

PERFORMANCE REPORT

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FEDERAL AID IN SPORT FISH RESTORATION ACT

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FEDERAL AID PROJECT F-30-R-33

STATEWIDE FRESHWATER FISHERIES MONITORING AND MANAGEMENT PROGRAM

2007 Survey Report

Fayette County Reservoir

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SURVEY AND MANAGEMENT SUMMARY

Fish populations in Fayette County Reservoir were surveyed in 2005, 2006 and 2007 using electrofishing and in 2008 using gill nets. Anglers were surveyed from June 2005 to May 2006 with a creel survey and with a volunteer questionnaire from October 2004 to May 2006. This report summarizes results of the surveys and contains a fisheries management plan for the reservoir based on those findings.

- **Reservoir Description:** Fayette County Reservoir is a 2,394-acre impoundment of Cedar Creek; an intermittent stream in the Colorado River watershed. It was constructed in 1978 by the Lower Colorado River Authority (LCRA) for the purpose of supplying cooling water for steam-electric power generation. The reservoir is located in Fayette County, approximately seven miles east of La Grange, Texas. The reservoir lies within the Post Oak Savannah ecological area. Water in the reservoir is maintained at a near-constant level (1-2 ft annual fluctuation). During periods of low rainfall, water is pumped into the reservoir from the Colorado River. Surrounding shoreline is mostly undeveloped. Shoreline length is approximately 20 miles. Fayette County Reservoir was opened to fishing in 1979.
- **Management history:** Important sport fish include largemouth bass and catfish species. Florida largemouth bass were stocked into nursery ponds during 1977 prior to reservoir filling. Largemouth bass have been managed since 1979 with several differing length limit regulations. 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 were the dominant prey species available. Gizzard shad were available as well.
 - **Catfishes:** Channel catfish were the dominant catfish species present. Flathead catfish were present in low density.
 - **Largemouth bass:** Largemouth bass were abundant. Angler catch rate was good. Anglers seeking largemouth bass accounted for the majority of the directed fishing effort.
- **Economic Impact**
 - An estimated total of \$852,527 in direct expenditures related to fishing trips was made by anglers during the 12-month creel period.
- **Management Strategies:** The reservoir should continue to be managed with existing length limit and harvest regulations. Aquatic vegetation should continue to be monitored with annual vegetation surveys.

INTRODUCTION

This document is a summary of fisheries data collected from Fayette County Reservoir from 2004–2008. 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

Fayette County Reservoir is a 2,394-acre impoundment of Cedar Creek; an intermittent stream in the Colorado River watershed. It was constructed in 1978 by the Lower Colorado River Authority (LCRA) for the purpose of supplying cooling water for steam-electric power generation. The reservoir is located in Fayette County, approximately seven miles east of La Grange, Texas. The reservoir lies within the Post Oak Savannah ecological area. Water in the reservoir is maintained at a near-constant level (1-2 ft annual fluctuation). During periods of low rainfall, water is pumped into the reservoir from the Colorado River. Shoreline surrounding the reservoir was undeveloped and shoreline length is approximately 20 miles. Fayette County Reservoir was opened to fishing in 1979. Shoreline access was limited within LCRA park boundaries, with main access by fishing pier in two parks. Multi-lane, concrete boat ramps (two boat lanes total) were located within both parks, offering adequate boat access to the reservoir. Other descriptive characteristics for Fayette County Reservoir are in Table 1.

Management History

Previous management strategies and actions: Management strategies and actions from the previous survey report (Bonds and Magnelia 2004) included:

1. Conduct an annual creel survey designed to include questions related to catches of largemouth bass greater than 21 and 24 inches in length.
Action: A roving creel survey was conducted from June 2005 to May 2006 to assess the presence of bass ≥ 21 inches in length along with typical creel inquiries.
2. Implement a volunteer angler reporting program to more effectively monitor catches of large bass.
Action: A volunteer creel survey was conducted from October 2004 to May 2006 to assess the presence of bass ≥ 21 inches in length.
3. Monitor aquatic plant coverage.
Action: An aquatic vegetation survey was conducted each year since the last survey report during the peak of the growing season (July-September).
4. Promote the channel catfish fishery.
Action: The channel catfish fishery was promoted with fishing articles in popular game and fish magazines.

Harvest regulation history: Sportfishes in Fayette County Reservoir were managed with statewide regulations with the exception of largemouth bass. From 1979 to 1985, largemouth bass were managed with a 16-inch minimum length limit. Slot length limits have been implemented since September 1, 1985 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. A 14- to 24-inch slot length limit was implemented on September 1, 1995 to try to protect larger, quality fish from harvest, while trying to increase the availability of trophy-size largemouth bass. A complete regulation history is included in Table 2.

Stocking history: Florida largemouth bass and catfishes were important species which were requested and/or stocked. A complete stocking history is in Table 3.

Aquatic vegetation/habitat history: Fayette County Reservoir supported a diverse mix of aquatic vegetation species (Table 4). Aquatic vegetation surveys were conducted every summer from 2004 to 2007. The plant community composition has not changed since the 2003 survey, when Marine Naiad (*Najas marina*) expanded to become the dominant aquatic vegetation (Bonds and Magnelia 2004). The exotic plant "Hydrilla" (*Hydrilla verticillata*) was present in this reservoir along with other native aquatic plant species. Hydrilla coverage remained low and consistently covered <1% of the reservoir during each survey. Mean total vegetation coverage over the past four years was 11.5%. Aquatic plants offered excellent fish habitat, especially for largemouth bass.

METHODS

Fishes were collected by electrofishing (1.0 hour at 12 five-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 2005). A one-year creel survey was conducted from June 2005 to May 2006. A volunteer angler survey was conducted from October 2004 to May 2006.

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 using otoliths. Sample sizes were adequate to meet category 2 age-and-growth sampling design recommendations (TPWD, Inland Fisheries Division, unpublished manual revised 2005). A habitat survey was conducted in 2004.

RESULTS AND DISCUSSION

Habitat: In 2004, shoreline habitat consisted primarily of vegetated (terrestrial) habitat (Table 4). Submerged, floating and emergent aquatic vegetation provided good habitat for phytophilic fish species (Table 5a-d). Aquatic vegetation coverage in May 2007 was below optimal for fish production (Durocher et al. 1984, Dibble et al. 1996). Bulrush (*Scripus* sp.) linear shoreline coverage was calculated at 13,191 m. Water was too shallow to drive the boat around its perimeter in most places; therefore an estimated 6-m average width was multiplied to estimate aerial coverage. The 20-acre estimate for 2007 is higher than the estimates reported in previous years. Bulrush coverage was estimated at 5.8 acres from polygons created when the boats were driven around accessible strands in 2003. However, it was difficult to discern if bulrush expanded since 2003 or if inaccessible stands in 2003 were not taken into account.

