

PERFORMANCE REPORT

As Required by

FEDERAL AID IN SPORT FISH RESTORATION ACT

TEXAS

FEDERAL AID PROJECT F-30-R-28

STATEWIDE FRESHWATER FISHERIES MONITORING AND MANAGEMENT PROGRAM

2002 Survey Report

Lake Cypress Springs

Prepared by:

Michael J. Ryan, District Management Supervisor
and
Michael W. Brice, Assistant District Management Supervisor

Inland Fisheries Division
District 3-A, Marshall, Texas



Robert L. Cook
Executive Director

Phil Durocher
Director, Inland Fisheries

July 31, 2003

TABLE OF CONTENTS

Executive summary.....	2
Introduction.....	4
Sportfish harvest regulations.....	4
Methods.....	4
Literature cited.....	5
Physical and historical data.....	6
Habitat survey.....	7
Vegetation survey.....	7
Stocking history.....	8
Location of sampling sites.....	9
Species information	
Gizzard shad.....	10
Channel catfish.....	11
White bass.....	13
Bluegill.....	15
Redear sunfish.....	16
Spotted bass.....	17
Largemouth bass.....	18
White crappie.....	20
Black crappie.....	22
Fishery management plan.....	24
Appendices	
1. Species table.....	25
2. Catch rate histories.....	26
3. Electrophoretic analyses.....	29
4. Access and facilities.....	30

EXECUTIVE SUMMARY

Lake Cypress Springs was surveyed in 2002-2003 using gill nets, trap nets, and electrofishing to monitor the fish community. In addition, surveys were conducted to monitor aquatic vegetation, structural habitat, and access and facilities. This report summarizes the results of the surveys and contains a management plan for the reservoir based on those findings.

- **Reservoir Description:** Lake Cypress Springs is located in Franklin County on Cypress Creek in the Cypress River Basin. It was constructed by the Franklin County Water District (FCWD) for municipal and industrial water supply and public recreation. The reservoir lies within the East Texas Timberlands Land Resource Area. It has a drainage area of approximately 75 square miles. Shoreline length is 42.6 miles with a shoreline development index of 5.2. Water level is relatively stable; average annual fluctuation is 2-3 feet. Bank fishing and boating access is available at several public parks and private marinas. Naturally occurring structural habitat (brush and timber) was removed from the basin prior to closure of the dam. Existing structural habitat is limited to boat houses, terrestrial brush and trees in shoreline areas, and rip rap along the dam and private lake-front property to protect against erosion. Bulkheads comprise 35% of the shoreline. Aquatic macrophytes are present in low densities (< 1% total surface area) throughout the reservoir. Hydrilla, introduced during the 1970's, was the dominant aquatic plant through the 1990's and coverage approached 10% of the reservoir. The FCWD was granted a permit to stock triploid grass carp in 1997 at a rate of 5 fish/vegetated acre to control hydrilla. Pakastani hydrilla fly larvae were also introduced in 1997 as an additional control measure. Hydrilla has declined to < 1% coverage since these biological control efforts were implemented. This decline in hydrilla may be responsible for recent changes in water quality and decreases in abundance of cover-seeking fishes. A native aquatic vegetation restoration program was initiated in 2002 by FCWD to increase plant diversity and increase available habitat. Additional time will be required to evaluate benefits of this restoration program.
- **Prey species:** Gizzard shad, threadfin shad, and several species of minnows and sunfishes are present indicating high forage fish diversity. Electrofishing catch rates (fish/hour) for gizzard shad and threadfin shad in 2002 were 242.0 and 145.0, respectively. The gizzard shad catch rate has increased nearly 10-fold compared to the 28.0 fish/hour collected in 1998. Threadfin shad electrofishing catch rate (145.0 fish/hour) declined from 340 fish/hour (1998). Based on these data, moderate densities of clupeids are available as prey. Catch rates for bluegill and redear sunfish were 186.0 and 95.0 fish per hour, respectively and represent a decline for both species since 1998. Both species exhibited a decline in \leq 3-inch individuals compared to previous years indicating lower numbers of sunfishes are available as prey for small intermediate piscivores. Although prey availability appears sufficient to support predators, changes in clupeid species composition and reduction in recruitment of centrarchids (sunfishes) may be attributed to the decline in macrophyte coverage that has occurred since 1998.
- **Catfishes:** Channel catfish are present in sufficient numbers to provide excellent fishing opportunities at Lake Cypress Springs. The catch rate of channel catfish was 19.8 fish/net-night in 2002 gill netting samples; an increase compared to 1995 and 1998 when gill netting catch rates were 10.4 and 6.2 fish/net-night, respectively. Catch rates of legal-size (\geq 12 inches) individuals contributed to most of this increase. Channel catfish reach legal size by age 2.

