

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

Pinkston Reservoir

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SURVEY AND MANAGEMENT SUMMARY

Fish populations in Pinkston Reservoir were surveyed in 2007-2008 using fall electrofishing, gill nets, and spring electrofishing. Anglers were surveyed March-May 2008 with a creel. Vegetation and access surveys were also conducted in 2007. This report summarizes the results of the surveys and contains a management plan for the reservoir based on those findings.

- **Reservoir description:** Pinkston Reservoir is an impoundment of Sandy Creek, a tributary of the Attoyac Bayou in the Neches River Basin. The City of Center is the controlling authority. Primary uses are water supply and recreation. This reservoir has a surface area of 447 acres at conservation pool (300 feet msl), a shoreline length of 4 miles, and an average depth of 20 feet. Water level fluctuations average 5 feet annually. Boat access is available with two boat ramps present, but they are in need of repair. Bank access is adequate.
- **Management history:** Important sport fish include largemouth bass and white and black crappie. The 14- to 18-inch slot-length limit for largemouth bass (implemented in 1991) was changed to a 14- to 21-inch slot-length limit in 2001. Largemouth bass growth into the protective slot-length limit was good. Growth rates of largemouth bass were good with fish recruiting into the slot-length limit by age three. Hydrilla has been problematic over the years, and coverage has exceeded 50% of the reservoir surface area. In 1997, triploid grass carp were stocked at a rate of 7 fish/vegetated acre (2,100 fish total) in an attempt to reduce hydrilla coverage to 30%. Since these stockings, hydrilla coverage has declined with 30% coverage observed during the summer of 2007. Giant salvinia was discovered in the reservoir in 2006. A successful rapid eradication response was implemented and no giant salvinia has been observed since 2006.
- **Fish community**
 - **Prey species:** Gizzard shad and threadfin shad were present in the reservoir. Electrofishing catch of bluegill was high; few fish were over 6 inches in length. Other prey species included longear, redear, and spotted sunfish.
 - **Catfishes:** Although channel catfish were stocked in 1987, no channel catfish have been collected from monitoring surveys since 1989. Reproduction and growth of channel catfish has likely been limited by the excessive hydrilla growth that has created conditions favorable for increased catfish predation by largemouth bass.
 - **Largemouth bass:** Largemouth bass were abundant. Size structure has remained consistent from past surveys with a high abundance of fish within the protective slot-length limit. Largemouth bass exhibited good growth rates and were in average condition. The current largemouth bass water body record is 16.90 lbs set in February 1986.
 - **Crappies:** White crappie and black crappie were present in the reservoir. No directed angling effort was observed for crappie during the 2008 creel survey.
- **Management strategies:** Continue to manage largemouth bass with 14- to 21-inch slot-length limit. Continue to monitor trends of hydrilla coverage through annual aquatic vegetation surveys (2008-2011). Conduct additional biennial spring electrofishing surveys in 2010 and 2012 and a spring quarter (March-May) creel survey in 2012. Conduct standard monitoring with gill nets and fall electrofishing in 2011-2012.

INTRODUCTION

This document is a summary of fisheries data collected from Pinkston Reservoir in 2007-2008. 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 are presented with the 2007-2008 data for comparison.

Reservoir Description

Pinkston Reservoir is a 447-acre impoundment constructed in 1976 on Sandy Creek (Table 1). It is located in Shelby County approximately 10 miles west of Center and is operated and controlled by the City of Center. Primary water uses included municipal water supply and recreation. Secchi disc readings average 5 feet. Habitat at time of sampling consisted of concrete, standing timber, and aquatic vegetation (primarily hydrilla). The majority of the land surrounding the reservoir is used for agriculture, timber production, and residential development.

Management History

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

1. Monitor success of the largemouth bass 14- to 21-inch slot length limit.
Action: Largemouth bass growth was examined in 2007 with fish reaching 14 inches by age 3. In 2008, a spring angler creel survey was conducted to obtain baseline data on angler catch, harvest, and to solicit angler harvest practices of largemouth bass.
2. Conduct annual vegetation surveys to monitor hydrilla coverage and if problems were to arise at water intakes, consult with the City of Center to develop a management plan for hydrilla control.
Action: Aquatic vegetation surveys were conducted annually from 2004 to 2007. In fall 2007, hydrilla coverage was 30% (historical high = 50% coverage). Currently, no problems concerning hydrilla have been reported by the City of Center. Giant salvinia was found in Pinkston Reservoir during the 2006 vegetation survey. Personnel were deployed to apply herbicides and to physically remove giant salvinia. Giant salvinia has not been observed since 2006.
3. Encourage the City of Center to improve access and parking.
Action: Recommendations were provided to the City of Center (i.e., road surface repairs and accommodations for the physically challenged). However, due to budget constraints no improvements have been made.

Harvest regulation history: Sport fishes in Pinkston Reservoir are currently managed with statewide regulations with the exception of largemouth bass (Table 2). From 1991 to 2001, largemouth bass were managed with a 14- to 18-inch slot-length limit. A 14- to 21-inch slot-length limit was implemented in 2001 to increase the number of large fish available for catch by anglers.

Stocking history: Sharelunker largemouth bass fingerlings (11,150) were stocked in 2006 as part of the special research project, Operation World Record (Table 3). Triploid grass carp were stocked in 1997. Florida largemouth bass were stocked in 1976. Threadfin shad were successfully introduced in 1979.

Vegetation/habitat history: Pinkston Reservoir aquatic vegetation coverage has declined significantly since 1999. The controlling authority stocked triploid grass carp in 1997 to reduce nuisance levels of hydrilla. The reservoir exhibited nearly 50% hydrilla coverage prior to the triploid grass carp stockings. In

2006, giant salvinia was found during an annual vegetation survey. Personnel were deployed to apply herbicides and to physically remove giant salvinia. Giant salvinia has not been observed since 2006. An aquatic vegetation survey conducted in 2007 indicated that hydrilla coverage had declined to 30% (Table 4). Native vegetation was limited to less than 10 acres (lizard's tail, spikerush, and American lotus).

METHODS

Fishes were collected by electrofishing (1 hour at 12, 5-min stations during October and March (largemouth bass only) 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 caught per net night (fish/nn). All survey sites were randomly selected and all surveys were conducted according to the Fishery Assessment Procedures (TPWD, Inland Fisheries Division, unpublished manual revised 2005).

