PERFORMANCE REPORT

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FEDERAL AID IN SPORT FISH RESTORATION ACT

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FEDERAL AID PROJECT F-30-R-34

STATEWIDE FRESHWATER FISHERIES MONITORING AND MANAGEMENT PROGRAM

2008 Survey Report

Gilmer Reservoir

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SURVEY AND MANAGEMENT SUMMARY

Fish populations in Gilmer Reservoir were surveyed in 2008 using electrofishing and in 2009 using gill nets. Anglers were surveyed from June 2005 through May 2006 with an access-point creel survey. This report summarizes the results of the surveys and contains a management plan for the reservoir based on those findings.

- **Reservoir description:** Gilmer Reservoir is a 1,010-acre impoundment constructed in 2001 on Kelsey Creek in the Big Cypress River Basin and controlled by the City of Gilmer. Structural habitat consists primarily of natural shoreline features. Hydrilla and native aquatic plants cover 26% of the reservoir surface area.

- **Management history:** Largemouth bass have been managed with an 18-inch minimum length limit since the reservoir was opened to public fishing. The reservoir has developed a well-known trophy largemouth bass fishery. The Texas Parks and Wildlife Department has recently stocked Florida largemouth bass in 2008 and 2009 to maintain this trophy fishery. Channel catfish have been stocked in the reservoir, but lack of suitable spawning habitat has limited natural reproduction.

- **Fish community:**
  - **Prey species:** Gizzard shad were generally too large to be available as prey to sport fish. However, threadfin shad were collected during 2008 electrofishing. Bluegill were the most abundant sunfish species and serve as an excellent prey source for largemouth bass in the reservoir.

  - **Catfishes:** No channel catfish were collected during the 2009 gill netting survey.

  - **Largemouth bass:** Electrofishing catch rates of largemouth bass were higher in 2008 than in previous years. Largemouth bass received the highest percentage of angling effort compared to other species in the reservoir from June 2005 through May 2006. Growth of largemouth bass was moderate. The average length of age-3 fish in 2008 was 15.7 inches. Fish body condition was good, indicating adequate prey availability.

  - **Crappie:** Experimental lighted trap netting was conducted in fall 2008 as part of a special research project. However, only two crappie were collected during the entire survey. Thus, these data were not included in the research project. Anglers were more successful catching crappie in the 2005/2006 creel survey period compared to the 2001/2002 survey. Directed angling effort increased in the 2005/2006 survey and anglers caught larger fish, resulting in higher harvest estimates compared to the previous survey.

- **Management strategies:** Conduct electrofishing surveys every other year beginning in 2010, and general monitoring with gill nets in 2013. An access-point angler creel survey will be conducted from June 2012 through May 2013. Hydrilla will be inspected annually to monitor access-related issues and to watch for other non-native invasive aquatic vegetation. Technical guidance will be given to controlling authority regarding invasive aquatic vegetation management as necessary. Largemouth bass will continue to be managed with the 18-inch minimum length limit, but the harvest regulation will be evaluated every two years to ensure management objectives are met.

INTRODUCTION

This document is a summary of fisheries data collected from Gilmer Reservoir from June 2008 through May 2009. 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 fishes was collected, this report deals primarily with major sport fishes and important prey species. Historical data are presented with the 2008 and 2009 data for comparison.

Reservoir Description

Gilmer Reservoir is located on Kelsey Creek in the Cypress River Basin. It was constructed by the City of Gilmer in 1995 for municipal water and public recreation. The dam was completed in 2000 and the reservoir filled to its conservation pool of 315 ft msl, which inundated 1,010 acres with a maximum depth of 28 ft. The shoreline length is 7.5 mi and the shoreline development ratio (SDI) is 1.6. The reservoir was opened to public fishing September 29, 2001. Boating access is available at one county park. Shoreline access for bank anglers is limited. The shoreline is undeveloped and consisted of natural features. Hydrilla was present and covered 260 acres, either by itself or in combination with native submersed or native floating-leaved vegetation. Water level data were not available for this reservoir.

Management History

Previous management strategies and actions: Management strategies and actions from the previous survey report (Brice 2005) included:

1. Make efforts to increase angler awareness of fishing opportunities at this relatively new reservoir.
   Action: Fishing opportunities at Gilmer Reservoir have been promoted through local news releases and presentations to area fishing clubs.
2. Stock advance-size channel catfish with funding other than TPWD to offset poor natural recruitment of catfish in the reservoir.
   Action: Outside funding has not been available to meet this objective.
3. Stock Florida largemouth bass in 2006 and 2007 at a rate of 100 fish/acre to improve largemouth bass population genetics and enhance the trophy potential of the population.
   Action: Florida largemouth bass fingerlings were stocked in 2008 and 2009 at the recommended rate.
4. Conduct electrofishing, trap netting, and gill netting surveys every four years beginning in 2008.
   Action: Fall electrofishing was conducted in 2008. Experimental lighted-trap netting was conducted during fall 2008. Gill netting was conducted in spring 2009.
5. Conduct annual access angler creel survey from June 2005 through May 2006 to monitor angling effort and success.
   Action: A creel survey was conducted during the recommended time period.

Harvest regulation history: Gilmer Reservoir was opened under statewide fish harvest regulations in 2001 for all species except largemouth bass (Table 2). Largemouth bass have been managed with an 18-inch minimum length limit since the reservoir was opened to public fishing.

Stocking history: Prior to and immediately following impoundment, Gilmer reservoir was stocked with bluegill, channel catfish, Florida largemouth bass, and threadfin shad. In recent years, additional Florida largemouth bass have been stocked to improve the trophy potential of the fishery. The complete stocking history is presented in Table 3.

Vegetation/habitat history: Growth of aquatic vegetation in Gilmer Reservoir has been moderate in past

years. The City of Gilmer has lacked funding to actively manage hydrilla in the reservoir. To date, hydrilla has not caused access-related problems in the reservoir.

METHODS

Fishes were collected by electrofishing (1.0 hour at 12, 5-min stations) and gill netting (5 net nights at 5 stations). Since the last survey report, an access-point angler creel survey was conducted from June 2005 through May 2006. The creel surveys consisted of 4 randomly-selected weekdays and 5 randomly-selected weekend days per quarter. Each day was partitioned into 2, 6-hour survey periods during June-November, 2, 5-hour periods during December-February, and 2, 6-hour periods during March-May, which were randomly selected for each survey day. An aquatic vegetation survey and habitat survey were as conducted in August 2008. Hydrilla-only surveys were conducted in 2006 and 2007. 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 netting, as the number of fish caught per net night (fish/nn). All survey sites were randomly selected and electrofishing, gill netting, aquatic vegetation, habitat, and creel surveys were conducted according to the Fishery Assessment Procedures (TPWD, Inland Fisheries Division, unpublished manual revised 2008).