Creel Survey: Total fishing effort for all species at Fayette County Reservoir was 122,602 h (51.2 h/acre) from June 2005 through May 2006. Ninety-one percent of total fishing effort was from boat anglers. Directed fishing effort by all anglers was highest for black basses (83.3%), followed by anglers fishing for any species (10.2%), and channel catfish (4.0%) (Table 6). Annual directed effort for largemouth bass was 42.7 h/acre with the highest fishing effort (14.8 h/acre) occurring in the spring (March – May) quarter. Overall mean catch rate for all species targeted by bank and boat anglers was 0.10 and 0.83 fish/h, respectively. Almost all (98.8%) largemouth bass caught were released. Of the largemouth bass released 30.6% were less than 14 inches, 68.7% were from 14 to 24 inches and 0.69% exceeded 24 inches in length. Of the largemouth bass harvested 14.3% were from 14 to 24 inches (illegal harvest). Only 3.1% of the sub-slot bass caught by anglers were harvested. The low percentage of sub-slot harvest was similar to other district slot-limit lakes; Lake Georgetown (14- to 18-inch slot length limit, 3.8% sub-slot harvest) (Magnelia and De Jesus 2006) and Walter E. Long Reservoir (14- to 21-inch slot length limit, 5.5% sub-slot harvest) (Magnelia and De Jesus 2007). The angler catch rate for anglers targeting largemouth bass was: 1.3/h in the spring quarter; 0.54/h in the summer quarter (June – August); 1.1/h in the fall quarter (September – November); and, 0.73/h in the winter quarter (December – February). Anglers reported 113 largemouth bass caught ≥ 21 inches in length (17 were ≥ 24 inches).

Economic Impact: An estimated total of \$852,527 in direct expenditures related to fishing trips was made by anglers during the 12-month creel period (Table 7).

Volunteer Angler Survey: A volunteer questionnaire was designed to gather angler reports of largemouth bass caught ≥ 21 inches, which were rarely encountered during routine fishery surveys (e.g. electrofishing). The survey was conducted from October 2004 to May 2006. One hundred seventy-seven bass ≥ 21 inches were reported caught during the volunteer survey, confirming the presence of trophy-size bass. In addition, volunteer length frequency reports of bass caught ≥ 21 inches were not significantly different (chi square test, $P > 0.05$) than data gathered during the standardized creel survey (Appendix C). It also appeared that there was a similar trend between the number of bass ≥ 21 inches reported in the volunteer survey and CPUE-21 by creel quarter from the staffed creel survey (Appendix D).

Prey species: Electrofishing catch rates of gizzard shad, bluegill and redear sunfish were 3.0/h, 174.0/h, and 35.0/h, respectively. Threadfin shad (15.0/h) and blue tilapia (2.0/h) were also available as forage. The index of vulnerability (IOV) for gizzard shad was 0 indicating that no gizzard shad sampled ($N = 3$) were of vulnerable size. Total CPUE of gizzard shad was considerably lower in 2007 compared to the 2003 survey (29.0/h) (Figure 1). Low gizzard shad catch rates have been characteristic for this reservoir, but not alarming as other forage species are abundant. Total CPUE of bluegill in 2007 was higher than total CPUE from the survey in 2003 (129.0), and size structure continued to be dominated by small individuals (Figure 2). Sunfish make up the main forage base.

Catfishes: The gill net catch rate for channel catfish was 10.0/nn in 2008, which was 33% lower than the previous survey in 2004. Individuals greater than 12 inches in length made up about 94% of the gill net catch, and several (18) large channel catfish (≥ 20 inches) were collected (CPUE-20 = 3.6/nn) (Figure 3).

Flathead catfish were not collected in the sample; however, they have been historically present in low density. Directed fishing effort for catfishes in general and channel catfish combined was 2.8 h/acre, 5.4% of the total fishing effort (Table 8). Observed harvest showed good angler compliance, and harvested fish ranged between 14 and 24 inches in length (Figure 4).

Largemouth bass: The reservoir contained a high density largemouth bass population relative to bass populations in other central Texas Reservoirs. The largemouth bass electrofishing catch rate for stock-size largemouth bass averaged 142/h over three fall surveys (2005 – 2007), higher than the average reported in 2003 (79.6/h; 1996-2003 (six surveys)). Size structure was adequate as PSD averaged 77 over the past three years (Figure 5). Similar to trends observed and reported in 2004, few ($N = 9$) largemouth bass ≥ 21 inches in length were collected during the past three electrofishing surveys, with catch rates averaging 3/h. None were collected 24 inches or greater. However a total of 177 bass ≥ 21 inches were reported caught by anglers during a volunteer angler survey conducted from October 2004 to May 2006. Of these reports, 22 were ≥ 24 inches in length. The staffed creel survey estimated catch rates for largemouth bass ≥ 21 inches ranging between 0.02/h (winter) to 1.3/h (spring). Spring quarter (March – May) had the highest probability of catching a largemouth bass ≥ 21 inches (Appendix E). Relative weight (W_r) among most inch groups in 2007 was good, which was a recurring trend from previous surveys. Overall, largemouth bass collected in electrofishing surveys from 2005 to 2007 displayed a wide range of W_r values (89-116); one large specimen displayed poor condition below that range with a W_r of 65. Growth of largemouth bass in Fayette County Reservoir was excellent; average age at 14 inches was 1.5 years ($N = 13$; range = 1 – 4 years), which was considered fast growth for central Texas (Figure 6). This growth trend is typical of power plant reservoirs with year-long warm water temperatures and extended growing seasons. Directed fishing effort, catch per hour, and total estimated harvest for largemouth bass was 102,195 h, 0.97/h, and 956, respectively, from June 2005 to May 2006 (Table 9). Almost all (98.8%) largemouth bass caught were released. Of the largemouth bass released 30.6% were less than 14 inches, 68.7% were from 14 to 24 inches and 0.69% exceeded 24 inches in length. Of the largemouth bass harvested 14.3% were from 14 to 24 inches (illegal harvest). Only 3.1% of the sub-slot bass caught by anglers were harvested (Figure 7). Florida influence remained strong as the 2007 electrophoresis sample indicated 94% of the population contained Florida largemouth bass alleles, and 40% of the sample was pure Florida bass (Table 10).

Fisheries management plan for Fayette County Reservoir, Texas

Prepared – July 2008

ISSUE 1: Recent management efforts revealed that trophy largemouth bass are present in Fayette County Reservoir. Electrofishing surveys have consistently revealed healthy largemouth bass populations in past years due to suitable aquatic vegetation habitat and abundant forage. Aquatic vegetation abundance and species composition in Fayette County Reservoir fluctuates. These fluctuations may have an effect on largemouth bass recruitment.

