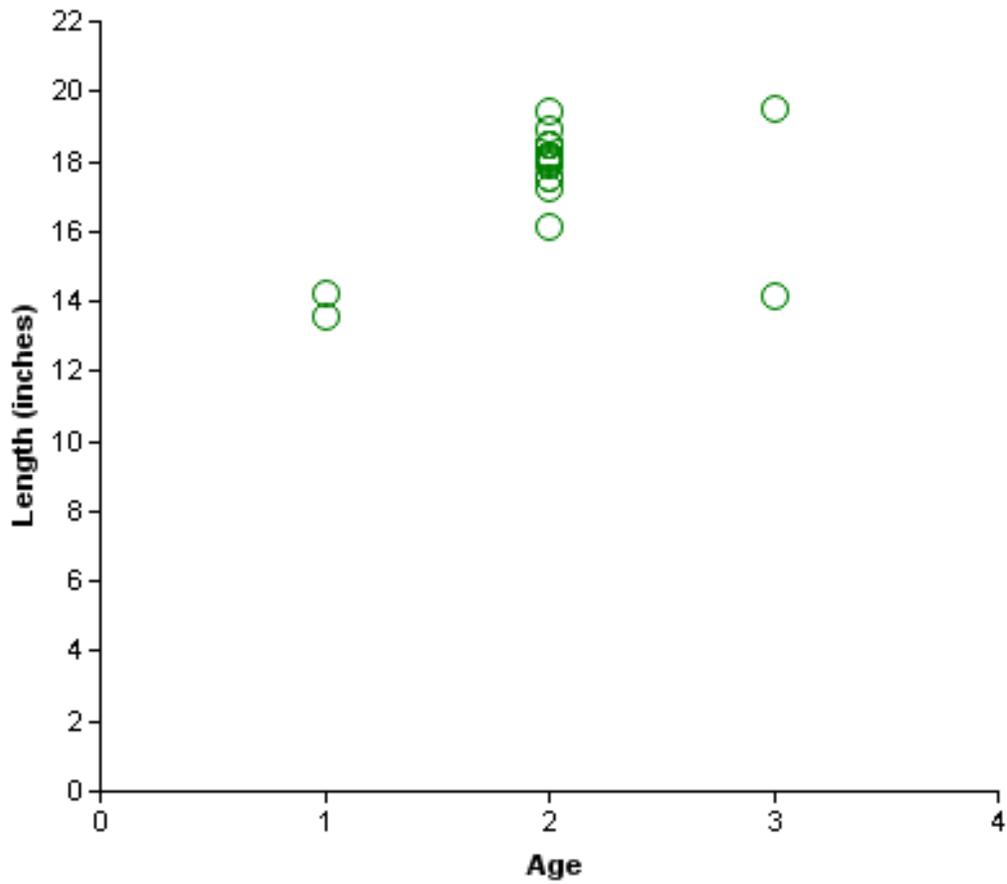
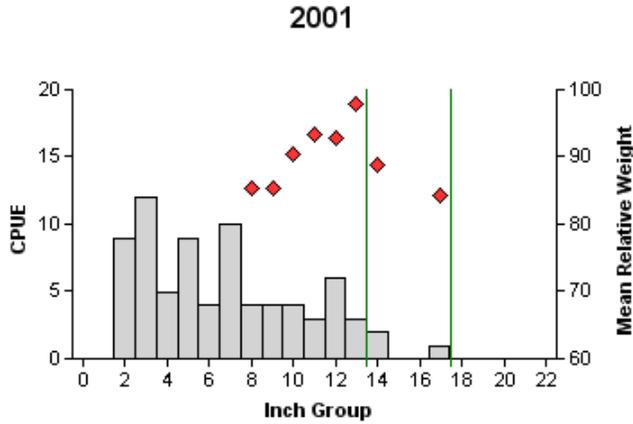
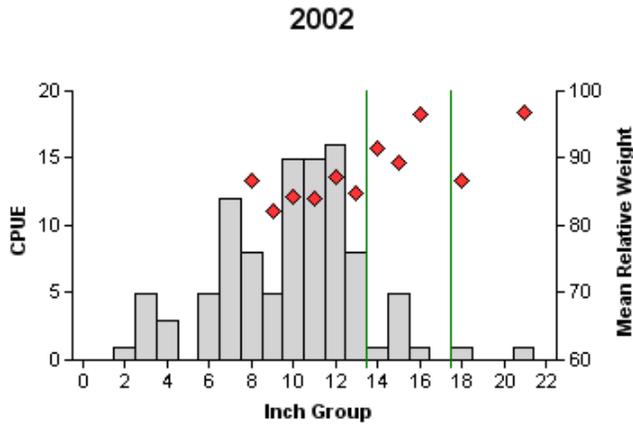