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. Largemouth bass ages were determined using otoliths from 5 randomly-selected fish per 0.39-inch group.

RESULTS AND DISCUSSION

Habitat: The shoreline at Gilmer Reservoir consisted of natural features. Hydrilla coverage was 350 acres in 2006, 243 acres in 2007, and 260 acres in 2008. These estimates indicate hydrilla coverage in recent years may be close to maximum obtainable levels in the reservoir. Native submerged vegetation covered 60 acres (mixed with hydrilla) and native floating-leaved vegetation covered 109 acres (mixed with hydrilla) in 2008. Nine acres of native emerged vegetation was observed in 2008 (Table 4). Aquatic vegetation coverage at Gilmer Reservoir was 26.6% of the total reservoir surface area in 2008, and provides adequate habitat for the fish community.

Creel: Directed fishing effort by anglers during the 2005/2006 creel survey was highest for largemouth bass (65.4%) followed by sunfishes (14.6%) and crappie (13.6%) (Table 5). These estimates are similar to the 2001/2002 survey. Total fishing effort for all species at Gilmer Reservoir was 47,719 h from June 2005 through May 2006, which was similar to the 2001/2002 survey (44,805 h) (Table 6). Anglers spent an estimated $189,245 in direct expenditures during the 2005/2006 survey period, which was much higher than in 2001/2002 ($56,893) (Table 6).

Prey species: The catch rate of gizzard shad during the 2008 electrofishing survey was 63.0/h, which was substantially lower than previous surveys (Figure 1). Index of vulnerability (IOV) was poor, indicating less than 2% of gizzard shad were available to most predators because of their large size. However, threadfin shad were present and serve as an additional prey source for sport fish (Appendix A). Bluegill was the most abundant sunfish species during the 2008 electrofishing survey (436.0/h) (Figure 2). Redear sunfish and spotted sunfish serve as additional prey species in the reservoir. Redear sunfish and bluegill also provide recreational opportunity for anglers, which accounted for 14.6% of total directed fishing effort in 2005/2006.

Channel catfish: Even though channel catfish have been stocked in this reservoir, the population has not

been able to sustain itself. No channel catfish were collected during the 2009 spring gill netting survey. This is likely due to the lack of suitable spawning habitat for channel catfish and predation by largemouth bass.

Largemouth bass: The electrofishing catch rate of largemouth bass in 2008 was 138.0/h, which was higher than the 2004 (102.0/h) and 2002 (112.0/h) surveys (Figure 5). Growth of largemouth bass was moderate and similar in 2008 compared to fish collected in 2004 (Table 8). The average length of age-3 largemouth bass was 15.7 inches (Table 8). Fish were collected up to age 7 during 2008, but growth rates slowed for fish greater than age 3 (Figure 6). However, condition of largemouth bass was good with mean W_r for most inch groups >100 (Figure 5). Fish up to 24 inches in length were harvested during the 2005/2006 angler creel survey (Figure 7).

Anglers targeting largemouth bass fished 30.9 hours/acre during the 2005/2006 creel survey period, which was similar to the 2001/2002 survey (27.4 hours/acre) (Table 9). Angling catch rate of largemouth bass was 0.7/h during the 2005/2006 survey (Table 9). Anglers released 95% of all legal-sized largemouth bass. The estimated harvest of largemouth bass in 2005/2006 was 270 fish, which ranged from 17-24 inches (Figure 7). However, 64% of fish included in the harvest estimate were largemouth bass retained by live-release tournament anglers, which were subsequently released.

Crappie: Trap netting has not been an effective gear for sampling crappie in Gilmer Reservoir. Lighted trap nets were deployed in fall 2008 as part of a special research study. However, only two crappie were collected during the experiment. Thus, crappie data from Gilmer Reservoir were not included in the study.

Even though trap netting has not been successful for crappie, a fishery does exist. Anglers targeting crappie fished 6.4 hours/acre in 2005/2006, which was much higher than the 1.7 hours/acre spent fishing for crappie in the 2001/2002 survey (Table 10). Angling catch rates of crappie were good during 2005/2006 (2.9/h) (Table 10). The improvement of the crappie fishery was evident in the increased number of fish harvested in 2005/2006 (7,648) compared to 2001/2002 (444) (Figure 8).

Fisheries management plan for Gilmer Reservoir, Texas

Prepared – July 2009

ISSUE 1: Even though a popular crappie fishery exists at Gilmer Reservoir, traditional trap netting has not proven effective for sampling the crappie community.

MANAGEMENT STRATEGY

1. Monitor angler directed effort and angling catch rates of crappie during the next access-point angler creel survey, June 2012 through May 2013.
2. Collect length and weight data from angler-harvested fish in fall 2012 to assess crappie condition.
3. Collect otoliths from angler-harvested crappie on one collection date (fall 2012) to determine growth rates and year-class presence.

ISSUE 2: Gilmer Reservoir has developed a quality largemouth bass fishery. Currently, largemouth bass are managed with an 18-inch minimum length limit. Management efforts should be made to maximize the reservoir's potential to produce a trophy largemouth bass fishery.

MANAGEMENT STRATEGIES

1. Conduct fall electrofishing surveys every two years beginning in 2010 to monitor largemouth bass abundance, growth, body condition, and size structure. These surveys will also assess the prey fish community.
2. Electrofishing survey data will be examined to ensure the 18-inch minimum length limit for largemouth bass is the most appropriate harvest regulation. Growth, relative abundance, and body condition of largemouth bass below 18 inches will be evaluated for evidence of "stock-piling" of smaller fish in the population.
3. Annually stock Florida largemouth bass at a rate of 100 fish/acre to maintain the trophy potential of the fishery.
4. Conduct an annual access-point creel survey from June 2012 through May 2013 to monitor angling effort and catch rates of largemouth bass.

ISSUE 3: Hydrilla is present in the reservoir and has the potential to cause access problems at the reservoir. Other invasive species (i.e., giant salvinia and waterhyacinth) at other area reservoirs pose a potential threat to Gilmer Reservoir.

MANAGEMENT STRATEGIES

1. Conduct visual inspection of invasive aquatic vegetation on the reservoir, especially to ensure there are no access-related issues at the public boat ramp.
2. Provide the City of Gilmer with technical information related to invasive aquatic vegetation management as necessary.
3. Post signs at public access areas informing anglers of the threat of invasive aquatic vegetation and the need to inspect and clean boat trailers.