MANAGEMENT STRATEGY

1. Continue to conduct additional fall electrofishing surveys to monitor the largemouth bass population.
2. Continue annual aquatic vegetation surveys to monitor aquatic vegetation coverage.

ISSUE 2: Anglers may not be aware of the excellent fishing opportunities at Fayette County Reservoir.

MANAGEMENT STRATEGY

1. Continue to promote the quality largemouth bass fishery at Fayette County Reservoir when the opportunity exists.

SAMPLING SCHEDULE JUSTIFICATION:

The proposed sampling schedule included mandatory monitoring by electrofishing and gill netting in 2011/2012 (Table 11). Additional electrofishing in fall 2009 is necessary to monitor the largemouth bass population. Trap net sampling for white crappie was eliminated on this reservoir because of low historical trap net catches and low directed angler effort for this species.

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Table 1. Characteristics of Fayette County Reservoir, Texas.

Characteristic	Description
Year constructed	1978
Controlling authority	Lower Colorado River Authority
County	Fayette
Reservoir type	Power cooling
Shoreline Development Index (SDI)	unknown
Conductivity	1,200 umhos/cm

Table 2. Harvest regulations for Fayette County Reservoir.

Species	Bag Limit	Length Limit (inches)
Catfish: channel catfish, hybrids and subspecies	25 (in any combination)	12 minimum
Catfish, flathead	5	18 minimum
Bass: largemouth	5 (1 over 24")	14 – 24 slot
Crappie: white and black crappie, their hybrids and subspecies	25 (in any combination)	10 minimum

Table 3. Stocking history of Fayette County Reservoir, Texas. Life stages are fry (FRY), fingerlings (FGL), advanced fingerlings (AFGL), adults (ADL) and unknown (UNK). Life stages for each species are defined as having a mean length that falls within the given length range. For each year and life stage the species mean total length (Mean TL; in) is given. For years where there were multiple stocking events for a particular species and life stage the mean TL is an average for all stocking events combined.

Species	Year	Number	Life Stage	Mean TL (in)
Black crappie x White crappie	1994	111,979	FRY	0.9
	1996	120,895	FRY	0.9
	1997	118,977	FRY	0.9
	Total	351,851		
Blue catfish	1976	27,860	UNK	UNK
	1985	6,784	FGL	2.0
	1986	12,150	FGL	2.0
	Total	46,794		
Channel catfish	1976	96,000	AFGL	7.9
	1985	13,803	AFGL	5.0
	1986	12,070	AFGL	5.0
	Total	121,873		
Flathead catfish	1976	12,000	UNK	UNK
	Total	12,000		
Florida Largemouth bass	1977	96,375	FRY	1.0
	1994	208	ADL	12.0
	Total	96,583		

Table 4. Survey of littoral and physical habitat types, Fayette County Reservoir, Texas, 2004. 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 in May, 2007.

Shoreline habitat type	Shoreline Distance		Surface Area	
	Miles	Percent of total	Acres	Percent of reservoir surface area
Vegetated bank	13.0	61		
Rip rap	3.5	17		
Dead trees/stumps w/ vegetated bank	2.75	13		
Concrete	1	5		
Eroded bank	0.25	1		
Boat dock	0.25	1		
Sandy bank	0.25	1		
Dead tree/stumps w/ overhanging brush	0.25	1		
American lotus			<1	<1
Bulrush			20	<1
Coontail			4	<1
Hydrilla			2	<1
Marine naiad			232	10
Pondweed			3	<1

Table 5a. Aquatic plants observed during aquatic vegetation surveys in Fayette County Reservoir, Texas, May 2007. Surface area (acres) and percent reservoir coverage were determined for each plant species.

Common Name	Scientific name	Acres	% coverage
American lotus	<i>Nelumbo lutea</i>	<1	<1
Bulrush	<i>Scirpus</i> spp.	20	<1
Hydrilla	<i>Hydrilla verticillata</i>	2	<1
Coontail	<i>Ceratophyllum demersum</i>	4	<1
Marine naiad	<i>Najas marina</i>	232	10
Pondweed	<i>Potamogeton</i> spp.	3	<1
Total		261	11

Table 5b. Aquatic plants observed during aquatic vegetation surveys in Fayette County Reservoir, Texas, October 2006. Surface area (acres) and percent reservoir coverage were determined for each plant species.

Common Name	Scientific name	Acres	% coverage
Bulrush	<i>Scirpus</i> spp.	6	<1
Hydrilla	<i>Hydrilla verticillata</i>	16	<1
Marine naiad	<i>Najas marina</i>	314	13
Pondweed	<i>Potamogeton</i> spp.	7	<1
Mixed 1	<i>H. verticillata</i> / <i>N. marina</i>	6	<1
Mixed 2	<i>H. verticillata</i> / <i>Potamogeton</i> spp.	3	<1
Total		352	14

Table 5c. Aquatic plants observed during aquatic vegetation surveys in Fayette County Reservoir, Texas, September 2005. Surface area (acres) and percent reservoir coverage were determined for each plant species.

Common Name	Scientific name	Acres	% coverage
Bulrush	<i>Scirpus</i> spp.	5.8	<1
Hydrilla	<i>Hydrilla verticillata</i>	17.7	<1
Marine naiad	<i>Najas marina</i>	236.5	9.8
Pondweed	<i>Potamogeton</i> spp.	6.4	<1
Mixed 1	<i>H. verticillata</i> / <i>N. guadalupensis</i>	0.5	<1
Mixed 2	<i>H. verticillata</i> / <i>N. marina</i>	2.8	<1
Total		269.7	11.3

Table 5d. Aquatic plants observed during aquatic vegetation surveys in Fayette County Reservoir, Texas, September 2004. Surface area (acres) and percent reservoir coverage were determined for each plant species.

Common Name	Scientific name	Acres	% coverage
American lotus	<i>Nelumbo lutea</i>	4.4	<1
Bulrush	<i>Scirpus</i> spp.	5.8	<1
Hydrilla	<i>Hydrilla verticillata</i>	1.2	<1
Marine naiad	<i>Najas marina</i>	229.9	9.6
Pondweed	<i>Potamogeton</i> spp.	12.1	<1
Southern naiad	<i>Najas guadalupensis</i>	6.5	<1
Watermilfoil	<i>Myriophyllum</i> sp.	0.8	<1
Total		260.8	10.9

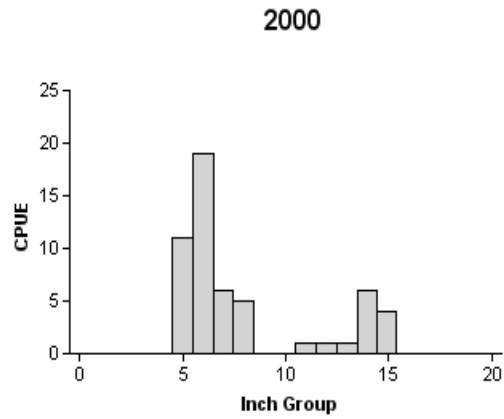
Table 6. Percent directed angler effort by species for Fayette County Reservoir, Texas, June, 2005 to May, 2006.