- **White bass:** The white bass population can be characterized as one of moderate to high density with excellent growth. White bass catch rates were 5.6 fish/net-night; large fish (≥ 13 inches) comprised the majority of the catch in 2003 gill netting samples. White bass attain legal size (≥ 10 inches) by age 1.

- **Sunfishes, black bass, and crappie:** Catch rates of bluegill and redear sunfish ≥ 6 inches were 6.0 and 37.0 fish/hour, respectively, indicating that preferred sizes were available to anglers in 2002. Abundance of large bluegill (≥ 6 inches) has declined in recent years. The PSD of bluegill has decreased since 1996 and 1998 while the PSD of redear sunfish has remained fairly consistent. Age and growth data indicated bluegill and redear sunfish attain 6 inches in length by age 2 (Brice and Ryan 1999).

The electrofishing catch rate of spotted bass in 2002 was 84.0 fish/hour; an increase when compared to 1996 (51.3 fish/hour) and 1998 (10.0 fish/hour). Most of the spotted bass sampled in 2002 were < 12 inches. Although the statewide minimum size limit (12 inches) was waived September 1, 2000, fish < 12 inches are not considered harvestable by most anglers.

Considering the trend in angler attitude toward catch-and-release fishing and that most of the population is comprised of smaller individuals, harvest of spotted bass is probably negligible. Spotted bass reach 12 inches during their third or fourth growing season (Brice and Ryan 1999).

The electrofishing catch rate of largemouth bass declined to 34.0 fish/hour compared to 214.67 fish/hour (1998) and 338.7 fish/hour (1996). The catch rate (21.0 fish/hour) of stock-size (≥ 8 inches) fish in 2002 was low compared to 1996 (64.7 fish/hour) and 1998 (92.7 fish/hour) electrofishing samples. Additionally, the catch rate of legal-size (≥ 14 inches) fish was only 3.0 fish/hour in 2002; a decline from 22.0 fish/hour in 1998. The PSD has declined as well from 74 (1996) and 37 (1998) to 29 (2002). Loss of submerged aquatic vegetation since the late 1990's may be responsible for the decline in recruitment and abundance of largemouth bass and bluegill observed in the 2002 electrofishing collections. The decline in electrofishing catch rates of legal-size fish may also be a result of the combined effects of lower recruitment and excessive harvest. Although no recent creel survey data is available, Lake Cypress Springs once supported a very popular bass fishery and fishing tournaments were frequently held there. Largemouth bass reach legal size during their third growing season at Lake Cypress Springs. Electrophoretic analysis of young-of-the-year bass collected during the 2002 electrofishing survey yielded 29.9% Florida largemouth bass alleles; however, no fish with pure Florida alleles were represented in the sample.

White crappie and black crappie are present in Lake Cypress Springs and provide a popular fishery. Catch rates for white crappie and black crappie were 4.0 and 3.2 fish/net-night, respectively in 2002 trap netting collections. Although the combined catch rate (7.2 fish/net-night) for both species has increased since 1998 (6.2 fish/net-night), catch rates of both species have declined compared to 1992 and 1995 samples. The most noticeable decline in catch rates has occurred for white crappie since 1992 when 14.8 fish/net-night was recorded. Based on growth estimates, white crappie and black crappie reach legal size during their third growing season.

- **Management Strategies**

Based on fish community data, the reservoir should be managed under current harvest regulations. Aggressive chemical control efforts were implemented by FCWD to eradicate

hydrilla during the 1980's and 1990's. Concerned about possible negative impacts of chemical control efforts on water quality, FCWD stocked triploid grass carp (5 fish/vegetated acre) as a biological control mechanism in 1997. Within a 5-year period, submerged aquatic vegetation coverage declined from 150-250 acres (4-5% of 3450 reservoir acres) to < 25 acres (< 1.0 %) in 2002. Loss of submerged vegetation coverage appears to have contributed to a decline in water quality and abundance of several species of centrarchids. The FCWD implemented an aquatic vegetation restoration program in 2002 to establish and increase native aquatic macrophyte coverage. Program objectives are to establish native plant communities to manage nutrients and improve water quality, buffer against the re-infestation of exotic plants like hydrilla, and increase preferred habitat for cover-seeking fish species. Efforts to provide angler information have been implemented and should be continued. Although access and facilities are adequate, most parks do not meet ADA requirements and should be upgraded to be compliant.

INTRODUCTION

This document is a summary of fisheries data collected from Lake Cypress Springs in 2002-2003. 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 fish was collected, this report deals primarily with major sport fishes and important prey species. Management strategies are included to address existing problems or opportunities. Historical data is presented with the 2002-2003 data for comparison.

Table 1. Sportfish harvest regulations for Lake Cypress Springs, Texas September 1, 2002.