ISSUE 4: Anglers and stakeholders need to be informed about fisheries management activities, fishing opportunities, and other issues at Gilmer Reservoir.

MANAGEMENT STRATEGIES

1. Continue to provide news releases to the print and broadcast media.
2. Continue to provide fisheries presentations to the public regarding issues/opportunities at Gilmer Reservoir.

SAMPLING SCHEDULE JUSTIFICATION:

The proposed sampling schedule includes annual invasive aquatic vegetation surveys, a supplemental electrofishing survey in 2010, a one-year access-point angler creel survey June 2012 through May 2013, and required electrofishing and gill net surveys in 2012/2013 (Table 11). Annual vegetation surveys are necessary to monitor the status of hydrilla and to inspect for new infestations of non-native species. The access-point creel survey will be conducted to monitor angling effort and catch rates. Supplemental electrofishing in 2010 will be conducted to monitor the largemouth bass and prey fish populations.

LITERATURE CITED

Anderson, R. O., and R. M. Neumann. 1996. Length, weight, and associated structural indices. Pages 447-482 in B. R. Murphy and D. W. Willis, editors. Fisheries techniques, 2nd edition. American Fisheries Society, Bethesda, Maryland.

Brice, M. W. 2005. Statewide freshwater fisheries monitoring and management program survey report for Gilmer Reservoir, 2004. Texas Parks and Wildlife Department, Federal Aid Report F-30-R, Austin.

DiCenzo, V. J., M. J. Maceina, and M. R. Stimpert. 1996. Relations between reservoir trophic state and gizzard shad population characteristics in Alabama reservoirs. North American Journal of Fisheries Management 16:888-895.

Table 1. Characteristics of Gilmer Reservoir, Texas.

Characteristic	Description
Year constructed	2001
Controlling authority	City of Gilmer
County	Upshur
Reservoir type	Tributary
Shoreline development index (SDI)	1.6
Conductivity	132 umhos/cm

Table 2. Harvest regulations for Gilmer Reservoir, Texas.

Species	Bag Limit	Minimum-Maximum Length (inches)
Catfish, channel	25	12 – No Limit
Bass, largemouth	5	18 – No Limit
Crappie, white and black crappie, their hybrids and subspecies	25 (in any combination)	10 - No Limit

Table 3. Stocking history of Gilmer Reservoir, Texas. Life stages are fingerlings (FGL), advanced fingerlings (AFGL), and adults (ADL). 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)
Bluegill	2000	216,422	FGL	2.0
	Total	216,422		
Channel catfish	1996	6,236	FGL	2.0
	1997	400	ADL	15.0
	1997	9,918	FGL	2.5
	2000	4,125	AFGL	7.5
	2000	49,500	FGL	2.4
	2001	40,000	FGL	2.2
	Total	110,179		
Florida Largemouth bass	1996	10,197	FGL	1.3
	1997	3,439	AFGL	5.9
	1997	20,282	FGL	1.2
	2000	11,405	FGL	1.3
	2001	80,000	FGL	1.5
	2008	102,852	FGL	1.6
	2009	101,517	FGL	1.6
	Total	329,692		
Threadfin shad	1997	2,000	ADL	3.5
	2002	6,000	ADL	3.5
	Total	8,000		

Table 4. Survey of littoral zone and physical habitat types, Gilmer Reservoir, Texas, 2008. 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 species found.

	Shoreline distance		Surface area	
Habitat type	Miles	Percent of total	Acres	Percent of reservoir surface area
Natural shoreline	7.5	100		
Native emerged vegetation			9	0.9
Hydrilla			91	9.0
Hydrilla and native submersed vegetation			60	5.9
Hydrilla and native floating-leaved vegetation			109	10.8

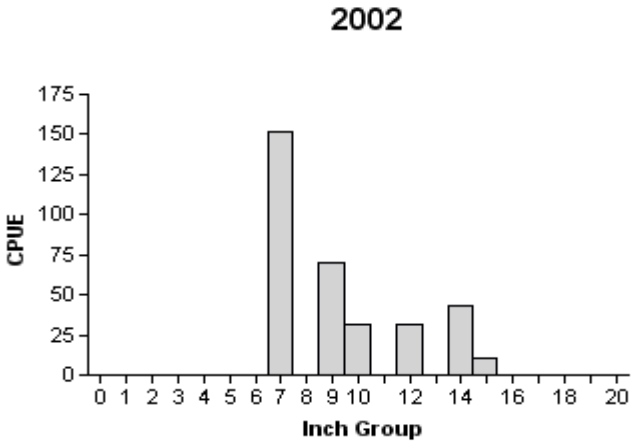
Table 5. Percent directed angler effort by species for Gilmer Reservoir, Texas, 2001-2002 and 2005-2006. Annual surveys were conducted from September 2001 through August 2002 and June 2005 through May 2006.

Species	Year	
	2001-2002	2005-2006
Largemouth bass	61.8	65.4
Catfish	2.4	1.1
Crappie	3.8	13.6
Sunfishes	18.1	14.6
Anything	13.9	5.4

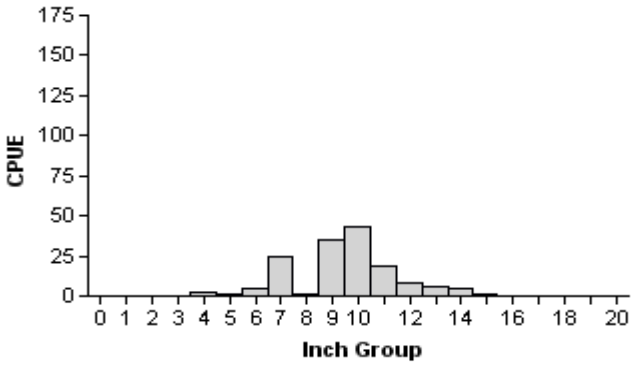
Table 6. Total fishing effort (h) for all species and total directed expenditures at Gilmer Reservoir, Texas, 2001-2002 and 2005-2006. Annual surveys were conducted from September 2001 through August 2002 and June 2005 through May 2006.