Species	Year
	2005/2006
Channel catfish	4.0
Flathead catfish	0.2
Bluegill	0.3
Redear sunfish	0.1
Largemouth bass	83.4
Anything	10.2
Catfishes	1.4
Panfishes	0.3

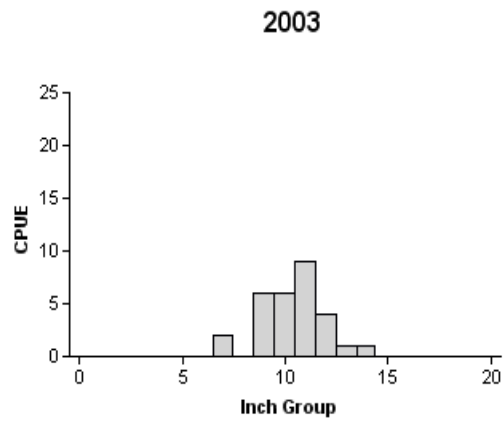
Table 7. Total fishing effort (h) for all species and total directed expenditures at Fayette County Reservoir, Texas, June 2005 to May 2006.

Creel Statistic	Year
	2005/2006
Total fishing effort (h)	112,602
Total directed expenditures	\$852,527

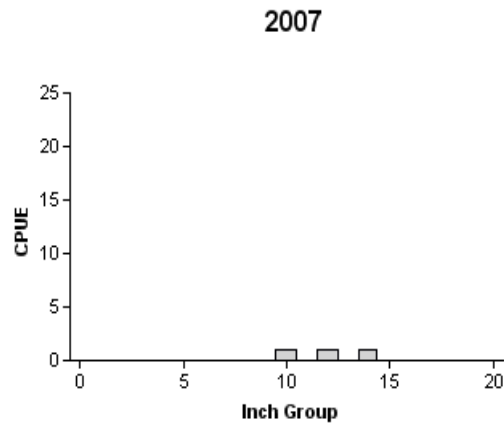
Gizzard Shad



Effort = 1.0
 Total CPUE = 50.7(35; 76)
 IOV = 66.67 (11.5)



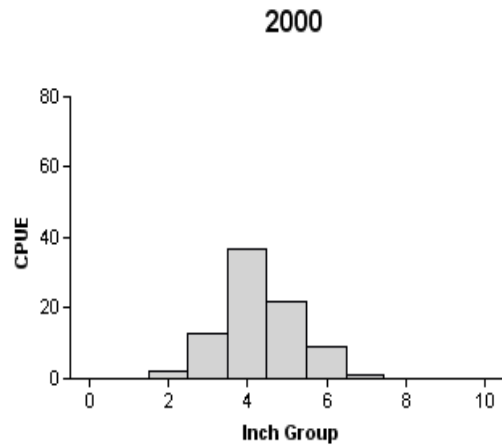
Effort = 1.0
 Total CPUE = 29.0 (30; 29)
 IOV = 6.9 (6.8)



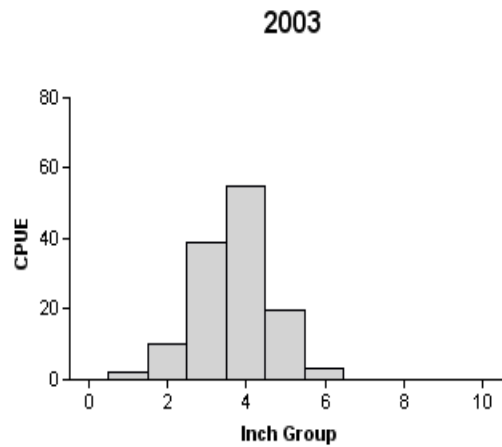
Effort = 1.0
 Total CPUE = 3.0 (72; 3)
 IOV = 0.0 (0)

Figure 1. 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, Fayette County Reservoir, Texas, 2000, 2003 and 2007.

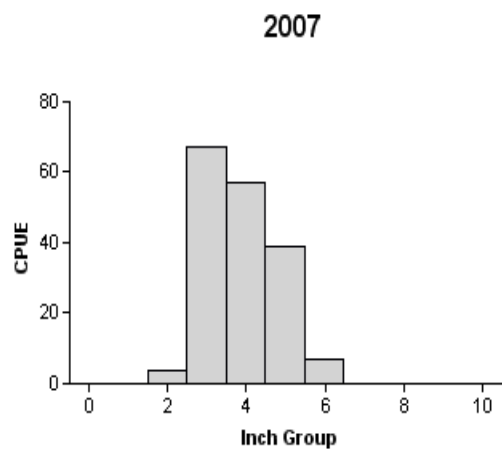
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Bluegill



Effort = 1.0
Total CPUE = 84.0 (24; 84)
PSD = 12 (3.9)



Effort = 1.0
Total CPUE = 129.0 (45; 129)
PSD = 3 (2.7)



Effort = 1.0
Total CPUE = 174.0 (27; 174)
PSD = 4 (1.2)

Figure 2. 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, Fayette County Reservoir, Texas, 2000, 2003 and 2007.