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 X SE of the estimate/estimate) was calculated for all CPUE statistics and for creel statistics and SE was calculated for structural indices and IOV. Average age of 14-inch (13.0 – 15.0 inches) largemouth bass collected in the fall was determined from otoliths.

An access point creel survey (9 days) was conducted from March through May 2008 to assess angler use and catch in accordance with the Fishery Assessment Procedures (TPWD, Inland Fisheries Division, unpublished manual revised 2005). Anglers were asked during the creel survey to best describe their fishing and harvest practices of largemouth bass given seven scenarios of either harvesting or the release of legal sized fish caught (Appendix C). In addition anglers were asked whether they had caught a largemouth bass 4-6.9; 7-9.9; or ≥ 10 pounds (Table 8). Current creel procedures do not account for specific size of fish release other than the fish being less than or equal or greater than legal sized.

RESULTS AND DISCUSSION

Habitat: Littoral zone habitat consisted primarily of concrete, standing timber, native emergent aquatic vegetation, and hydrilla (Table 4).

Prey species: Electrofishing catch rates of threadfin shad were 75.0/h in 2007, which is considerably lower than observed in 2003 (175.0/h) but similar to 1999 (74.0/h). Gizzard shad sampled in 2007 were not available as prey (IOV=0) due to their large size (> 8 inches) (Figure 1). Bluegill were the predominant prey species with an electrofishing catch rate of 450.0/h in 2007 (Figure 2). During the 2008 creel survey, there was some angler effort directed for sunfish, accounting for 1.6% of the total angler effort (Table 5) with 265 bluegill harvested (Table 7).

Channel catfish: In 1987, a channel catfish stocking exceeding 300 fish/acre resulted only in short-term success, as none have been collected since 1989. There was no observed directed angler effort for catfish during the spring 2008 creel survey. Hydrilla had become problematic by 1997 with coverage exceeding 50% of the reservoir (Driscoll 2004). Excessive hydrilla coverage may suppress catfish growth and abundance. Also, trophic dynamics of the reservoir are likely unfavorable for catfish, possibly leading to reductions in preferred food items (namely benthic invertebrates) for channel catfish. Similar relationships between hydrilla coverage and channel catfish catch rates have been observed at Nacogdoches Reservoir (Driscoll and Parks 2001) and Martin Creek Reservoir (Ashe and Driscoll 2006). Hydrilla coverage in Pinkston Reservoir has declined over the past ten years; however, channel catfish abundance has not increased.

Largemouth bass: Largemouth bass accounted for the majority (86.7%) of the total directed angling effort observed in the spring 2008 creel (Table 5). Directed effort was relatively high (15.5 h/acre) (Table 8). Angler catch rates averaged 0.5/h (Table 8). Only 310 fish were estimated as harvested, 44 of which were 4.0 – 6.9 lbs (Table 8). There were no largemouth bass 7.0 lbs. or greater observed during the creel. The catch of preferred fish was high with 1,082 largemouth bass 4.0 – 6.9 lbs. caught (1,038 released) accounting for 33% of the total catch of 3,292 fish. The majority of anglers (60%) interviewed during the spring creel reported that they would either always or sometimes retain fish greater than 21 inches, while only 32% reported that they always practice catch and release (Appendix C).

The electrofishing catch rate in the fall of 2007 (218.0/h) was greater than catch rates observed in 2003 (160.0/h) and 2002 (146.0/h) (Figure 4). The length-frequency distribution was similar among years with desirable numbers of fish ≥ 14 inches in length (RSD-14 range =22-38). Relative weights exceed 90 and were similar to the past two survey years.

The spring electrofishing catch rate in 2008 (306.0/h) was higher than the 1999-2006 average catch rate (280.3/h) (Figure 5). During the past three spring electrofishing surveys (2004, 2006, and 2008), data indicate relatively stable population structure and high recruitment into the protective slot length limit. Spring surveys also indicated higher numbers of larger fish (PSD range = 66 – 89; RSD-14 range = 43 – 65) than fall surveys.

Growth of largemouth bass was good; average age at 14 inches (13.0 to 15.0 inches) was 2.2 years (N = 19; range=1-4 years). The average size of 1 and 2-year-old fish was 10.9 (N=40) and 12.9 (N=33) inches, respectively (Figure 7). Florida largemouth bass influence has remained relatively constant as Florida largemouth bass alleles have ranged from 69.5 to 77.6% and Florida largemouth bass genotype has ranged from 12.5 to 36.7% (Table 9).

Crappies: Historically, trap net catch rates of crappies (both white and black) have been low ($\leq 0.6/\text{nn}$). Trap net surveys were discontinued in 2003.

White and black crappie were present in the reservoir (Figure 8; Appendix A). No observed directed angler effort was observed during the spring 2008 creel survey (Table 10).

Fisheries management plan for Pinkston Reservoir, Texas

Prepared – July 2007

ISSUE 1: Hydrilla coverage in Pinkston Reservoir exceeded 50% in 1996 and 1997 and impeded municipal use and angler access. In 2007, hydrilla covered 30% of the reservoir, which supported bluegill and largemouth bass recruitment but did not affect municipal use.

MANAGEMENT STRATEGY

1. Continue to monitor aquatic vegetation annually (2008-2011). If hydrilla coverage expands beyond an acceptable coverage (40% or levels prompting public complaint) within the next 4 years, meet with city officials and angling public to develop an integrated aquatic vegetation management plan.

ISSUE 2: Giant salvinia was found in Pinkston Reservoir in 2006. Aggressive treatment and removal measures resulted in eradication. There is potential that giant salvinia may be reintroduced into Pinkston Reservoir.

MANAGEMENT STRATEGY

1. During aquatic vegetation surveys, continue to remain vigilant to identify any presence of giant salvinia with plans to initiate an eradication or control response if any plants are found. Maintain signs educating the public of giant salvinia identification and reminding the public to conduct boat trailer inspections before launching.

ISSUE 3: Access roads and parking lots at both boat ramps are unpaved and in poor condition.

MANAGEMENT STRATEGY

1. Continue to recommend improvements at the access points to the City of Center.

ISSUE 4: Data indicate the 14- to 21-inch slot-length limit for largemouth bass is producing desirable results. Density of 14- to 21-inch fish is relatively high and growth rates are good. Recruitment of largemouth bass into the protective slot length limit is high and stable.