Creel statistic	Year	
	2001-2002	2005-2006
Total fishing effort	44,805	47,719
Total directed expenditures	$56,893	$189,245

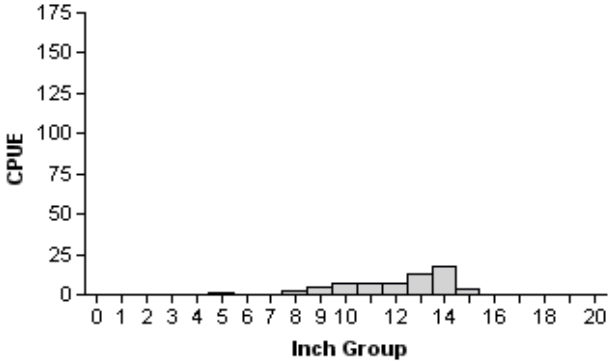
Gizzard Shad



Effort = 1.0
Total CPUE = 337.0 (17; 337)
IOV = 45.1 (6.4)



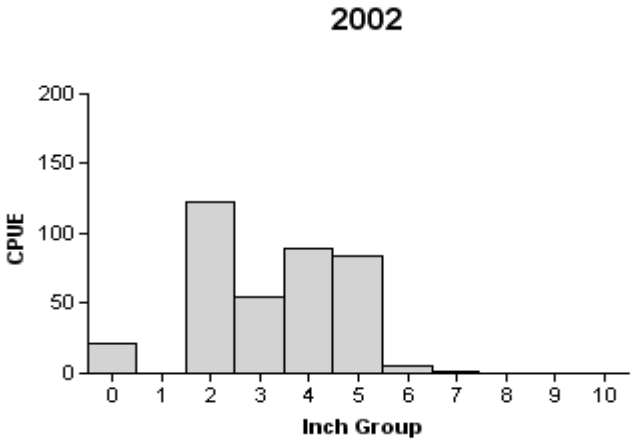
Effort = 1.0
Total CPUE = 151.0 (23; 151)
IOV = 21.7 (6.4)



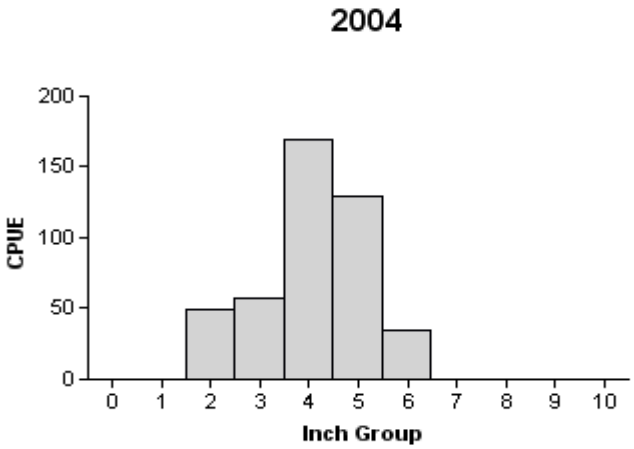
Effort = 1.0
Total CPUE = 63.0 (20; 63)
IOV = 1.6 (1.7)

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, Gilmer Reservoir, Texas, 2002, 2004, and 2008.

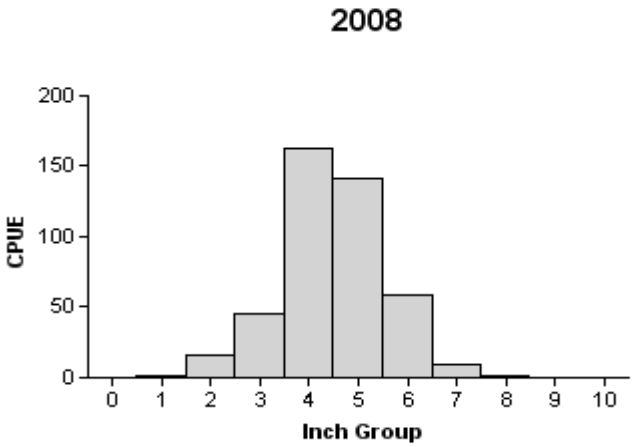
Bluegill



Effort = 1.0
Total CPUE = 379.0 (20; 379)
Stock CPUE = 235.0 (22; 235)
PSD = 3 (0.9)



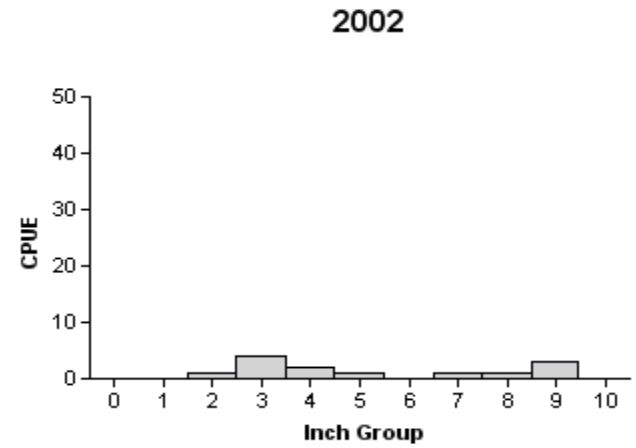
Effort = 1.0
Total CPUE = 440.0 (22; 440)
Stock CPUE = 391.0 (21; 391)
PSD = 9 (1.7)



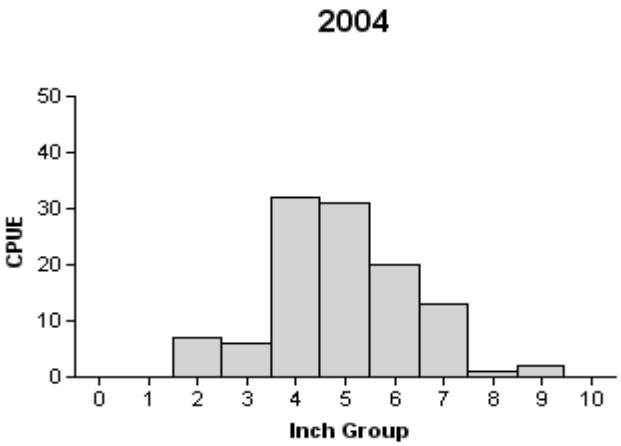
Effort = 1.0
Total CPUE = 436.0 (16; 436)
Stock CPUE = 419.0 (16; 419)
PSD = 16 (2.9)

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, Gilmer Reservoir, Texas, 2002, 2004, and 2008.