Channel Catfish

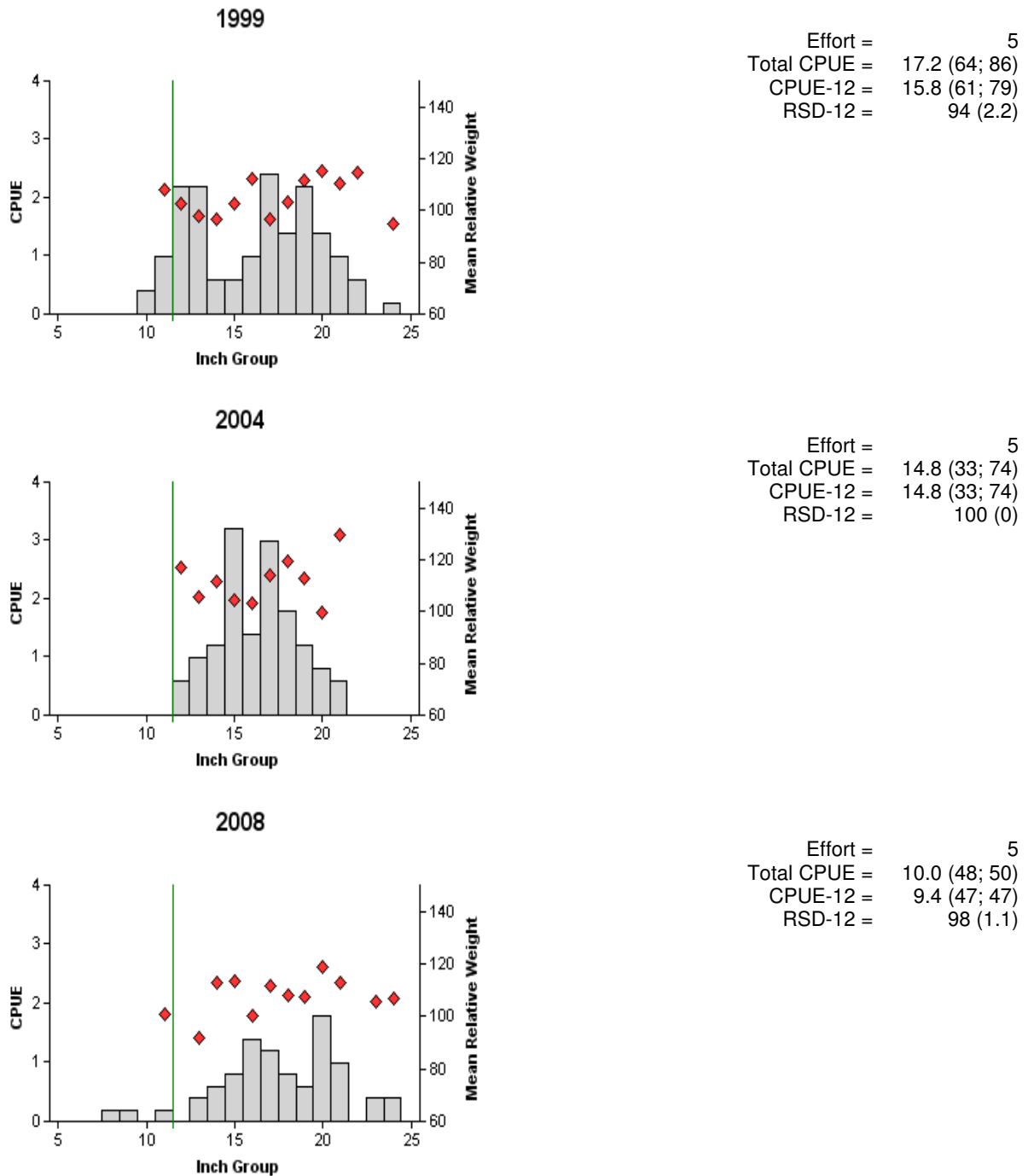


Figure 3. Number of channel catfish caught per net night (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring gill net surveys, Fayette County Reservoir, Texas, 1999, 2004 and 2008. Vertical lines are minimum length limit at the time of the survey.

Channel Catfish

Table 8. Creel survey statistics for channel catfish at Fayette County Reservoir from June 2005 through May 2006 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
	2005/2006
Directed effort (h)	4,480.58 (23)
Directed effort/acre	1.87 (23)
Total catch per hour	0.75 (69.5)
Total harvest	6,378.78 (38.9)
Harvest/acre	2.66 (45)
Percent legal released	13.0

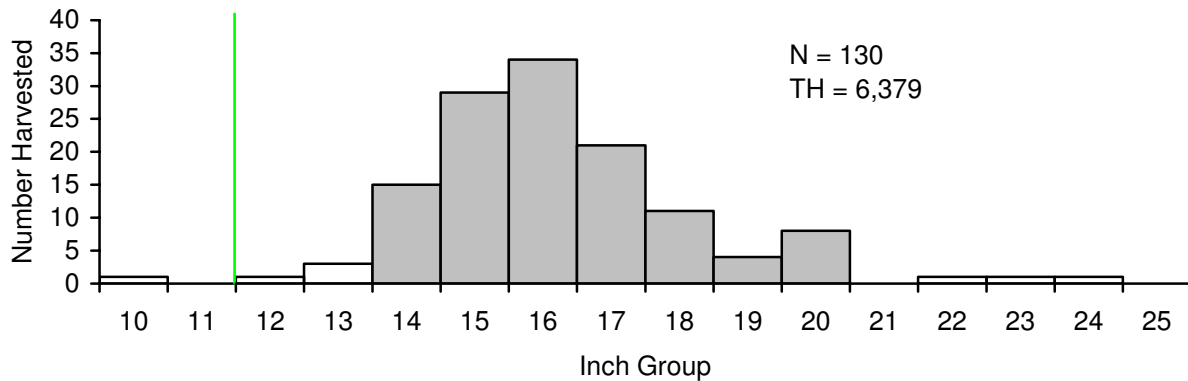


Figure 4. Length frequency of harvested channel catfish observed during creel surveys at Fayette County Reservoir, Texas, June 2005 through May 2006, all anglers combined. N is the number of harvested channel catfish observed during creel surveys, and TH is the total estimated harvest for the creel period. Vertical line represents length limit at the time of survey.