Figure 9. Length at age for palmetto bass collected gill netting, Georgetown Reservoir, May 2006 (N = 20).

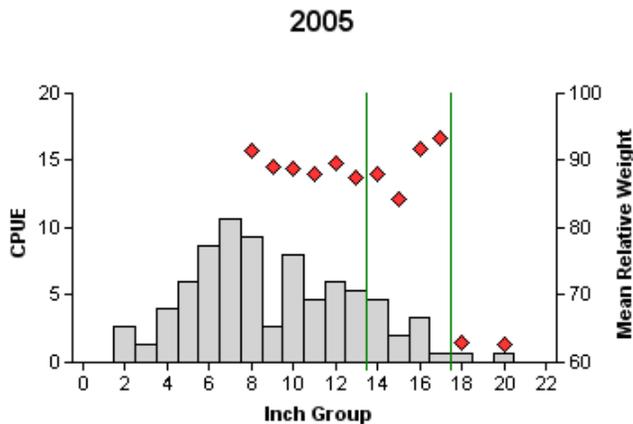
Largemouth Bass



Effort = 1.0
 Total CPUE = 76.0 (27; 76)
 Stock CPUE = 27.0 (27; 27)
 CPUE-14 = 3.0 (52; 3)
 RSD-14 = 11.0 (0.05)



Effort = 1.0
 Total CPUE = 102.0 (18; 102)
 Stock CPUE = 76.0 (21; 76)
 CPUE-14 = 9.0 (29; 9)
 RSD-14 = 12.0 (0.04)



Effort = 1.5
 Total CPUE = 81.3 (12; 122)
 Stock CPUE = 48.0 (20; 72)
 CPUE-14 = 12.0 (31; 18)
 RSD-14 = 25.0 (0.05)

Figure 10. Number of largemouth bass caught per hour (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, Georgetown Reservoir, Texas, 2001, 2002 and 2005. Vertical lines represent length limit at the time of the survey.

Largemouth Bass

Table 17. Creel survey statistics for largemouth bass at Georgetown Reservoir from March 2003 through February 2004 where total catch per hour is for anglers targeting largemouth bass and total harvest is the estimated number of largemouth bass harvested by all anglers. Relative standard errors (RSE) are in parentheses.

Creel Survey Statistic	Year	
	2003/2004	
Directed effort (h)	12,605.04	(14)
Directed effort/acre	9.72	(14)
Total catch per hour	0.68	(53)
Total harvest	1,051.29	(57)
Total catch	17,048.48	(62)
Harvest/acre	0.81	(57)
Percent catch and release	94	
Percent legal released	91	
Percent sub-slot released	90	
Total released	15,997.19	(33)
Total released sub-slot	14,353.24	(88)
Percent above-slot released	2	
Total released above-slot	260.08	(50)