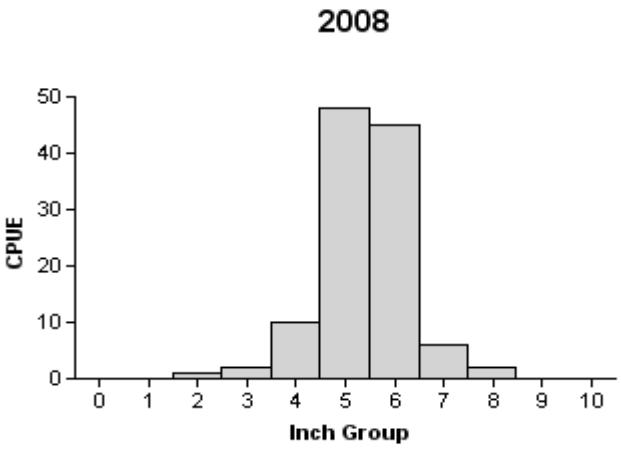
Redear Sunfish



Effort = 1.0
Total CPUE = 13.0 (31; 13)
Stock CPUE = 8.0 (38; 8)
PSD = 62 (20.5)



Effort = 1.0
Total CPUE = 112.0 (29; 112)
Stock CPUE = 99.0 (31; 99)
PSD = 16 (3.9)



Effort = 1.0
Total CPUE = 114.0 (17; 114)
Stock CPUE = 111.0 (18; 111)
PSD = 7 (1.9)

Figure 3. Number of redear sunfish 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, Gilmer Reservoir, Texas, 2002, 2004, and 2008.

Sunfishes

Table 7. Creel survey statistics for sunfishes at Gilmer Reservoir, Texas during angler creel surveys 2001-2002 and 2005-2006, 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. Annual surveys were conducted from September 2001 through August 2002 and June 2005 through May 2006.

Creel survey statistic	Year	
	2001-2002	2005-2006
Directed effort (h)	8,127 (17)	6,958 (15)
Directed effort/acre	8.0 (17)	6.9 (15)
Total catch per hour	6.1 (26)	3.2 (17)
Total harvest	36,356 (43)	19,287 (75)
Harvest/acre	36.0 (43)	19.1 (75)
Percent legal released	47.2	41.3

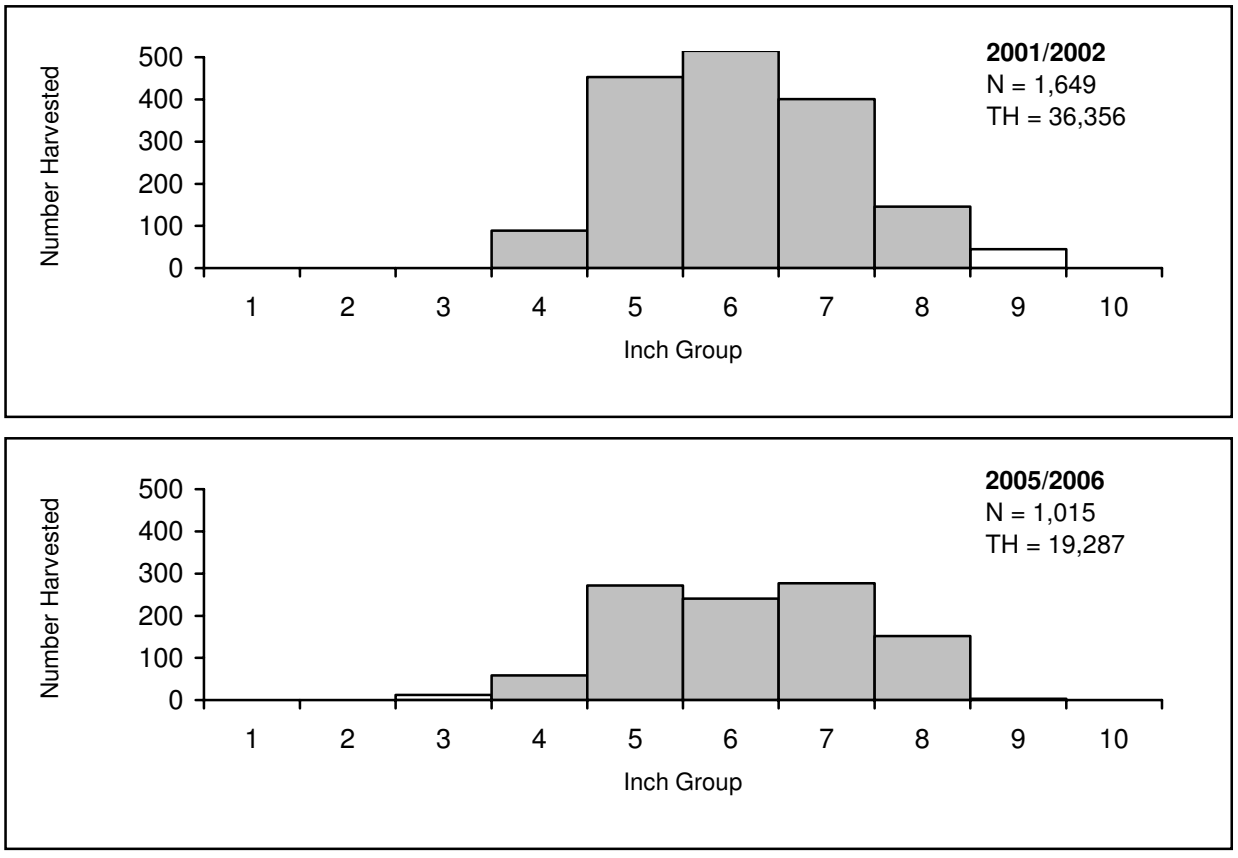


Figure 4. Length frequency of harvested sunfishes observed during creel surveys at Gilmer Reservoir, Texas, 2001-2002 and 2005-2006, all anglers combined. N is the number of harvested sunfishes observed during creel surveys, and TH is the total estimated harvest for the creel period. Annual surveys were conducted from September 2001 through August 2002 and June 2005 through May 2006.