Largemouth Bass

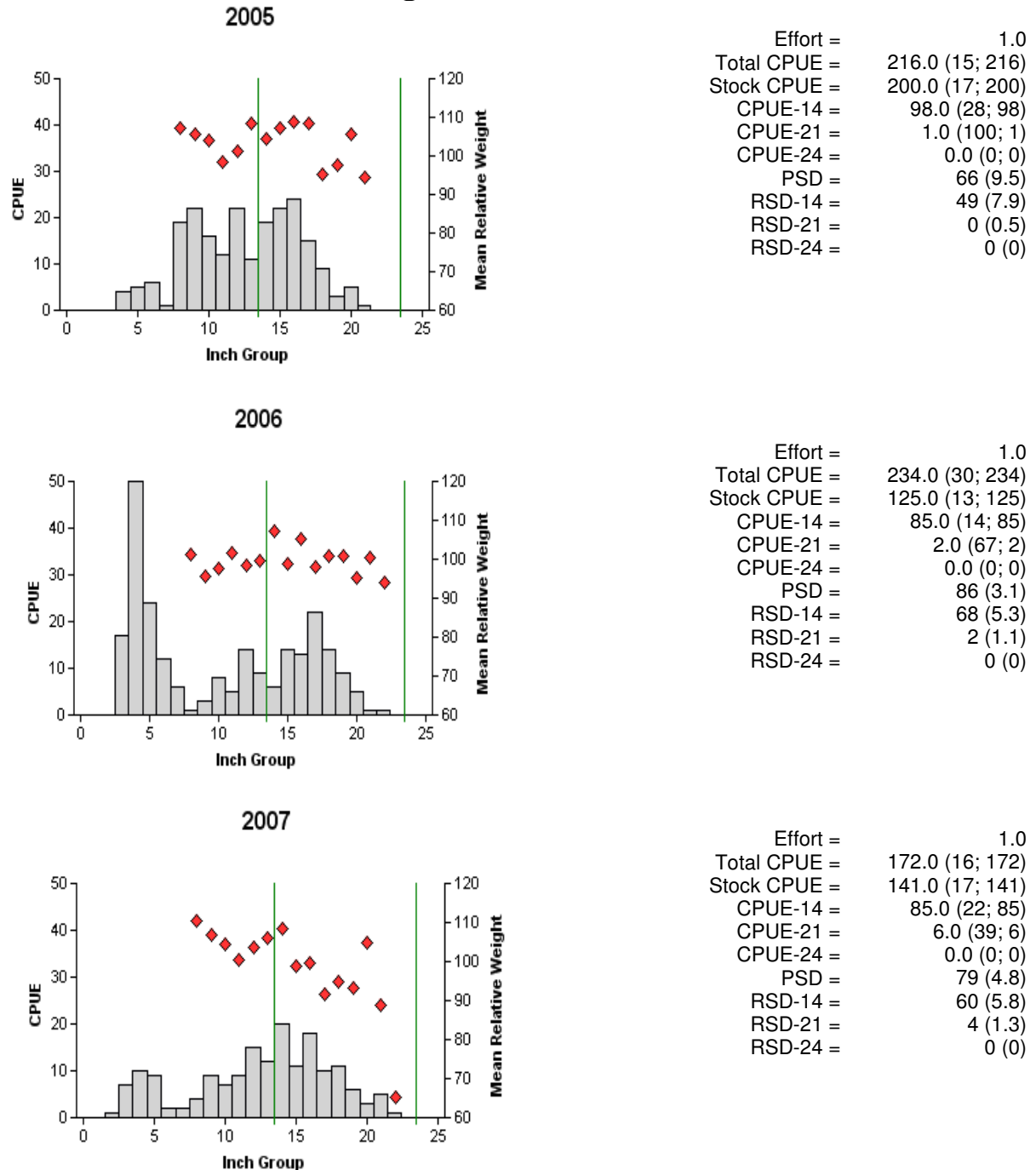


Figure 5. Number of largemouth bass caught per hour (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, Fayette County Reservoir, Texas, 2005, 2006 and 2007. Vertical lines represent the length limit at the time of the survey.

Largemouth Bass

Table 9. Creel survey statistics for largemouth bass at Fayette County Reservoir from June 2005 through May 2006 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
	2005/2006
Directed effort (h)	102,194.85 (9.6)
Directed effort/acre	42.69 (9.6)
Total catch per hour	0.97 (16.1)
Total harvest	956.72 (34.1)
Harvest/acre	0.40 (34.1)
Total catch	84,093.91 (21.2)
Percent catch-and-release	98.8
Percent legal released	98.8
Percent sub-slot released	99.8
Total released	83,137.19 (21.5)
Total released sub-slot	25,453.21 (24.3)
Percent above-slot released	100
Total released above-slot	574.41 (53.8)

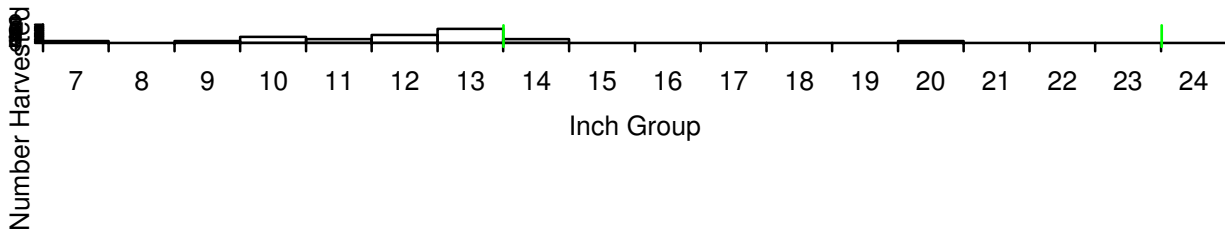


Figure 6. Length frequency of harvested largemouth bass observed during creel surveys at Fayette County Reservoir, Texas, June 2005 through May 2006, all anglers combined. N is the number of harvested largemouth bass observed during creel surveys, and TH is the total estimated harvest for the creel period. Vertical lines represent length limit at the time of survey.

Table 10. Results of genetic analysis of largemouth bass collected by fall electrofishing, Fayette County Reservoir, Texas, 2007. 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	Fx	NLMB		
2003	30	21	9	0	90.0%	70.0%
2007	30	12	18	0	93.7%	40.0%