MANAGEMENT STRATEGY

1. Continue to monitor largemouth bass population size structure and growth to assess the success of the implemented slot length limit by spring electrofishing (2010 and 2012) and fall electrofishing (2011).

SAMPLING SCHEDULE JUSTIFICATION:

The proposed sampling schedule includes additional aquatic vegetation surveys (2008-2010), spring electrofishing surveys (2010 and 2012), and a spring (March-May) creel in 2012. Standard monitoring with gill nets and fall electrofishing will be conducted in 2011-2012 (Table 11). Additional aquatic vegetation surveys are required to monitor hydrilla coverage. Additional spring electrofishing and creel surveys are conducted to evaluate the slot length limit regulation.

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- Ashe, D., and T. Driscoll. 2006. Statewide freshwater fisheries monitoring and management program survey report for Martin Creek Reservoir, 2005. Texas Parks and Wildlife Department, Federal Aid Report F-30-R-31, Austin.
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- Driscoll, T. 2004. Statewide freshwater fisheries monitoring and management program survey report for Lake Pinkston, 2003. Texas Parks and Wildlife Department, Federal Aid Report F-30-R-29, Austin.
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Table 1. Characteristics of Pinkston Reservoir, Texas.

Characteristic	Description
Year constructed	1976
Controlling authority	City of Center
County	Shelby
Reservoir type	Secondary stream
Shoreline Development Index (SDI)	5.05
Mean depth	20 feet
Size	447 acres
Secchi disc	5 feet
Conductivity	85 umhos/cm

Table 2. Harvest regulations for Pinkston Reservoir, Texas.

Species	Bag Limit	Minimum-Maximum Length (inches)
Catfish: channel and blue catfish, their hybrids and subspecies ^a	25 (in any combination)	12 - No Limit
Catfish, flathead ^a	5	18 - No Limit
Bass: largemouth ^b	5	14 – 21
Crappie: white and black crappie, their hybrids and subspecies	25 (in any combination)	10 - No Limit

^aUse of trotlines is prohibited.

^bNo more than one largemouth bass \geq 21 inches may be retained.

Table 3. Stocking history of Lake Pinkston, Texas. Life stages are fry (FRY) advanced fingerlings (AFGL), 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)
Channel catfish	1976	40,000	AFGL	7.9
	1987	165,040	AFGL	4.2
	Total	205,040		
Flathead catfish	1977	2,000		UNK
	Total	2,000		
Florida largemouth bass	1976	85,000	FRY	1.0
	Total	85,000		
Northern pike	1976	24,000		UNK
	Total	24,000		
ShareLunker largemouth bass	2006	11,150	AFGL	6.7
	Total	11,150		
Triploid grass carp	1997	2,100	AFGL	UNK
	Total	2,100		
Threadfin shad	1979	1,500	AFGL	2.9
	Total	1,500		

Table 4. Survey of littoral zone and physical habitat types, Pinkston Reservoir, Texas, 2007. 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.

Shoreline habitat type	Shoreline Distance		Surface Area	
	Miles	Percent of total	Acres	Percent of reservoir surface area
Concrete	0.5	4.7		
Standing timber	3.0	28.0	313.0	
Lizard's tail (native emergent)	0.5	12.5	6.0	1.3
Spikerush (native emergent)	0.3	7.5	1.0	< 1.0
Lotus (native emergent)	0.3	7.5	1.0	< 1.0
Nondescript	0.5	4.7		
Hydrilla	4.0	100.0	133.0	30.0

Table 5. Percent directed angler effort by species for Pinkston Reservoir, Texas, March – May 2008.

Species	2008
Sunfishes	1.6
Largemouth bass	86.7
Anything	11.7

Table 6. Total fishing effort (h) for all species and total directed expenditures at Pinkston Reservoir, Texas, March - May 2008.

Creel Statistic	2008
Total fishing effort	8,002.0 hours
Total directed expenditures	\$34,749