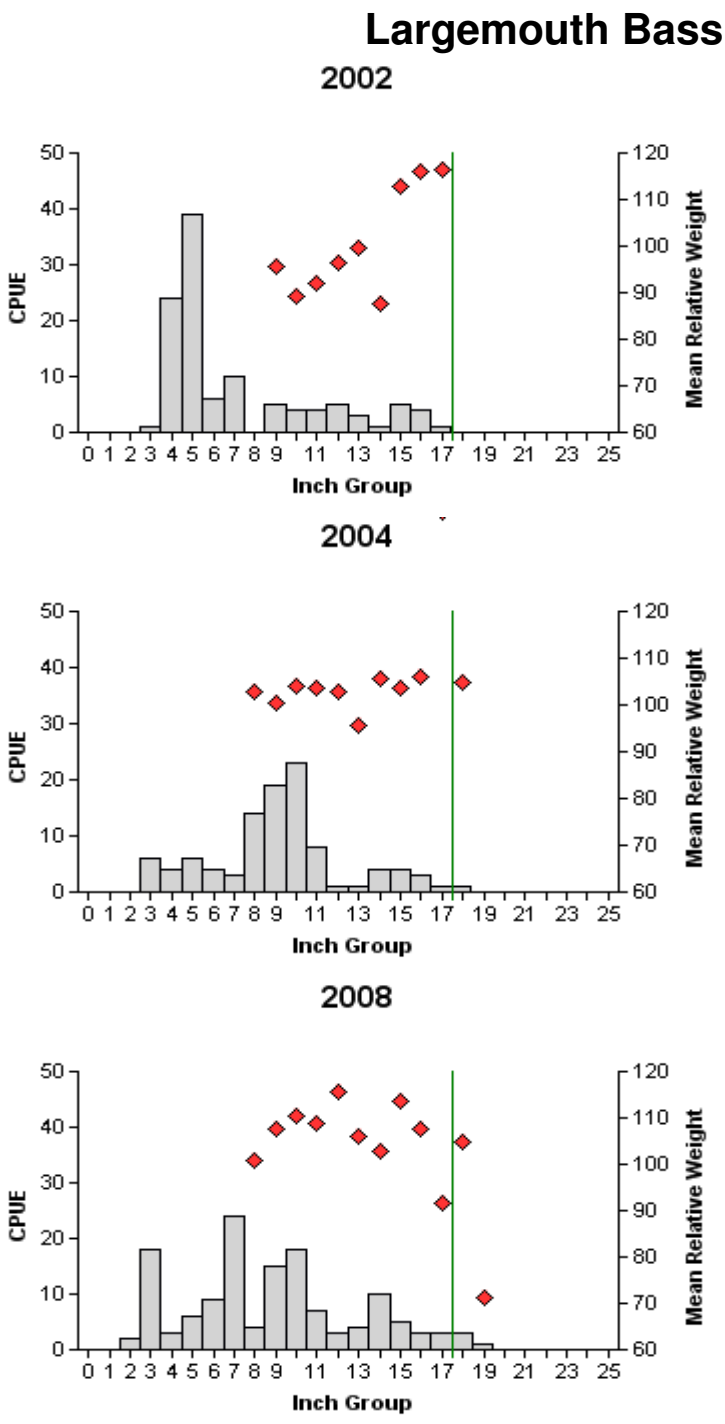


Figure 5. Number of largemouth bass caught per hour (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, Gilmer Reservoir, Texas, 2002, 2004, and 2008. Vertical lines indicate the minimum length limit.

Largemouth Bass

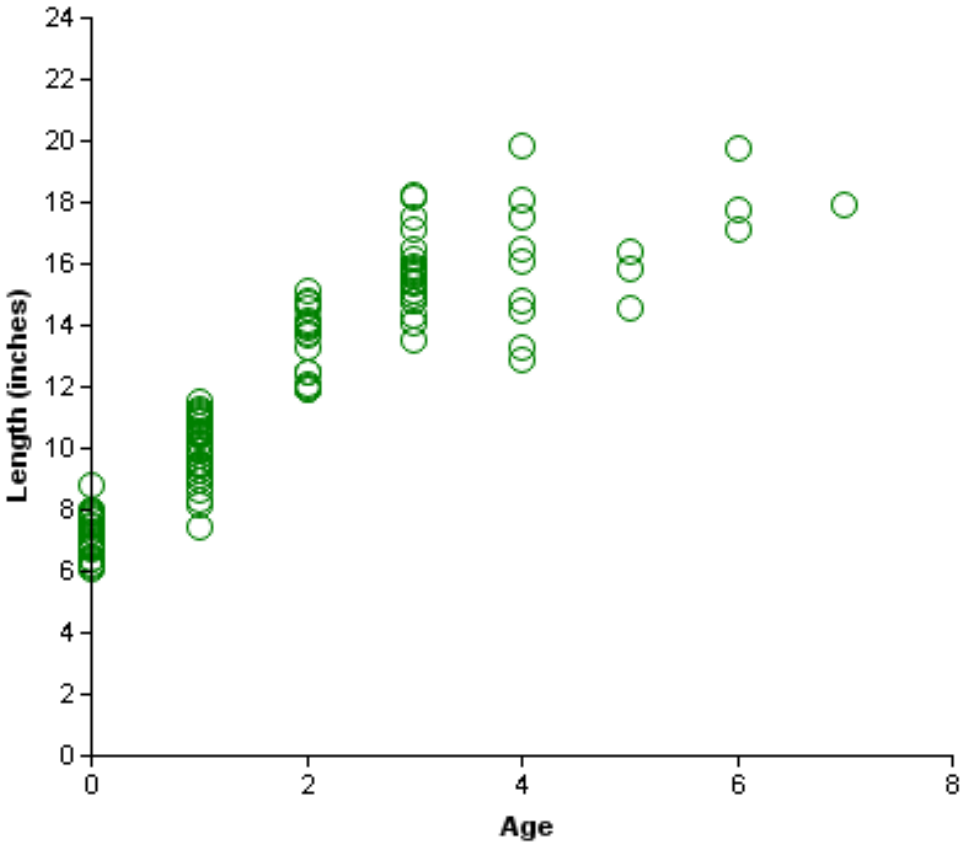


Figure 6. Length-at-age for largemouth bass collected by electrofishing at Gilmer Reservoir, Texas, Fall 2008.

Table 8. Average length (inches) at capture for largemouth bass (sexes combined) ages 1 – 3 collected in fall electrofishing surveys, Gilmer Reservoir, Texas, 2004 and 2008. Lengths are followed by the sample size and relative standard error in parentheses (RSE; N).

	Age (years)		
Year	1	2	3
2004	10.0(2.6; 20)	14.8 (1.6; 5)	15.8 (2.8; 4)
2008	9.9 (1.6; 37)	13.5 (2.0; 17)	15.7 (1.7; 21)

Largemouth Bass

Table 9. Creel survey statistics for largemouth bass at Gilmer Reservoir, Texas during angler creel surveys 2001-2002 and 2005-2006, 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. Annual surveys were conducted from September 2001 through August 2002 and June 2005 through May 2006.