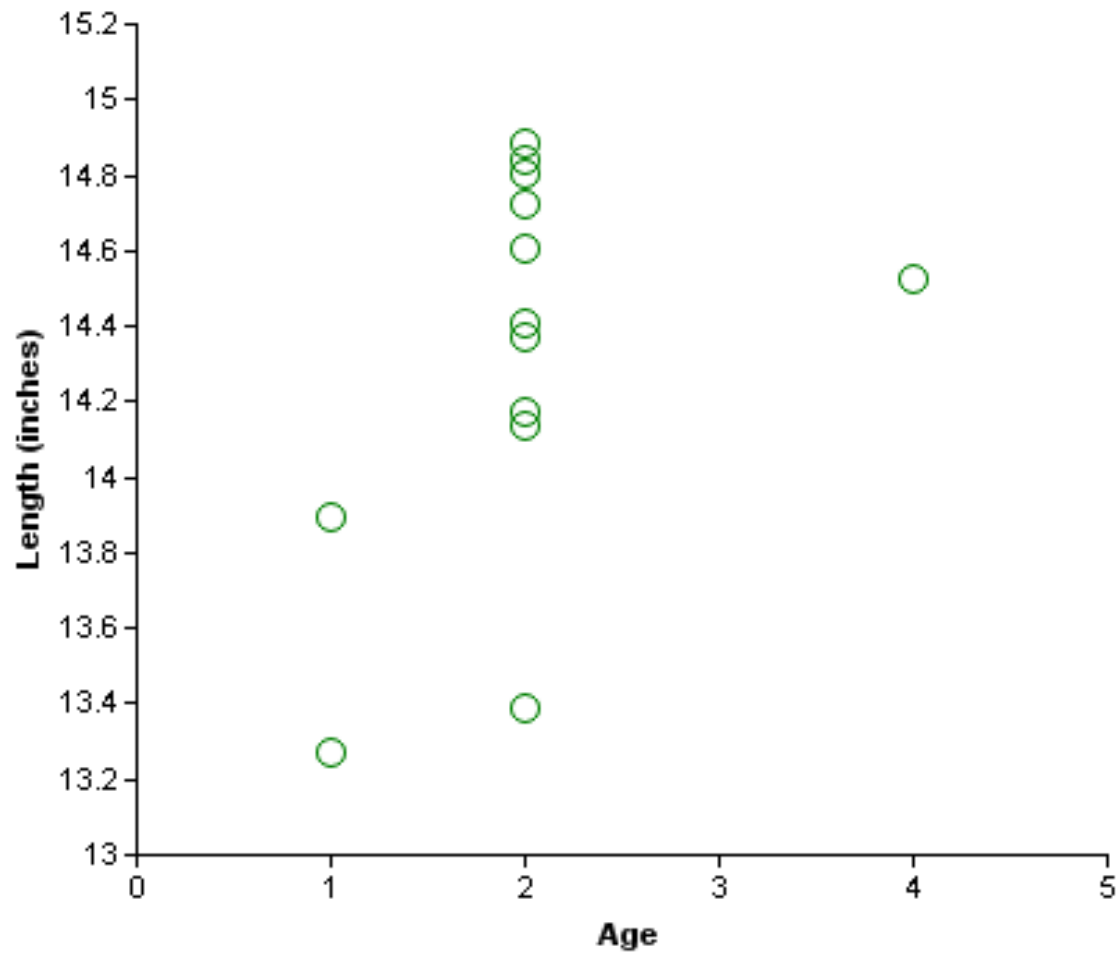


Figure 7. Length at age for largemouth bass collected electrofishing, Fayette County Reservoir, November 2007 (N = 13).

Table 11. Proposed sampling schedule for Fayette County Reservoir, Texas. Gill netting surveys are conducted in the spring, while electrofishing 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 2008-Spring 2009					
Fall 2009-Spring 2010	A				
Fall 2010-Spring 2011					
Fall 2011-Spring 2012	S		S		S

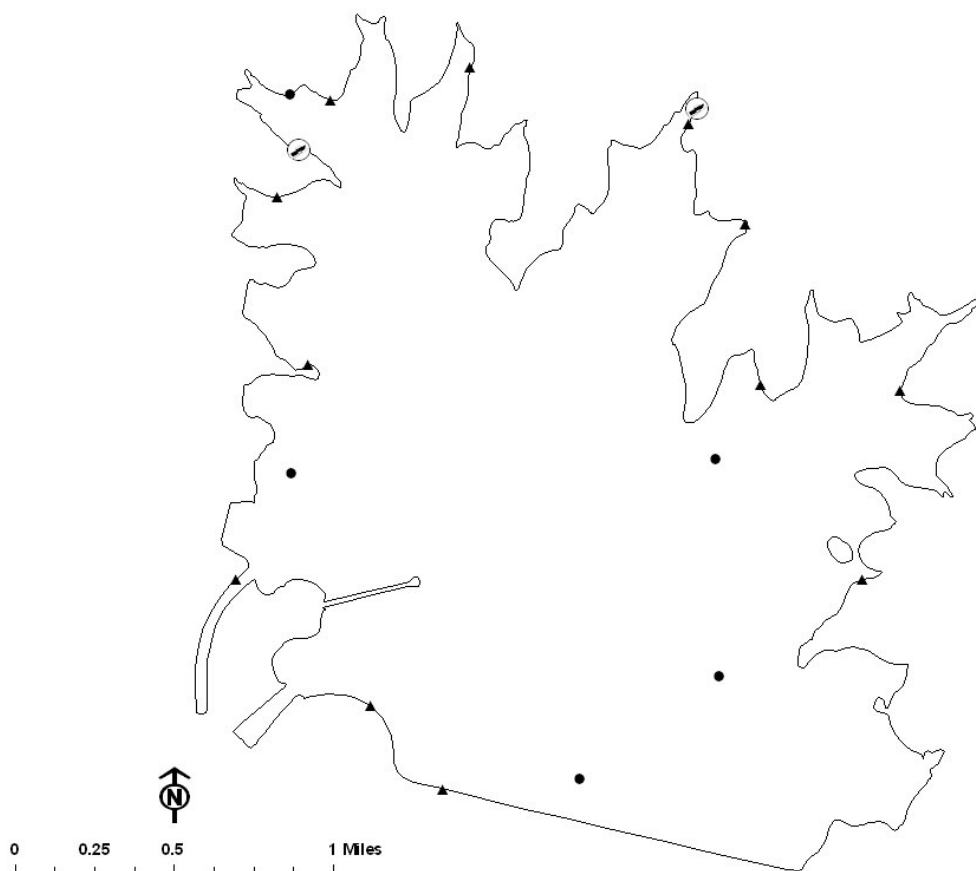
APPENDIX A

Number (N) and catch rate (CPUE) of all target species collected from all gear types from Fayette County Reservoir, Texas, 2007-2008.

Species	Gill Netting		Electrofishing	
	N	CPUE	N	CPUE
Gizzard shad			3	3.0
Threadfin shad			15	15.0
Channel catfish	50	10.0		
Bluegill			174	174.0
Redear sunfish			35	35.0
Largemouth bass			172	172.0
Blue tilapia			2	2.0