Gizzard Shad

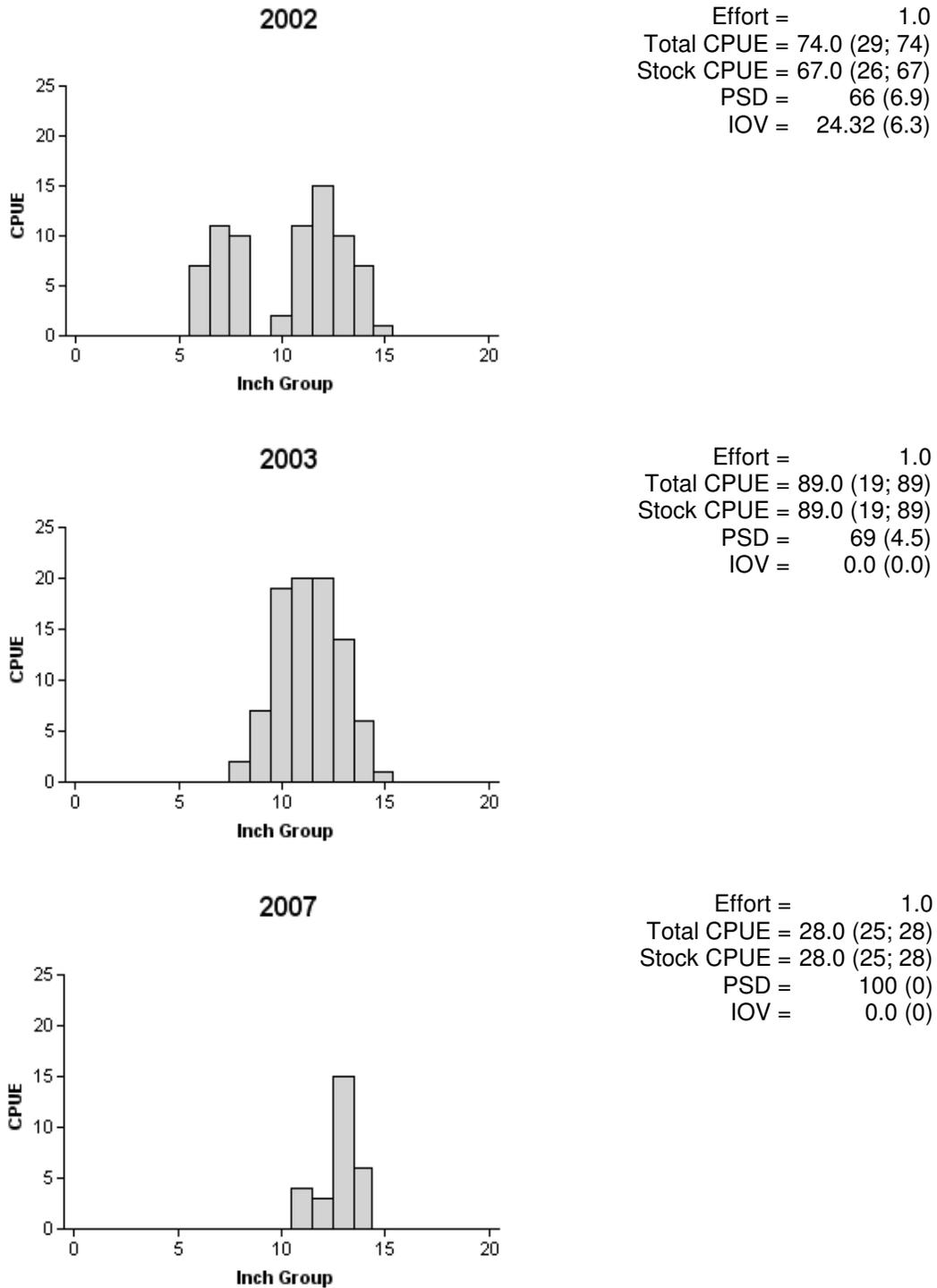
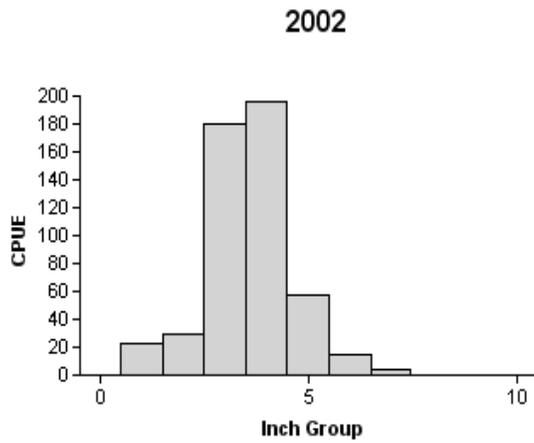
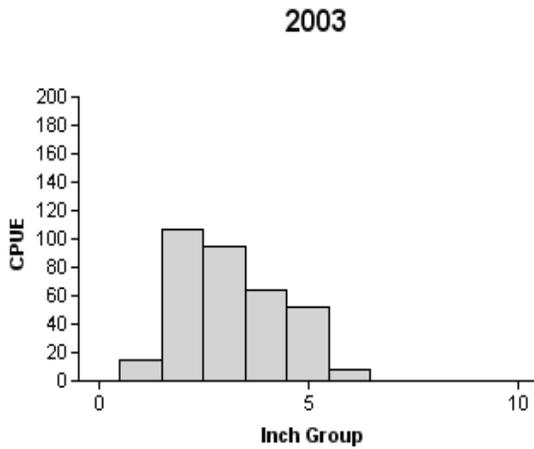


Figure 1. Number of gizzard shad caught per hour (CPUE) and population indices (RSE and N for CPUE and SE for IOV are in parentheses) for fall electrofishing surveys, Pinkston Reservoir, Texas, 2002, 2003, and 2007.

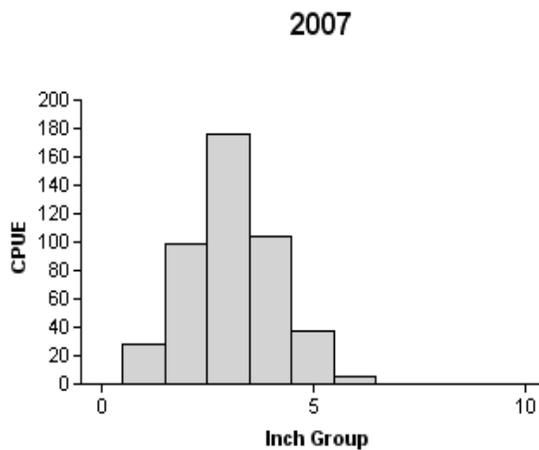
Bluegill



Effort = 1.0
 Total CPUE = 505.0 (19; 505)
 Stock CPUE = 453.0 (19; 453)
 PSD = 4 (1.8)



Effort = 1.0
 Total CPUE = 341.0 (20; 341)
 Stock CPUE = 219.0 (20; 219)
 PSD = 4 (0.7)



Effort = 1.0
 Total CPUE = 450.0 (16; 450)
 Stock CPUE = 323.0 (17; 323)
 PSD = 2 (0.7)

Figure 2. Number of bluegill caught per hour (CPUE, bars) and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, Pinkston Reservoir, Texas, 2002, 2003, and 2007.

Table 7. Creel survey statistics for sunfishes at Pinkston Reservoir from March through May 2008, where total catch per hour is for anglers targeting sunfishes and total harvest is the estimated number of sunfishes harvested by all anglers. Relative standard errors (RSE) are in parentheses. Only bluegills were harvested.