Creel survey statistic	Year	
	2001-2002	2005-2006
Directed effort (h)	27,667 (10)	31,212 (11)
Directed effort/acre	27.4 (10)	30.9 (11)
Total catch per hour	1.0 (15)	0.7 (12)
Total harvest	107 (110)	270 (77)
Harvest/acre	0.1 (110)	0.3 (77)
Percent legal released	94.9	94.6

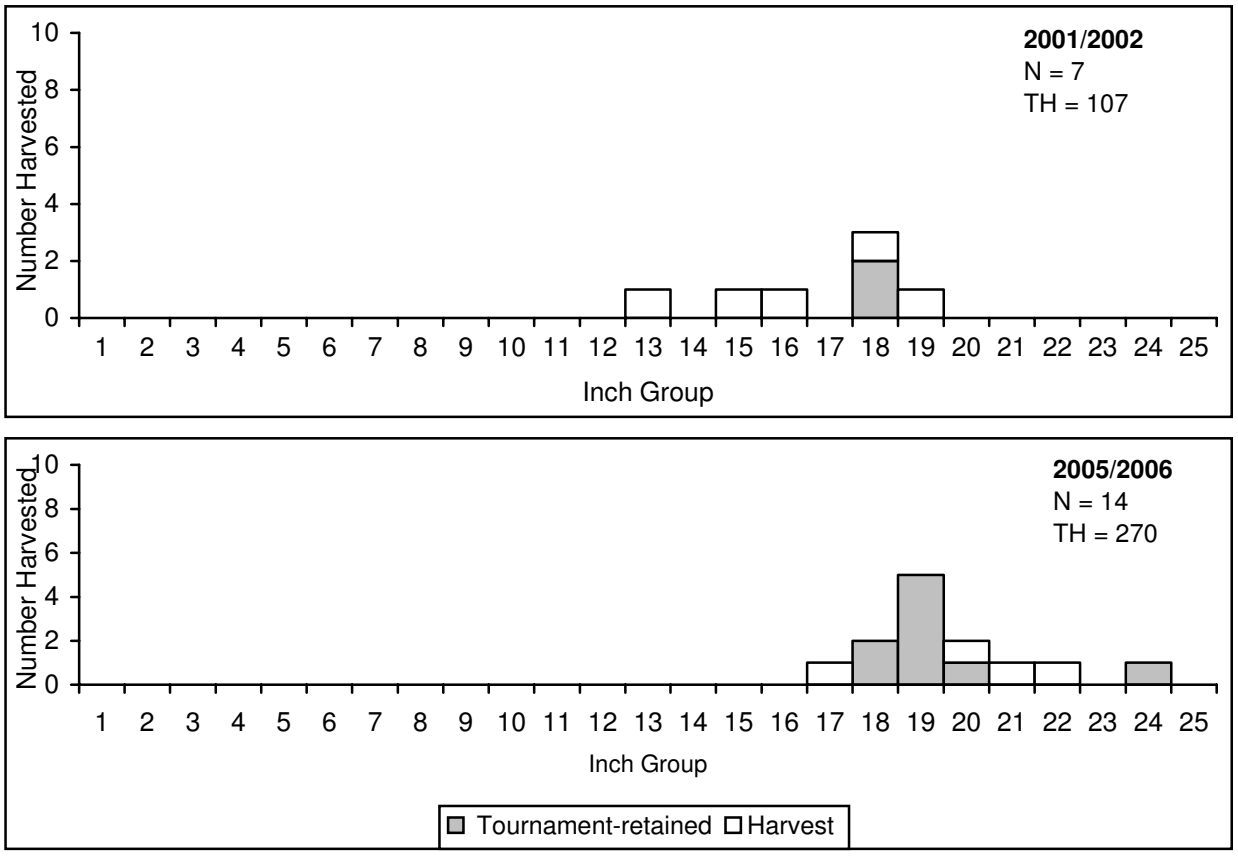


Figure 7. Length frequency of harvested largemouth bass observed during creel surveys at Gilmer Reservoir, Texas, 2001-2002 and 2005-2006, all anglers combined. N is the number of harvested largemouth bass observed during creel surveys, and TH is the total estimated harvest for the creel period.

Crappie

Table 10. Creel survey statistics for crappie at Gilmer Reservoir, Texas during angler creel surveys, 2001-2002 and 2005-2006, where total catch per hour is for anglers targeting crappie and total harvest is the estimated number of crappie harvested by all anglers. Relative standard errors (RSE) are in parentheses. Annual surveys were conducted from September 2001 through August 2002 and June 2005 through May 2006.

Creel survey statistic	Year	
	2001-2002	2005-2006
Directed effort (h)	1,713 (29)	6,479 (18)
Directed effort/acre	1.7 (29)	6.4 (18)
Total catch per hour	3.6 (22)	2.9 (30)
Total harvest	444 (241)	7,648 (47)
Harvest/acre	0.4 (241)	7.6 (47)
Percent legal released	16.3	39.3