Species	Daily Bag Limit	Minimum-Maximum Length
Catfish, Blue and Channel	25	12 – No limit ¹
Catfish, Flathead	5	18 - No limit ²
Bass, White	25	10 - No limit
Bass, Spotted	5 ³	None
Bass, Largemouth	5 ³	14 – No limit
Crappie, White and Black	25	10 - No limit

¹Minimum length limit was changed from 9 to 12 inches in 1995

²Minimum length limit was changed from 24 to 18 inches in 1995

³Aggregate bag limit for black basses

METHODS

- Fishes were collected by electrofishing (1.0 hour at 12 stations), gill netting (5 net-nights at 5 stations), and trap netting (5 net-nights at 5 stations). Sampling stations for all gear-types used in fish community surveys were determined from computer-generated randomized GPS coordinates. Catch per unit effort (CPUE) for electrofishing was recorded as the number of fish caught per hour of actual electrofishing, and for gill and trap nets as the number of fish caught in one net set overnight.

- Sampling statistics (CPUE for various length categories) and structural indices (Proportional Stock Density (PSD), Relative Stock Density (RSD), and Relative Weight (W_r)) were calculated, when appropriate, for target fishes according to Anderson and Neumann (1996).
- Ages were determined for channel catfish, white bass, largemouth bass, and white and black crappie using otoliths. Historical age and growth data is included for white bass, largemouth bass, white crappie, black crappie (otoliths), and channel catfish (pectoral spines). Mean length (inches) at age at time of capture was calculated for each age group.
- Liver samples from young-of-year largemouth bass were collected in accordance with Fishery Assessment Procedures (TPWD, Inland Fisheries Division, unpublished manual revised 2002).
- Littoral zone/physical habitat, aquatic vegetation, and access and facilities were surveyed in accordance with Fishery Assessment Procedures (TPWD, Inland Fisheries Division, unpublished manual revised 2002).

LITERATURE CITED

- Anderson, R. and R. Neumann. 1996. Length, weight, and associated structural indices. Pages 447-482 in B. R. Murphy and D. W. Willis, editors. Fisheries Techniques. American Fisheries Society, Bethesda, Maryland.
- Brice, M. W. and M. J. Ryan. 1999. Statewide freshwater fisheries monitoring and management program. Survey report for Lake Cypress Springs, 1998. Fed. Aid in Sport Fish Restoration, Project F-30-R-23. Texas parks and Wildlife Department, Inland Fisheries Branch. Austin, Texas.

Table 2. Physical and historical data for Lake Cypress Springs, Texas, 2002.

Inland Fisheries Water Body Code: 0223	IF District 3-A, Marshall
Controlling authority: Franklin County Water District	Acres: 3,450
Constructed for: Municipal and industrial water supply, recreation	County: Franklin
Location: 50 miles from Longview-Marshall MSA	Longitude: 95° 03'
Reservoir description: Mainstream	Latitude: 33° 07'
	Mean depth (ft): 21.4
River system: Big Cypress and Panther Creeks in the Cypress River Basin	
Shoreline length (mi): 42.6	Maximum depth (ft): 56.00
Shoreline development index: 5.2	
Secchi disc range (ft): >6	Watershed (mi ²): 75
Constructed: 1970	Conductivity: 165 (umhos/cm)
Access: Boat: Adequate	
Bank: Adequate	
Handicap: Inadequate	

Sampling History:

Method	Year
Gill netting	1979, 1988, 1992, 1995, 1998, 2003
Electrofishing - fall	1986, 1988, 1992, 1995-1996, 1998, 2002
Electrofishing - spring	1979, 1981, 1986, 1991
Trap netting	1979, 1988, 1992, 1995, 1998, 2002
Cove rotenone	1972-1974, 1979,
Habitat survey	1994, 1998, 2002
Vegetation survey	1979, 1992-1994, 1998-1999, 2001-2002
Creel survey	1973

Table 3. Habitat survey of littoral zone and physical habitat types, Lake Cypress Springs, Texas, July 2002. A linear shoreline distance was recorded for each habitat type found.

Habitat type	Shoreline distance (miles)	% of total
Bulkhead	6.35	15.4
Bulkhead / Boat docks	3.89	9.4
Bulkhead / Boat docks / Native submerged	1.63	4.0
Bulkhead / Native submerged	2.89	7.0
Cut bank / Native emergent	0.08	0.2
Concrete	0.11	0.3
Eroded bank	2.07	5.0
Eroded bank / Boat docks	2.49	6.0
Eroded bank / Boat dock / Native submerged	0.34	0.8
Eroded bank / Boulder	1.72	4.2
Eroded bank / Dead timber	0.15	0.4
Eroded bank / Native emergent	3.08	7.5
Eroded bank / Native submerged	9.45	22.9
Eroded bank / Overhanging brush	0.33	0.8
Eroded bank / Overhanging brush / Native submerged	5.64	13.7
Rip rap	1.04	2.5
Grand total	41.26	100.0

Table 4. Survey of aquatic vegetation, Lake Cypress Springs, Texas, July 2002. Acreage of each species, and percent coverage of total reservoir surface acres (3,450) are presented.