Creel Survey Statistic	Year
	March-May 2008
Directed effort (h)	127.2 (125)
Directed effort/acre	0.3 (125)
Total catch per hour	3.3 (14)
Total harvest	265.3 (96)
Harvest/acre	0.6 (96)
Percent legal released	63.6

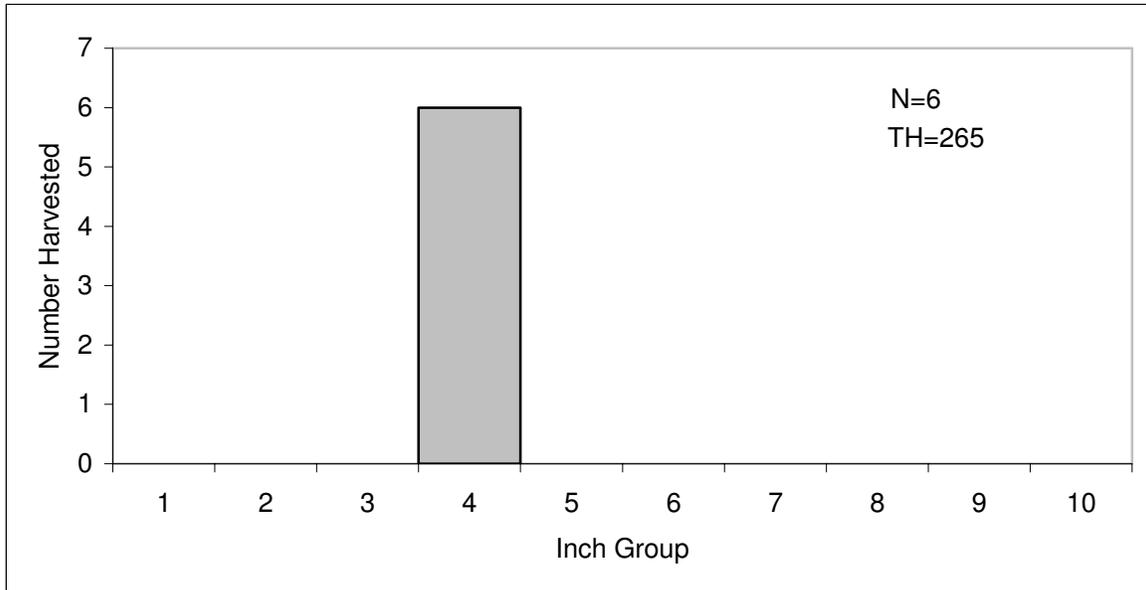


Figure 3. Length frequency of harvested bluegill observed during creel surveys at Pinkston Reservoir, Texas, March - May 2008, all anglers combined. N is the number of harvested bluegill observed during creel surveys, and TH is the total estimated harvest for the creel period.

Largemouth Bass

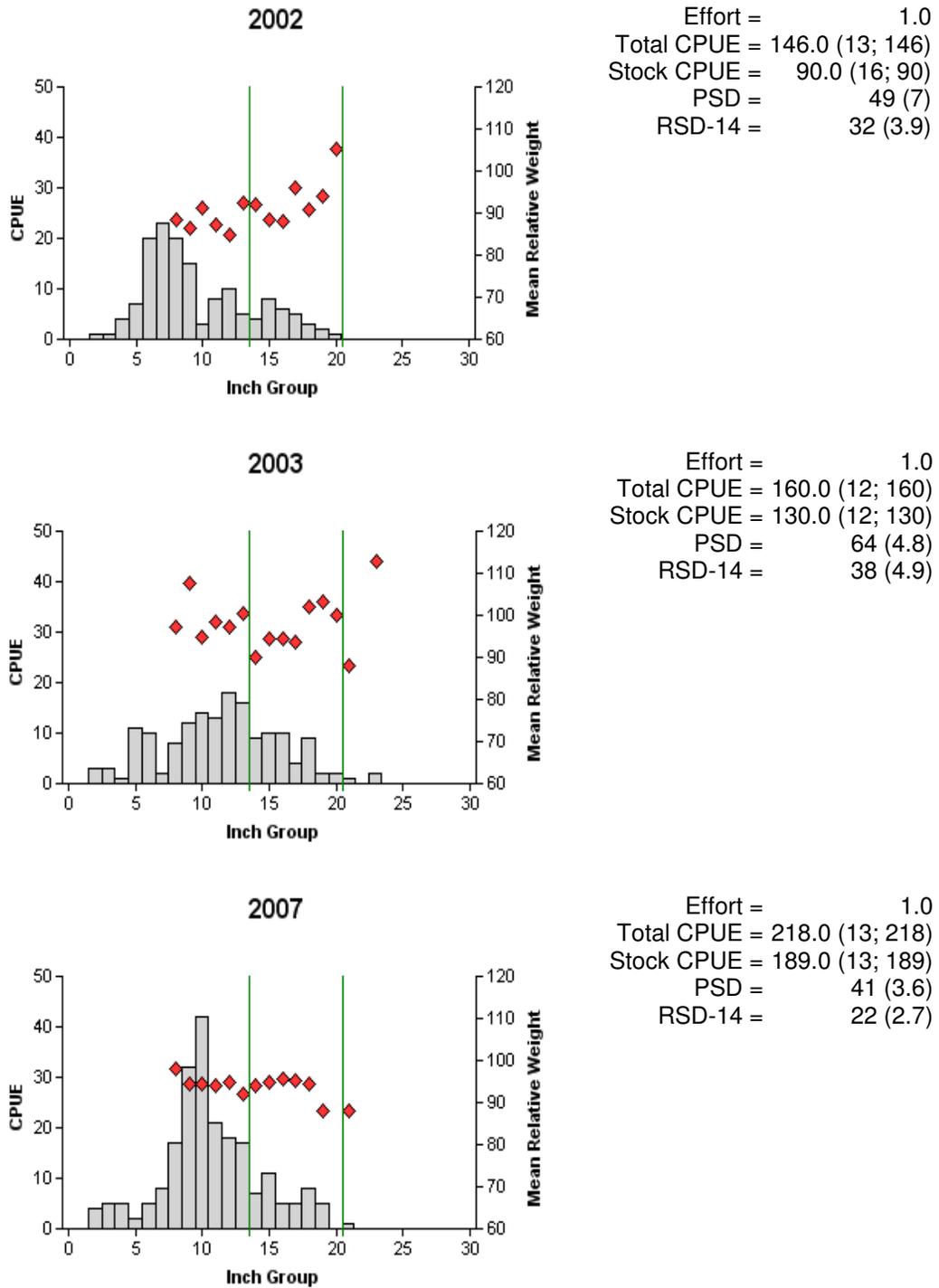


Figure 4. Number of largemouth bass caught per hour (CPUE, bars), mean relative weights (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, Pinkston Reservoir, Texas, 2002, 2003, and 2007. Vertical lines represent the slot length limit.