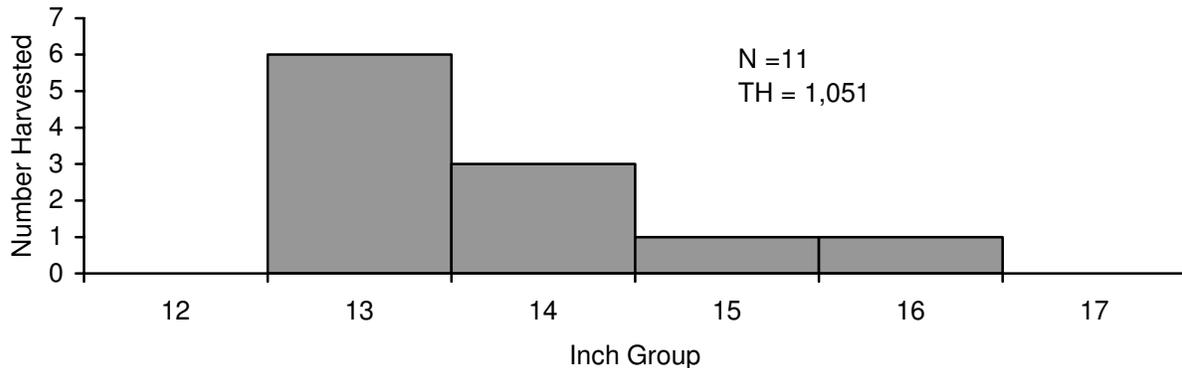


Figure 11. Length frequency of harvested largemouth bass observed during creel surveys at Georgetown Reservoir, Texas, March 2003 through February 2004, all anglers combined. N is the number of harvested largemouth bass observed during creel surveys, and TH is the total estimated harvest for the creel period.

Table 18. Results of genetic analysis of largemouth bass collected by fall electrofishing, Georgetown Reservoir, Texas, 2001 and 2005. FLMB = Florida largemouth bass, NLMB = Northern largemouth bass, F1 = first generation hybrid between a FLMB and a NLMB, Fx = second or higher generation hybrid between a FLMB and a NLMB.

Year	Sample size	Genotype				% FLMB alleles	% pure FLMB
		FLMB	F1	Fx	NLMB		
2001	29	7	10	12	0	70.7	24.1
2005	30	16	0	14	0	59.4	10.0