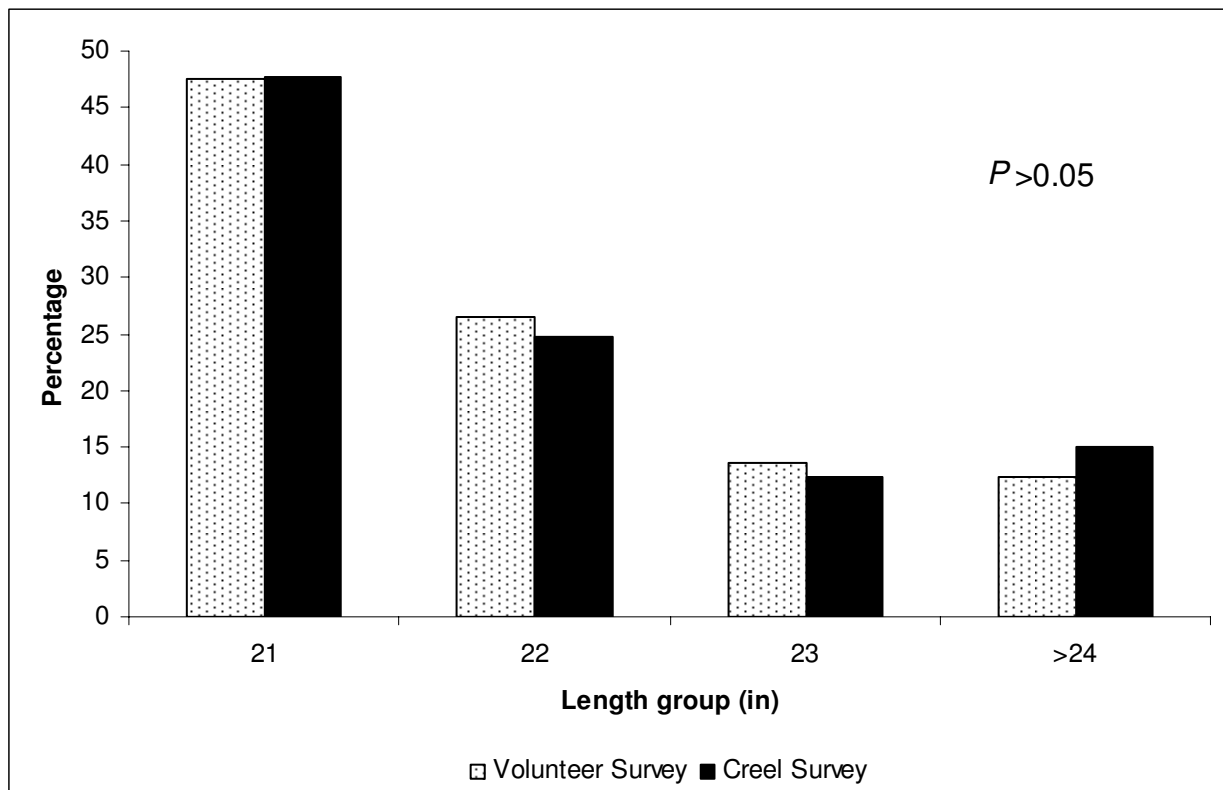
APPENDIX B

Location of sampling sites, Fayette County Reservoir, Texas, 2007-2008. Gill net and electrofishing stations are indicated by ● and ▲, respectively.



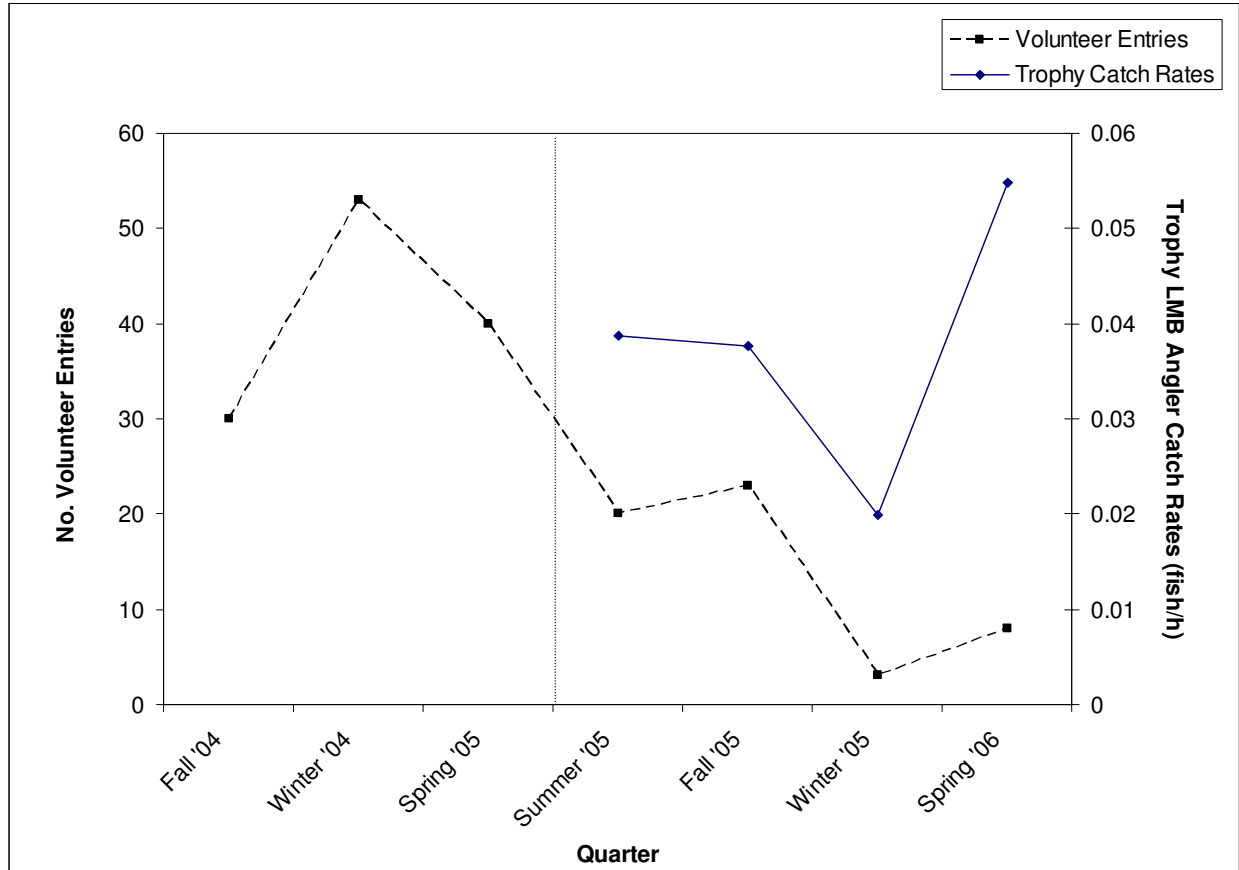
APPENDIX C

Proportion of trophy largemouth bass entries by inch group reported during creel and volunteer surveys conducted June 2005 to May 2006 and October 2004 to May 2006, respectively at Fayette County Reservoir, TX. A Chi-Square test was used to compare proportions of fish reported for each inch group over 21 inches to determine reliability of volunteer reports. Volunteer entries totaled 177 fish ≥ 21 inches and creel entries totaled 113 fish ≥ 21 inches.



APPENDIX D

Estimated quarterly trophy (≥ 21 inches) largemouth bass catch rates (fish/h) compared to number of trophy largemouth bass reported caught by quarter during the volunteer angler survey at Fayette county Reservoir, TX from June 2005 to May 2006 and October 2004 to May 2006, respectively. Trophy largemouth bass proportions were calculated as the percentage of all largemouth bass reported caught that were ≥ 21 inches in length during the creel survey. Vertical line represents the first quarter when both surveys ran concurrently.



APPENDIX E

Estimated quarterly trophy (≥ 21 inches) largemouth bass catch rates (fish/h) compared to proportion of trophy largemouth bass reported caught by quarter during the roving creel survey at Fayette county Reservoir, TX from June 2005 to May 2006. Trophy largemouth bass proportions were calculated as the percentage of all largemouth bass reported caught that were ≥ 21 inches in length during the creel survey.