Largemouth Bass

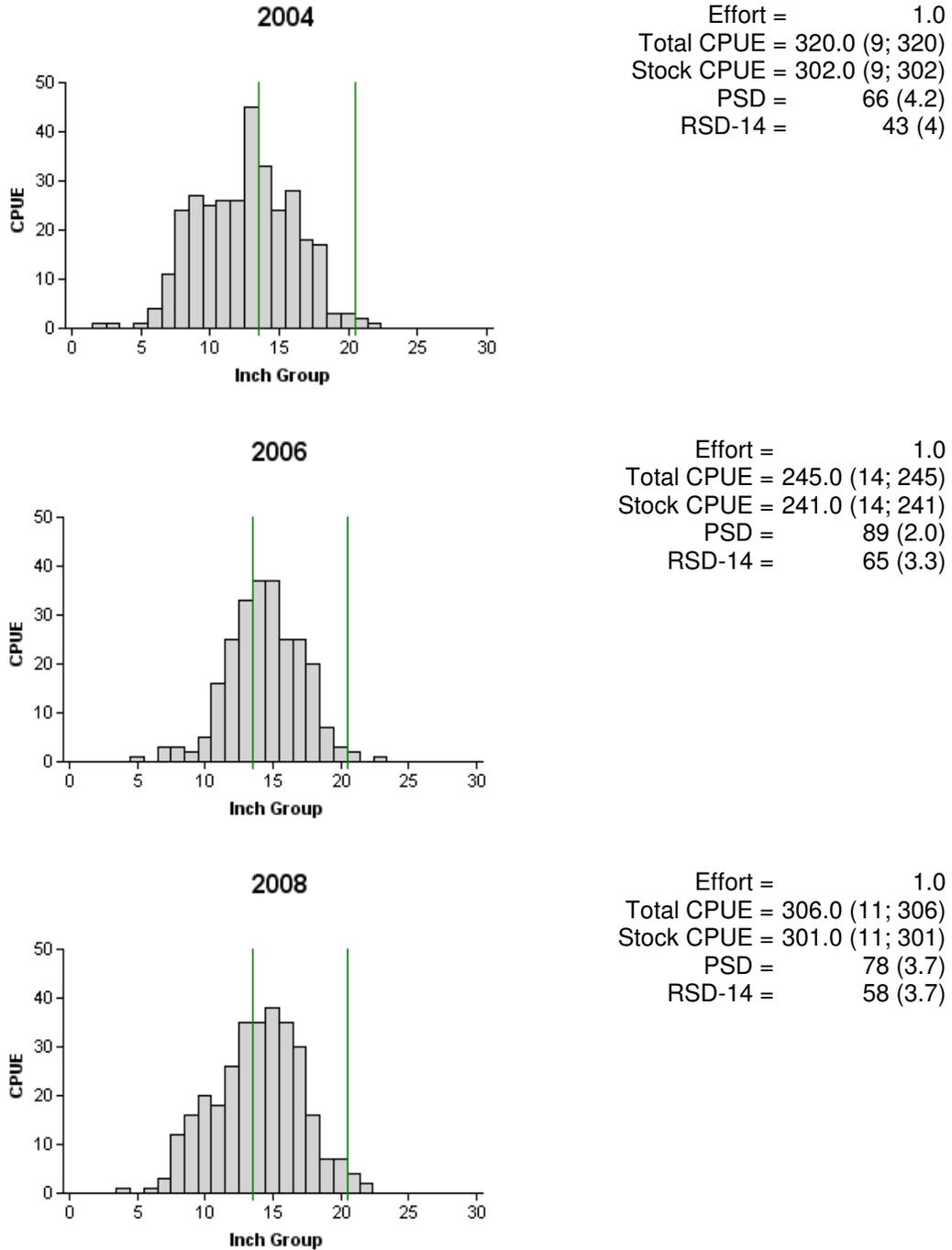


Figure 5. Number of largemouth bass caught per hour (CPUE, bars) and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring electrofishing surveys, Pinkston Reservoir, Texas, 2004, 2006, and 2008. Vertical lines represent the slot length limit.

Table 8. Creel survey statistics for largemouth bass at Pinkston Reservoir from March through May 2008, 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
	March-May 2008
Directed effort (h)	6,935.8 (22)
Directed effort/acre	15.5 (22)
Total catch per hour	0.5 (18)
Total catch	3,292
≥ 4 pound fish	1,082
≥ 7 pound fish	0
≥ 10 pound fish	0
Total harvest	310.0 (85)
Harvest/acre	0.7 (85)
Percent legal released	76.1

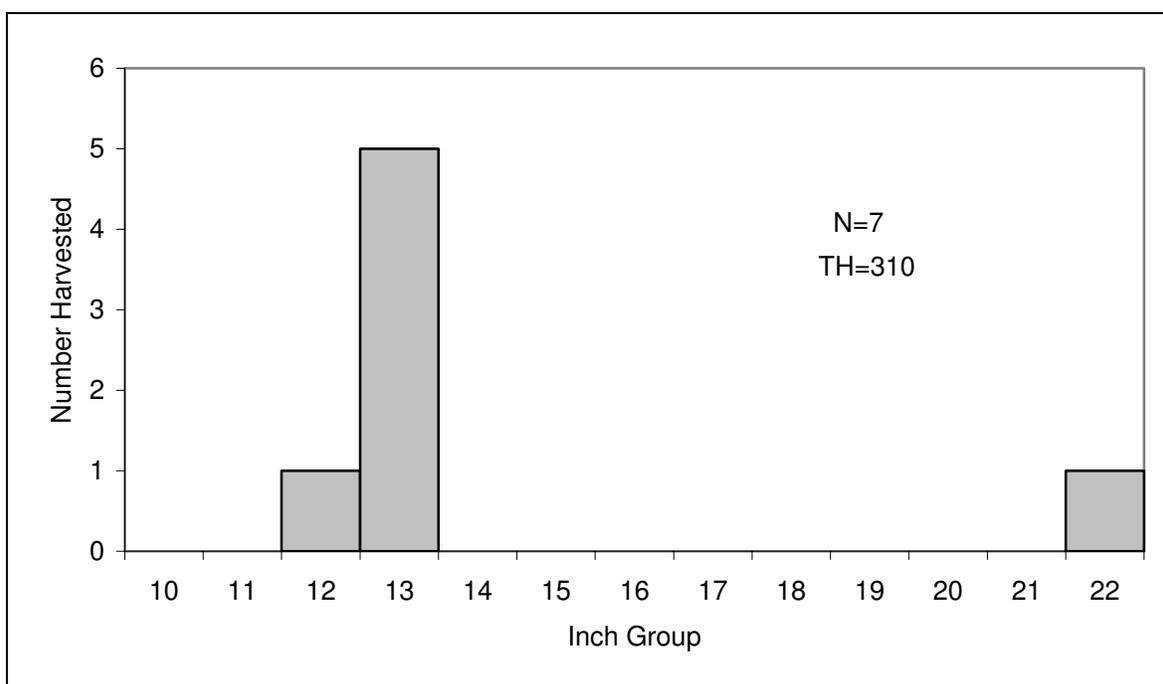


Figure 6. Length frequency of harvested largemouth bass observed during creel surveys at Pinkston Reservoir, Texas, March through May 2008, all anglers combined. N is the number of harvested largemouth bass observed during creel surveys, and TH is the total estimated harvest for the creel period.