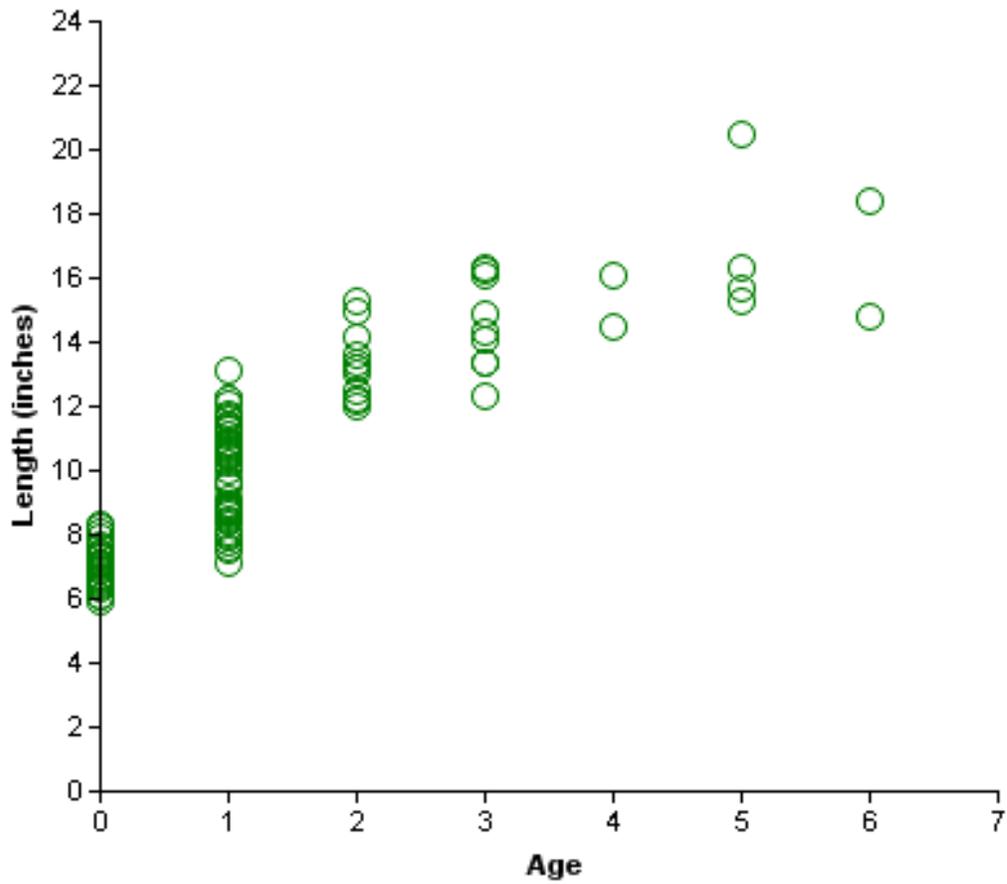


Figure 12. Length at age for largemouth bass collected electrofishing, Georgetown Reservoir, November 2005 (N = 95).

Table 19. Proposed sampling schedule for Georgetown Reservoir, Texas. Gill netting surveys are conducted in the spring, while electrofishing and trap netting surveys are conducted in the fall. Standard survey denoted by S and additional survey denoted by A.

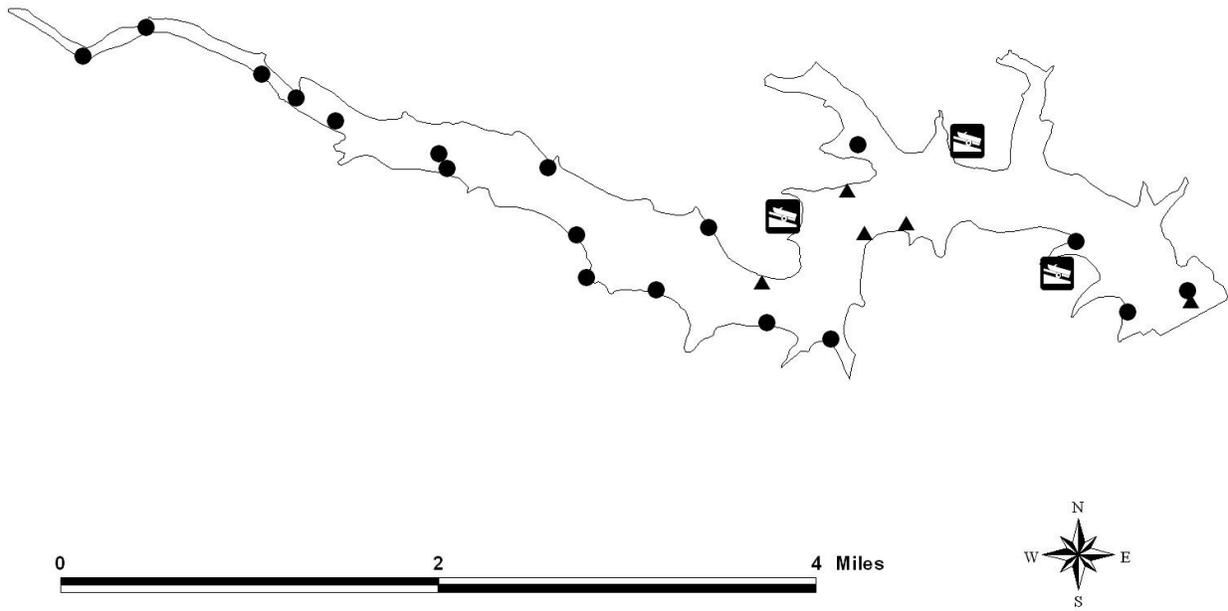
Survey Year	Electrofisher	Trap Net	Gill Net	Creel Survey	Report
Fall 2006-Spring 2007					
Fall 2007-Spring 2008	A				
Fall 2008-Spring 2009					
Fall 2009-Spring 2010	S		S		S

APPENDIX A

Number (N) and catch rate (CPUE) of all target species collected from all gear types from Georgetown Reservoir, Texas, 2005-2006.