Species	Total acres	% coverage
Cattail	15.00	0.43
Hydrilla	Trace	<0.01
Filamentous algae	230.00	6.67
Water primrose	20.00	0.58
Arrowhead	1.00	0.03
Bulrush	0.25	0.01
Button bush	1.60	0.05
Smartweed	1.20	0.03
American lotus	250.00	7.25
Chara	20.00	0.58
Illinois pondweed	5.00	0.14
Maidencane	20.00	0.58
Alligator weed	trace	<0.01

Table 5. Stocking history of Lake Cypress Springs, Texas. Size categories are: FRY = smaller than 1 inch; FGL = 1-3 inches; FGL+ = larger than 3 inches; and ADL = adults (sexually mature fish).

Species	Year	Number
Blue catfish	1982	1,996 FGL+
	1983	4,997 FGL+
	1987	<u>6,154 FGL+</u>
	Species total	13,147
Channel catfish	1966	5,500 FGL+
	1970	112,644 FGL
	1971	18,514 FGL
	1980	66,827 FGL
	1981	10,000 FGL
	1983	35,000 FGL
	1984	6,000 FGL+
	1985	5,569 FGL+
	1986	6,000 FGL+
	1989	6,390 FGL+
	1991	5,000 FGL+
	1992	5,095 FGL+
	1993	<u>4,991 FGL+</u>
Species total	287,530	
Redear sunfish	1967	<u>2,750 ADL</u>
	Species total	2,750
Largemouth bass	1971	<u>690,000 FRY</u>
	Species total	690,000 FRY
Black crappie	1966	<u>2,750 FGL</u>
	Species total	2,750
Florida largemouth bass	1980	120,900 FRY
	1992	<u>172,394 FRY</u>
	Species total	293,294
Walleye	1970	600,000 FRY
	1971	4,000,000 FRY
	1972	<u>53,460 FRY</u>
	Species total	4,653,460
Triploid grass carp	1997	<u>2,200 ADL</u>
	Species total	2,200