Largemouth Bass

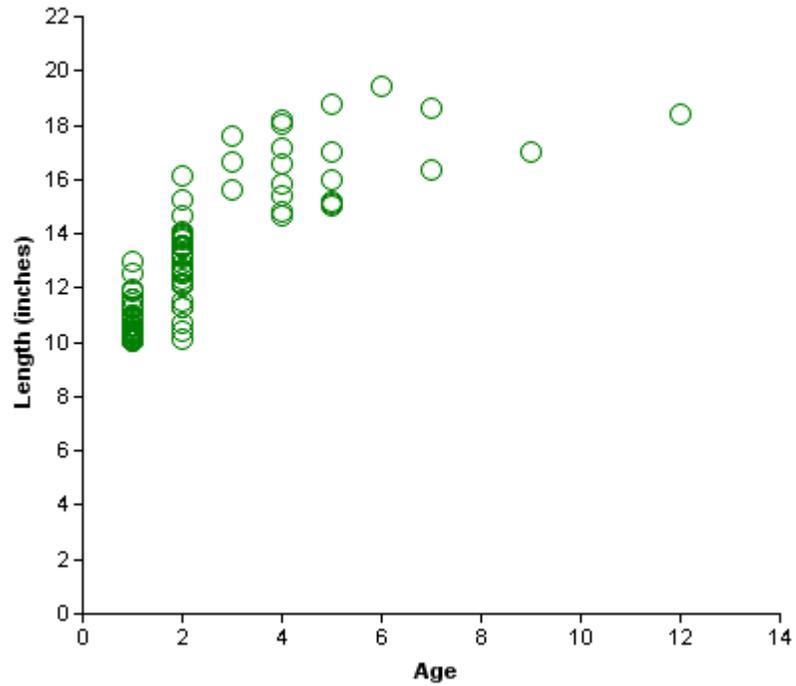


Figure 7. Length at age for largemouth bass collected from electrofishing surveys at Pinkston Reservoir, Texas, October 2007.

Table 9. Results of genetic analysis of largemouth bass collected by fall electrofishing, Pinkston Reservoir, Texas, 1999, 2001, 2003, and 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	F1	Fx	Combined hybrids	NLMB		
1999	30	11	6	12	12	1	73.0	36.7
2001	54	11	11	27	27	0	69.5	20.4
2003	28	10	3	15	15	0	73.2	35.7
2007	24	3			21	0	77.6	12.5

Crappies

Table 10. Creel survey statistics for crappies at Pinkston Reservoir from March through May 2008, where total harvest is the estimated number of crappies harvested by all anglers. No directed effort for crappies was observed. Relative standard errors (RSE) are in parentheses.

Creel Survey Statistic	Year March-May 2008
Directed effort (h)	
Directed effort/acre	
Total catch per hour	
Total harvest	88.5 (128)
Harvest/acre	0.2 (82)
Percent legal released	0.0

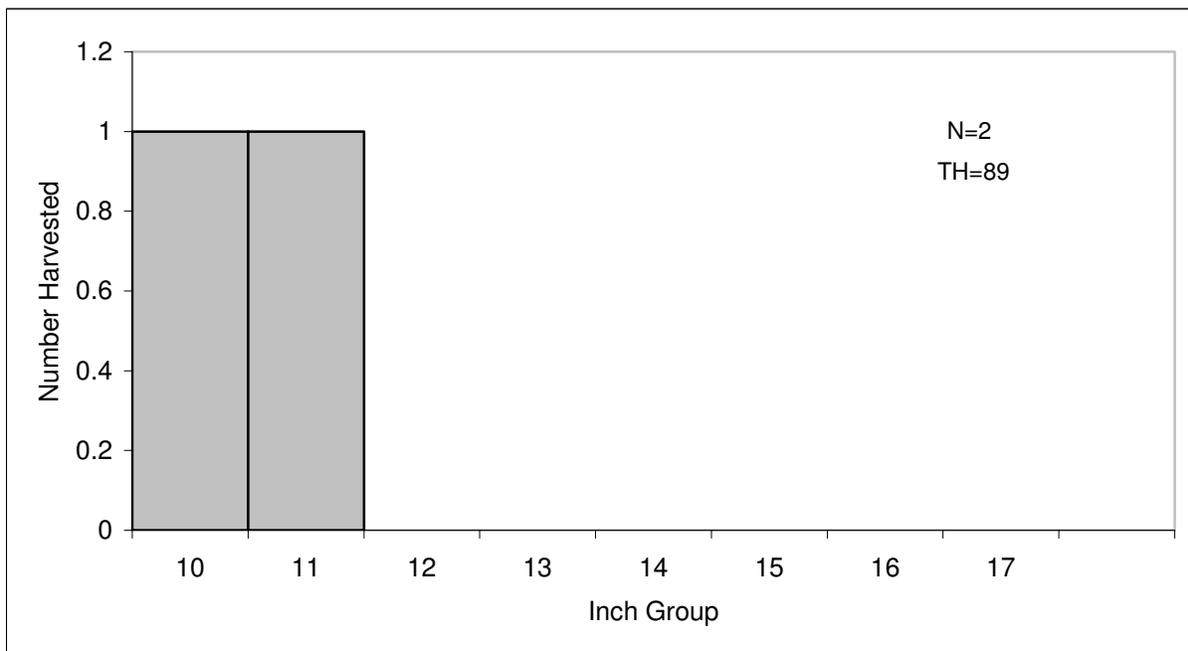


Figure 8. Length frequency of harvested black crappie observed during creel surveys at Pinkston Reservoir, Texas, March through May 2008, all anglers combined. N is the number of harvested black crappie observed during creel surveys, and TH is the total estimated harvest for the creel period.