Species	Gill Netting		Electrofishing	
	N	CPUE	N	CPUE
Gizzard shad			71	47.3
Threadfin shad			29	19.3
Blue catfish	5	1.0		
Channel catfish	9	1.8		
Flathead catfish	1	0.2		
White bass	20	4.0		
Palmetto bass	20	4.0		
Redbreast sunfish			63	42.0
Green sunfish			61	40.7
Warmouth			4	2.7
Bluegill			145	96.7
Longear sunfish			53	35.3
Redear sunfish			24	16.0
Largemouth bass			122	81.3
Guadalupe bass			3	2.0

APPENDIX B



Location of sampling sites, Georgetown Reservoir, Texas, 2005-2006. Gill net and electrofishing stations are indicated by ● and ▲, respectively. Water level was 782.31 feet above mean sea level (msl) for electrofishing and 781.74 for gill netting. Conservation pool level is 791.00 msl.

APPENDIX C

Survey instrument used for gathering attitude/opinion and expenditure information from Georgetown Reservoir anglers.

Lake Georgetown Angler Survey

During a recent fishing trip, you were asked by one of our Texas Parks and Wildlife Inland Fisheries staff to participate in this study we are conducting at Lake Georgetown.

The enclosed survey is designed to tell us about your fishing activity and preferences at Lake Georgetown, your opinions on the management of the recreational fishery, and your expenditures incurred during your fishing trip to the reservoir. The information will be useful in evaluating fishery management on Lake Georgetown. Also, your responses will help the Texas Parks and Wildlife Department provide more satisfying fishing experiences.

You are one of a small number of anglers selected to participate in this study. It is important that YOU and no one else complete the questionnaire. Your responses are important to us no matter how often you fish Lake Georgetown. All responses will be strictly confidential, and you will not be identified with your answers. There is an identification number on the questionnaire for mailing purposes only.

Please take the time to complete the questionnaire and return it in the enclosed postage-paid envelope. If you should have any questions, please contact us by mail, e-mail or phone using information provided on the final page of the survey.

Thank you for your assistance. Good fishing!

Sincerely,



Phil Durocher
Director, Inland Fisheries

The information you provide on this survey will remain strictly confidential and you will not be identified.

1. Of the listed species, please choose the three fish you most prefer to catch at Lake Georgetown?

FISH SPECIES
Sunfish (perch)
Smallmouth bass
Largemouth bass
Catfishes
White bass
Any fish I can catch

First Choice _____
 Second Choice _____
 Third Choice _____

2. How many years have you been fishing Lake Georgetown? _____

3. Since this time last year, how many days have you fished at Lake Georgetown?

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

A. Yes B. No

If yes, about how many per year do you participate in? _____

5. Where do you fish the most when fishing Lake Georgetown? (*Circle one*)

Boat Bank

1 2

6. Do you usually fish Lake Georgetown in the: (*Circle one*)

Spring Summer Fall Winter All seasons

1 2 3 4 5

7. Do you usually fish Lake Georgetown on: (*Circle one*)

Weekdays Weekends Both weekdays and weekends

1 2 3

8. Please indicate the extent to which you agree or disagree with each of the following statements about Lake Georgetown. *(Circle only one answer for each statement)*