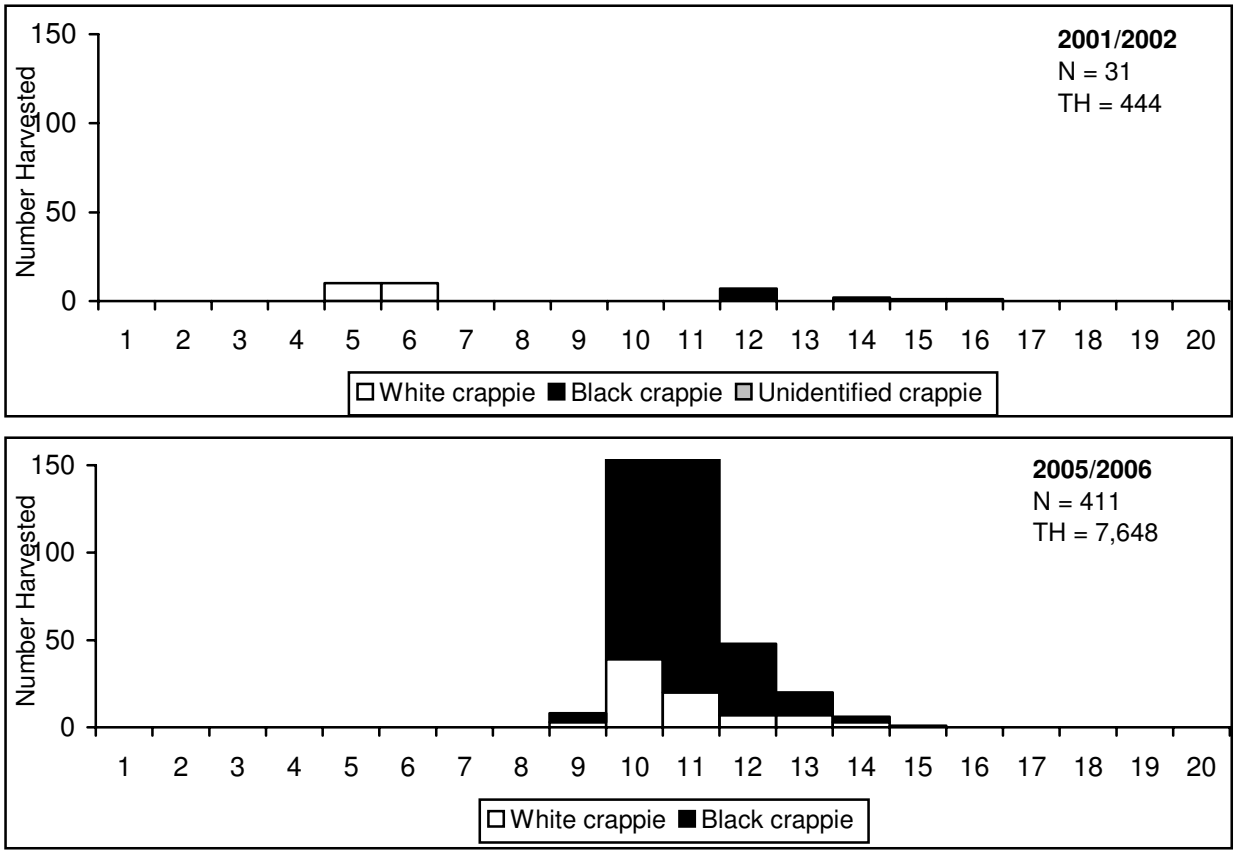


Figure 8. Length frequency of harvested crappie observed during creel surveys at Gilmer Reservoir, Texas, 2001-2002 and 2005-2006, all anglers combined. N is the number of harvested crappie observed during creel surveys, and TH is the total estimated harvest for the creel period.

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

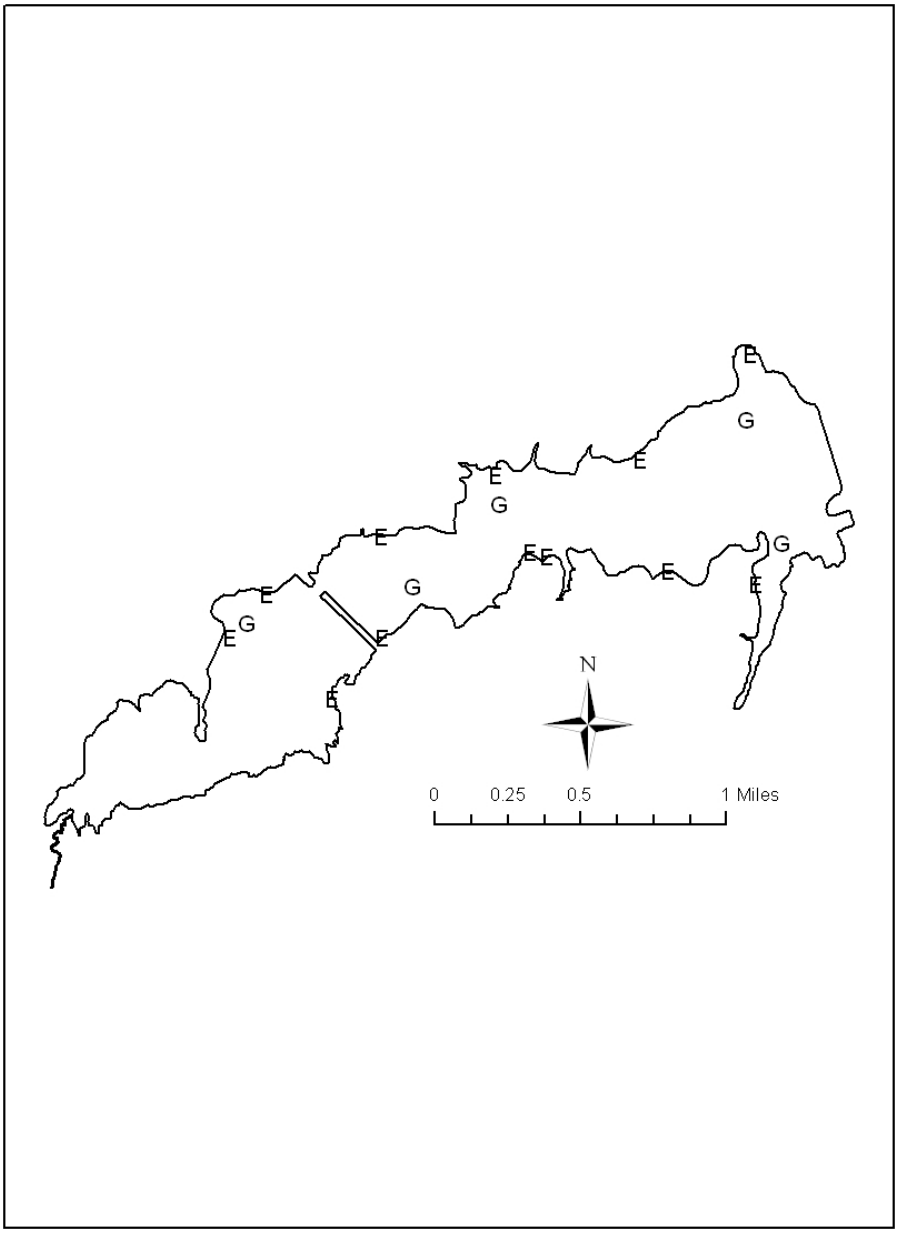
Survey Year	Vegetation	Electrofisher	Gill Net	Creel	Report
Summer 2009 - Spring 2010	A				
Summer 2010 - Spring 2011	A	A			
Summer 2011 - Spring 2012	A				
Summer 2012 - Spring 2013	S	S	S	A	S

APPENDIX A

Number (N) and catch rate (CPUE) of all target species collected by electrofishing from Gilmer Reservoir, Texas, 2008-2009.

Species	Electrofishing	
	N	CPUE
Gizzard shad	63	63.0
Threadfin shad	418	418.0
Warmouth	4	4.0
Bluegill	436	436.0
Redear sunfish	114	114.0
Spotted sunfish	14	14.0
Largemouth bass	138	138.0

APPENDIX B



Location of sampling sites, Gilmer Reservoir, Texas, 2008-2009. Gill net and electrofishing stations are indicated by G and E, respectively.