Table 11. Proposed sampling schedule for Pinkston Reservoir, Texas. Gill netting surveys are conducted in the spring, while standard electrofishing surveys are conducted in the fall. Standard survey denoted by S and additional survey denoted by A.

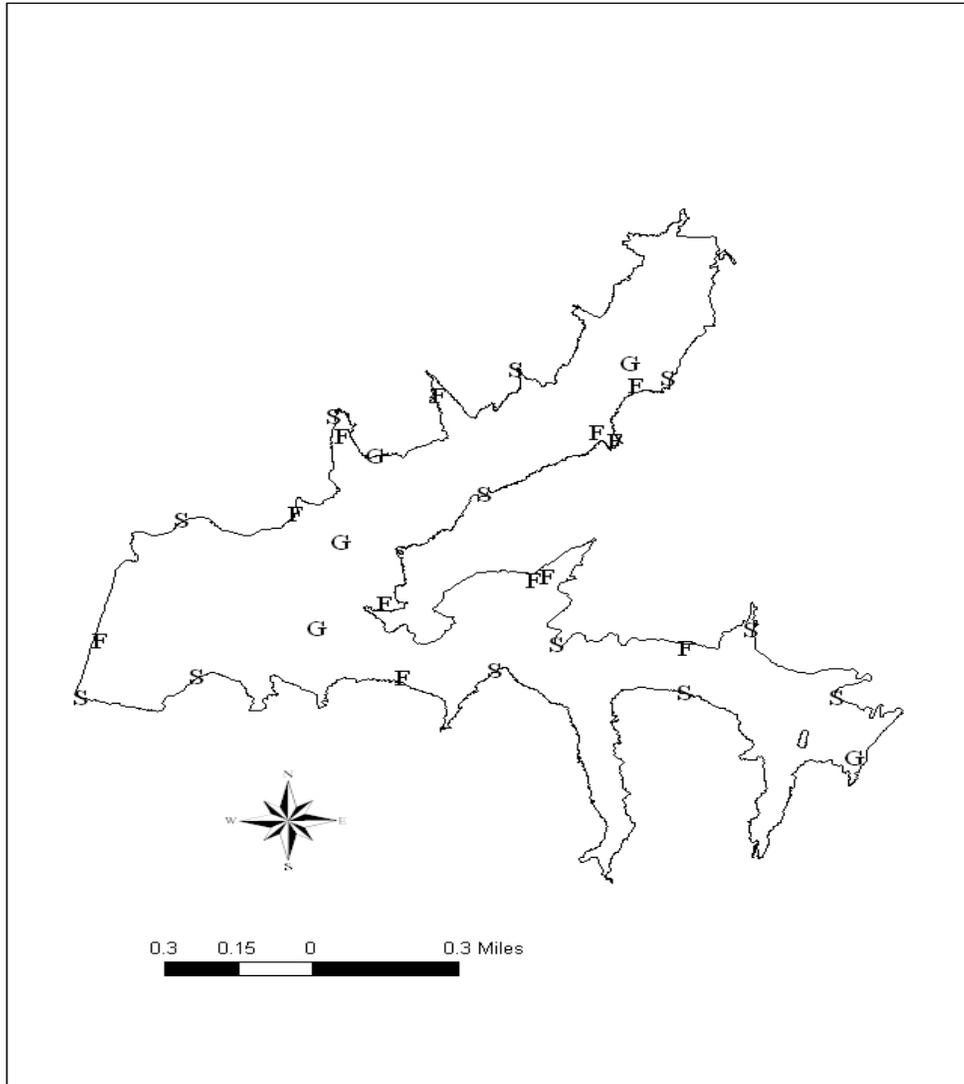
Survey Year	Electrofisher	Gill Net	Creel Survey	Access Point Survey	Vegetation Survey	Report
Fall 2008-Spring 2009					A	
Fall 2009-Spring 2010	A				A	
Fall 2010-Spring 2011					A	
Fall 2011-Spring 2012	S / A	S	A	S	S	S

APPENDIX A

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

Species	Gill Netting		Fall Electrofishing		Spring Electrofishing	
	N	CPUE	N	CPUE	N	CPUE
Gizzard shad	53	10.6	28	28.0		
Threadfin shad			75	75.0		
Spotted sucker	23	4.6				
Yellow bullhead	25	5.0				
Warmouth			8	8.0		
Bluegill			450	450.0		
Longear sunfish			3	3.0		
Redear sunfish			49	49.0		
Spotted sunfish			35	35.0		
Largemouth bass	21	4.2	218	218.0	306	306.0
White crappie	3	0.6				
Black crappie	8	1.6				

APPENDIX B



Location of sampling sites, Pinkston Reservoir, Texas, 2007-2008. Gill net, fall electrofishing, and spring electrofishing stations are indicated by G, F, and S respectively.

APPENDIX C

Results of additional creel questions used to identify potential harvest practices of anglers at Pinkston Reservoir. Values in parentheses are the percent of anglers that responded with each answer.

Which one of the following best describes your harvest practices for largemouth bass at Lake Pinkston under the current regulation (14 to 21 inch slot limit, 1 fish bag per day over 21 inches)?

1. I always practice catch and release regardless of the size of the bass I catch. (32)
2. I practice catch and release for fish that are larger than 21 inches but **sometimes** keep bass I catch that are less than 14 inches. (8)
3. I practice catch and release for fish that are larger than 21 inches but **always** keep bass I catch that are less than 14 inches. (0)
4. I practice catch and release for bass that are less than 14 inches but **sometimes** harvest a bass that is larger than 21 inches. (20)
5. I practice catch and release for bass that are less than 14 inches but **always** harvest a bass that is larger than 21 inches. (4)
6. I **sometimes** harvest bass on either side of the slot limit (less than 14 inches or 1 bass larger than 21 inches). (20)
7. I **always** harvest bass that are outside the slot limit (less than 14 inches or 1 bass larger than 21 inches). (16)