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
A. Overall, I'm satisfied with the fishing at Lake Georgetown.	1	2	3	4	5
B. The fishing for the species I'm most interested in is not very good.	1	2	3	4	5
C. The boat ramps aren't adequate.	1	2	3	4	5
D. The bank fishing opportunities aren't adequate (not enough bank fishing access, fishing piers, etc.).	1	2	3	4	5
E. There is too much pleasure boat activity (i.e., water skiers, jet skis, etc.), which detracts from the fishing experience.	1	2	3	4	5
F. Lake Georgetown is a tough lake in which to catch fish because it lacks fish holding cover.	1	2	3	4	5
G. There are too many anglers fishing the lake, which takes away from the fishing experience.	1	2	3	4	5
H. There are too many people using the lake and it gets too congested.	1	2	3	4	5

9. Please indicate the extent to which you agree or disagree with each of the following statements about the possible reasons why you chose to go fishing at Lake Georgetown over other Central Texas reservoirs. *(Circle only one answer for each statement)*

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
A. It's close to home and convenient.	1	2	3	4	5
B. The lake is pretty.	1	2	3	4	5
C. Overall, the fishing is better than at the other Central Texas lakes.	1	2	3	4	5
D. My primary purpose is to locate fish for an upcoming bass tournament.	1	2	3	4	5
E. My primary purpose for coming to the lake was for another activity (camping, swimming, etc.) and I decided to go fishing.	1	2	3	4	5
F. I fish here seasonally for a certain species such as for white bass during the spring run.	1	2	3	4	5
G. I fish this lake to relax and really don't care if I catch anything or not.	1	2	3	4	5

10. Since 1993, largemouth bass harvest in Lake Georgetown has been regulated with a 14-18 inch slot length limit (bass between 14 and 18 inches length may not be harvested). Please circle the letter corresponding to the answer which best describes your understanding of the reason a slot limit is used.

A. The slot limit is used to protect scarce young bass under 14 inches and bass over 18 inches while encouraging harvest of plentiful mid-size bass (14- to 18-inches).
B. The slot limit is used to protect all bass less than 18 inches to keep bass abundance high since there aren't many bass in Lake Georgetown.
C. The slot limit protects bass in the 14- to 18-inch size range from harvest to increase abundance of bigger bass, while encouraging harvest of abundant bass smaller than 14 inches for the purpose of increasing growth rates.
D. I'm not really sure why the slot length limit is used on Lake Georgetown
E. I don't agree with using slot limits.

11. We are continually evaluating the effectiveness of the 14- to 18-inch slot limit for largemouth bass at Lake Georgetown and are interested if anglers think fishing quality has improved as a result of the slot limit. Please circle the number corresponding to your opinion on whether fishing has improved since the slot limit was implemented in 1993.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

12. Please indicate the extent to which you agree or disagree with each of the following statements about potential future use of the statewide 14-inch minimum length limit for largemouth bass in Lake Georgetown. (Circle only one answer for each statement)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
A. I support the use of the statewide 14-inch minimum length limit if TPWD fisheries data showed only slight improvement to the bass population under the 14- to 18-inch slot limit.	1	2	3	4	5
B. I would support a change back to the 14-inch minimum length limit even if TPWD fisheries data showed much improvement in the bass population under the 14- to 18-inch slot limit.	1	2	3	4	5
C. I am not in favor of any length limits for largemouth bass.	1	2	3	4	5
D. I am not in favor of regulations that differ from the statewide 14-inch minimum length limit for largemouth bass.	1	2	3	4	5
E. Length limits for largemouth bass are not important to me because I release all the bass I catch.	1	2	3	4	5

13. Hybrid striped bass were stocked in Lake Georgetown in 2003 to provide another sport fishing opportunity for anglers. Please indicate the extent to which you agree or disagree with each of the following statements about hybrid striped bass fishing in Lake Georgetown. (Circle only one answer for each statement)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
A. I support further stockings of hybrid striped bass in Lake Georgetown.	1	2	3	4	5
B. I will specifically fish for hybrid striped bass in Lake Georgetown if a population is developed.	1	2	3	4	5
C. I'd like to catch a hybrid striped bass but probably won't fish for them specifically.	1	2	3	4	5
D. Hybrid striped bass will hurt other sport fish populations in the reservoir.	1	2	3	4	5