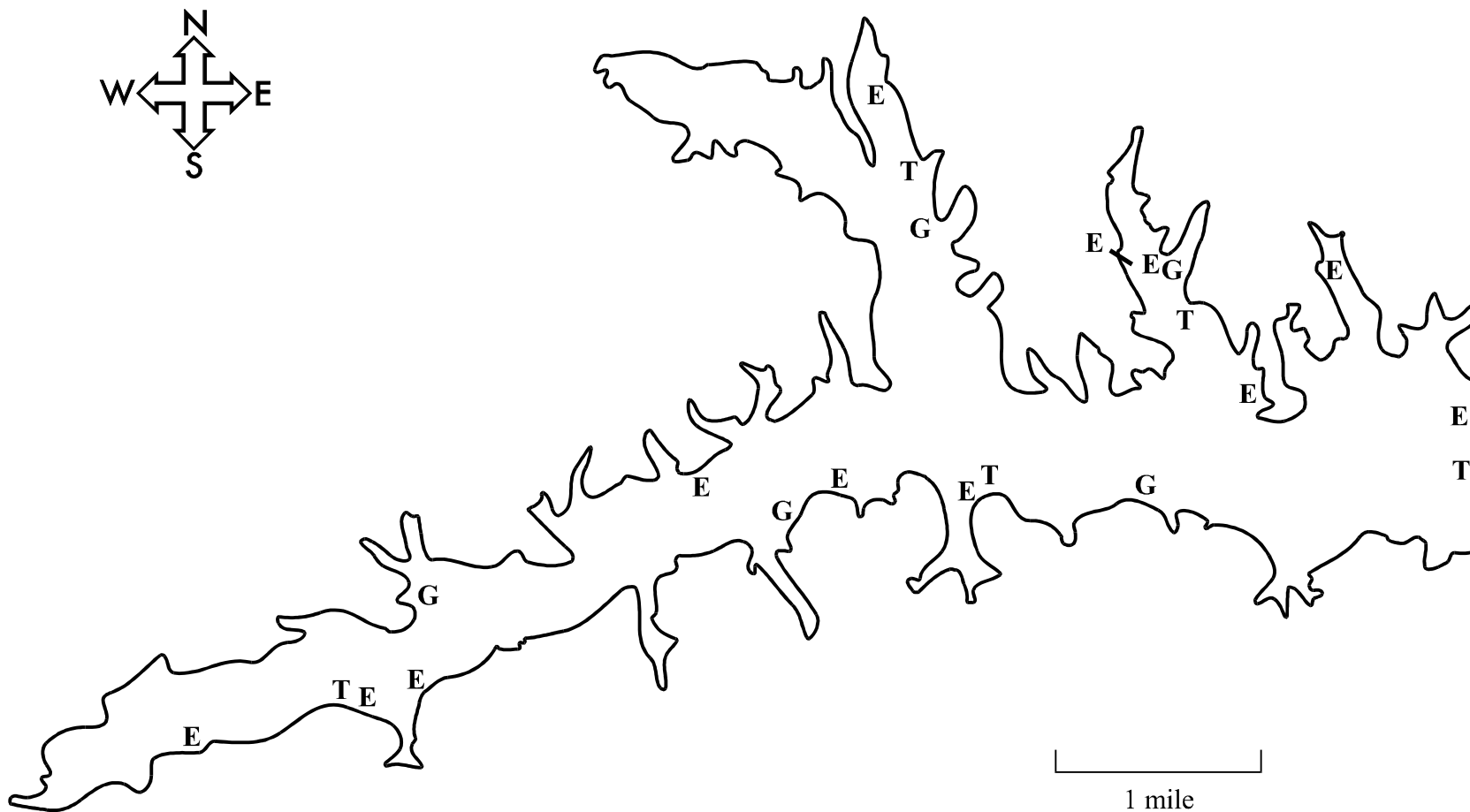
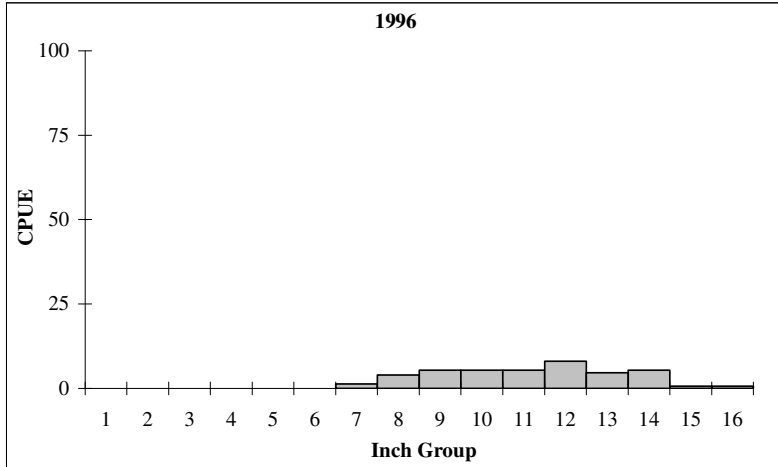
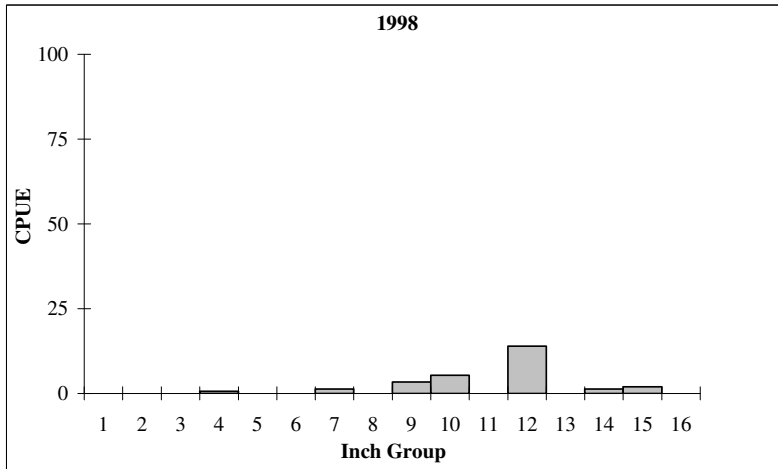


Figure 1. Locations of fish community sampling stations, Lake Cypress Springs, Texas, 2002-2003. Sampling stations are designated by an E for electrofishing, G for gill netting, and T for trap netting.

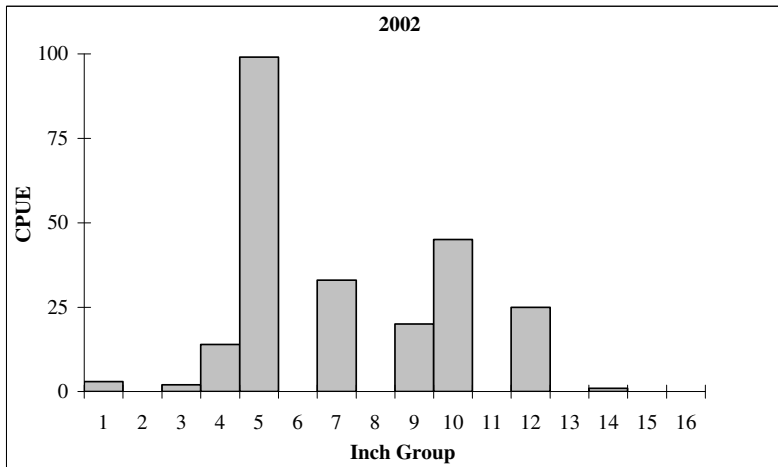
Gizzard Shad



Effort = 1.5 hr.
 Total CPUE = 40.7
 Stock CPUE = 40.7
 PSD = 61



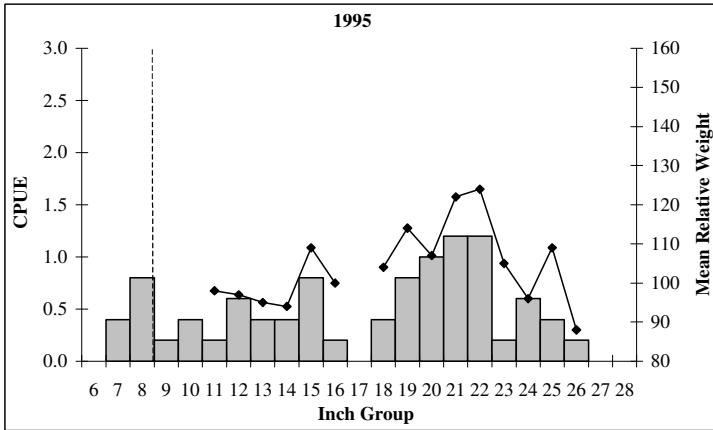
Effort = 1.5 hr.
 Total CPUE = 28.0
 Stock CPUE = 27.3
 PSD = 63



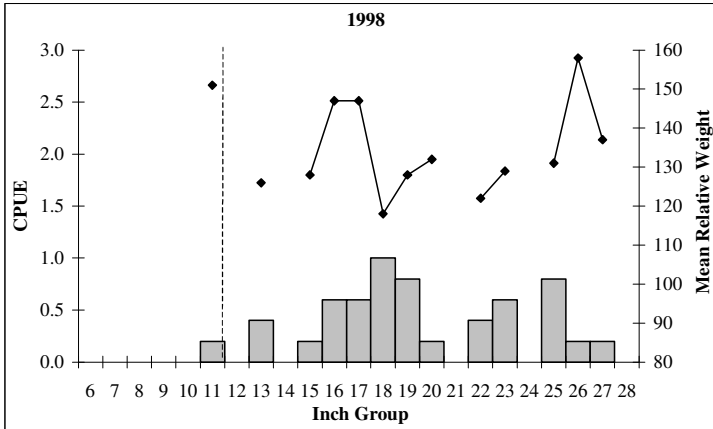
Effort = 1.0 hr.
 Total CPUE = 242.0
 Stock CPUE = 124.0
 PSD = 21

Figure 2. Comparison of the number of gizzard shad caught per hour (CPUE, bars), mean relative weight (lines), and population indices for fall electrofishing collections, Lake Cypress Springs, Texas, November 1996 and October 1998 and 2002.

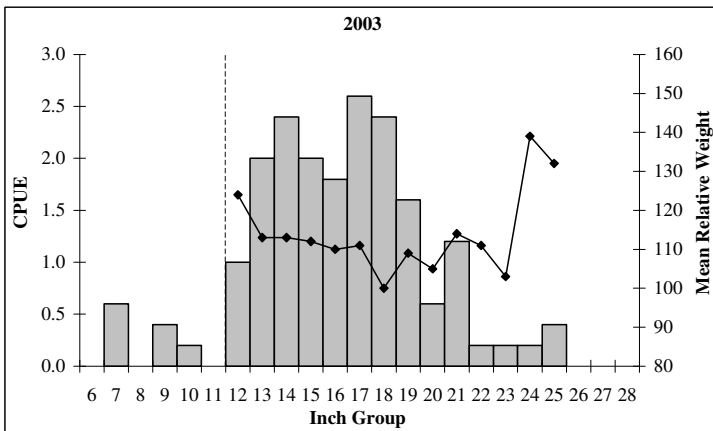
Channel Catfish



Effort = 5 net-nights
 Total CPUE = 10.4
 Stock CPUE = 8.6
 PSD = 72
 RSD-P = 14



Effort = 5 net-nights
 Total CPUE = 6.2
 Stock CPUE = 6.2
 PSD = 87
 RSD-P = 19



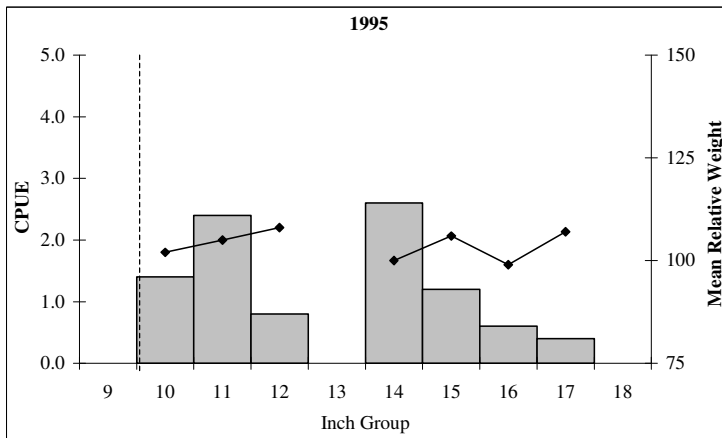
Effort = 5 net-nights
 Total CPUE = 19.8
 Stock CPUE = 18.6
 PSD = 60
 RSD-P = 3

Figure 3. Comparison of the number of channel catfish caught per net-night (CPUE, bars), mean relative weight (lines), and population indices for gill netting surveys, Lake Cypress Springs, Texas, May 1995, April 1998, and May 2003. Dashed-line indicates minimum length limit at time sample was collected.