14. Smallmouth bass have been intermittently stocked in Lake Georgetown. Smallmouth bass must be stocked to maintain the fishery. Please indicate the extent to which you agree or disagree with each of the following statements about the smallmouth bass in Lake Georgetown. (Circle only one answer for each statement)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
A. I've never caught a smallmouth bass in Lake Georgetown.	1	2	3	4	5
B. I catch a few smallmouth bass from time to time but don't specifically target them.	1	2	3	4	5
C. I routinely catch smallmouth bass while fishing for other species but don't specifically target them.	1	2	3	4	5
D. I specifically target smallmouth bass and frequently catch them.	1	2	3	4	5
G. I support the future stocking of smallmouth bass in Lake Georgetown.	1	2	3	4	5
H. I would consider donating money to purchase additional smallmouth bass fingerlings for stocking in Lake Georgetown.	1	2	3	4	5

15. In the Central Texas area, what are your favorite three lakes to fish and for what fish species? (Please record your choices from most favorite to least favorite and your favorite fish species at each lake)

First choice: _____ Favorite fish species on this lake: _____

Second choice: _____ Favorite fish species on this lake: _____

Third choice: _____ Favorite fish species on this lake: _____

16. On this particular trip to Lake Georgetown, a TPWD angler surveyor contacted you. For this trip, you purchased various goods and services. Information on these purchases gives us information on the economic value of fishing at Lake Georgetown. If you were contacted multiple times by an angler surveyor, please give values only for the time in which you gave the surveyor your name and address. Please estimate how much was spent *IN TEXAS* on the following items.

	In counties* adjacent to Lake Georgetown	Elsewhere in Texas
Auto transportation (such as fuel or repair)	\$	\$
Other transportation (such as airfares)	\$	\$
Boat rental	\$	\$
Boat operation (such as fuel, oil, or servicing)	\$	\$
Boat launch fees	\$	\$
Entrance or parking fees	\$	\$
Lodging (such as hotels or camping fees)	\$	\$
Restaurant meals	\$	\$
Groceries (such as food, drink, or ice)	\$	\$
Bait and tackle (purchased during this trip)	\$	\$
Fishing guide fees	\$	\$
Fishing license	\$	\$
Other expenses on this trip (please list below)		
	\$	\$
	\$	\$
TOTAL	\$	\$

\$

* Williamson, Travis, Burnet, Milam, or Bell are the counties adjacent to Lake Georgetown

17. Are you? (Circle one)

- A. Male
- B. Female

18. Are you? (Circle one)

- 1. White
- 2. Black/African American
- 3. Hispanic/Spanish
- 4. Asian/Pacific Islander
- 5. American Indian
- 6. Other _____

19. What is your age? _____ Years

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

- | | |
|------------------------|------------------------|
| A. Under \$10,000 | F. \$35,000 - \$39,999 |
| B. \$10,000 - \$19,999 | G. \$40,000 - \$49,999 |
| C. \$20,000 - \$24,999 | H. \$50,000 - \$74,999 |
| D. \$25,000 - \$29,999 | I. \$75,000 - \$99,999 |
| E. \$30,000 - \$34,999 | J. \$100,000 or more |

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

- | | |
|--------|-------|
| A. Yes | B. No |
|--------|-------|

Is there anything else you would like to share with us? Please use the space below to write any comments you have:

Appendix D

Water level (feet above mean sea level (ft msl)) and catch rate of largemouth bass 14 inches and greater (CPUE14) from electrofishing surveys 1992 to 2005, Georgetown Reservoir, Texas. Vertical line represents date of implementation (September 1, 1993) of the 14- to 18-inch slot length limit. Horizontal solid line represents pool elevation (791 ft msl). Horizontal dashed line represents mean CPUE14 for all surveys (N = 13, 11.2/hour).