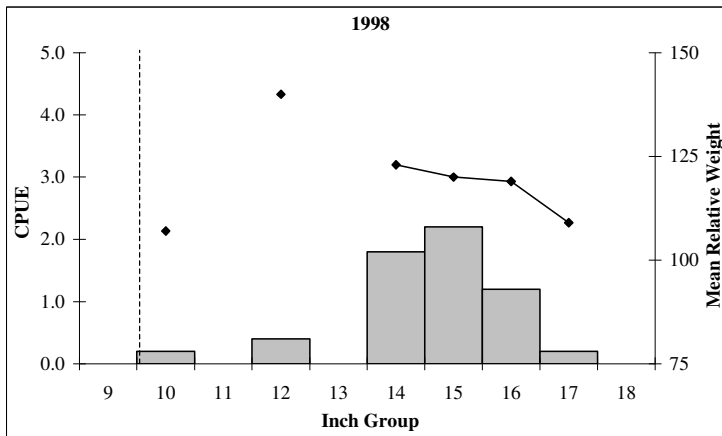
Table 6. Mean length at capture by age for channel catfish collected during spring gill netting, Lake Cypress Springs, Texas, April 1998 and May 1992, 1995, and 2003. Sample sizes are in parentheses.

Year	Age(years)							
	1	2	3	4	5	6	7	8
1992	8.5 (7)	12.7 (15)	15.8 (8)	17.9 (2)	21.3 (2)			
1995	8.6 (8)	13.1 (10)	16.5 (4)	19.1 (4)	21.9 (20)	23.7 (3)	24.8 (1)	
1998		14.3 (5)	18.4 (11)	21.4 (2)	22.5 (7)	22.1 (2)	24.8 (3)	25.6 (1)
2003			13.9 (6)	16.2 (23)	18.7 (12)	21.1 (10)	22.4 (2)	

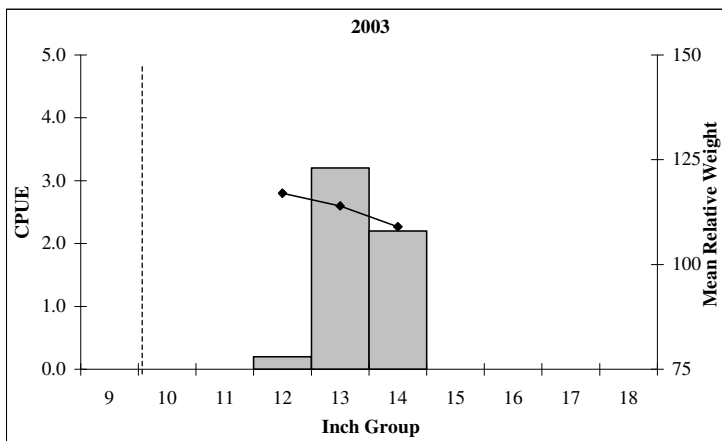
White Bass



Effort = 5 net-nights
 Total CPUE = 9.4
 Stock CPUE = 9.4
 PSD = 100
 RSD-P = 60



Effort = 5 net-nights
 Total CPUE = 6.0
 Stock CPUE = 6.0
 PSD = 100
 RSD-P = 97



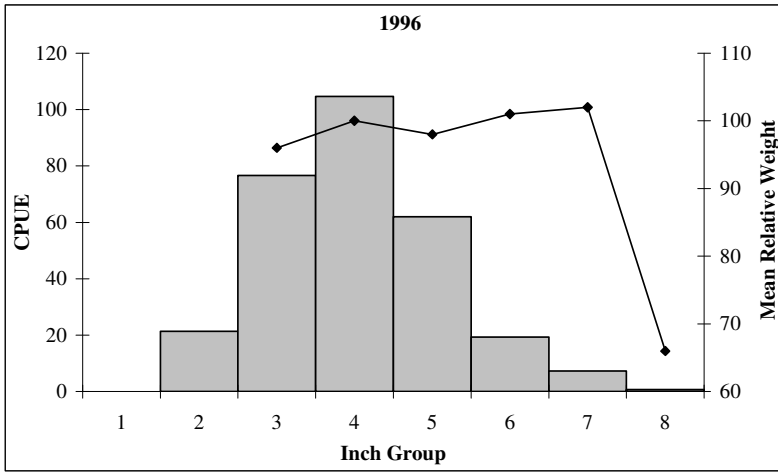
Effort = 5 net-nights
 Total CPUE = 5.6
 Stock CPUE = 5.6
 PSD = 100
 RSD-P = 100

Figure 4. Comparison of the number of white bass caught per net-night (CPUE, bars), mean relative weight (lines), and population indices for gill netting surveys, Lake Cypress Springs, Texas, May 1995, April 1998, and May 2003. Dashed-line indicates minimum length limit at time sample was collected.

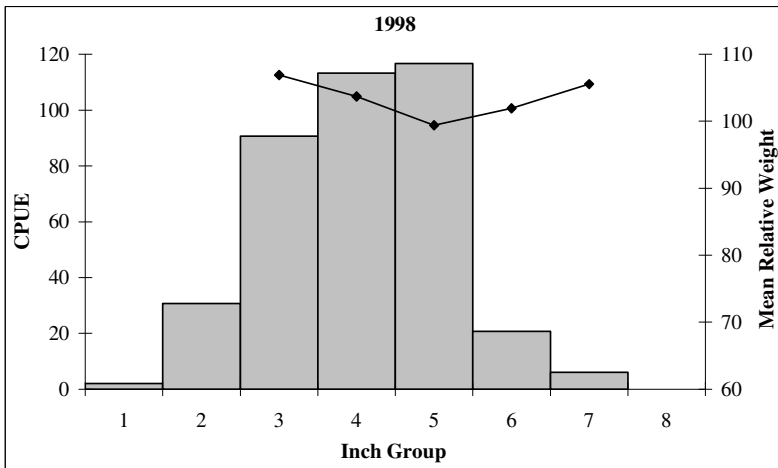
Table 7. Mean length at capture by age for white bass collected during spring gill netting, Lake Cypress Springs, Texas, April 1998 and May 1992, 1995, and 2003. Sample sizes are in parentheses.

Year	Age (years)					
	1	2	3	4	5	6
1992	12.8 (8)	14.7 (7)	17.1 (1)			
1995	11.7 (14)	11.5 (2)	14.8 (6)	16.2 (7)	17.5 (1)	
1998	11.6 (3)	14.7 (2)	15.5 (7)	16.0 (2)	15.5 (4)	16.6 (2)
2003		13.9 (9)			14.7 (1)	

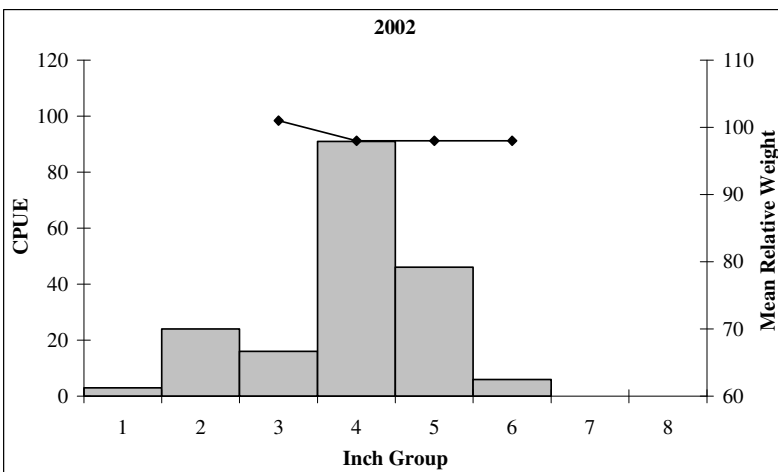
Bluegill



Effort = 1.5 hr.
 Total CPUE = 292.0
 Stock CPUE = 270.0
 PSD = 10
 RSD-P = 0



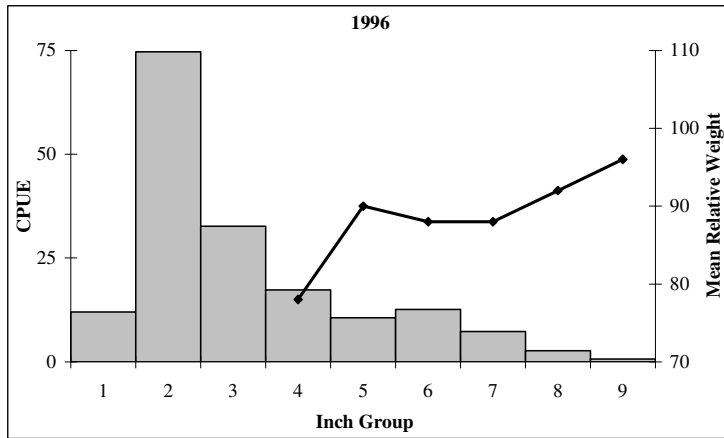
Effort = 1.5 hr.
 Total CPUE = 380.0
 Stock CPUE = 347.3
 PSD = 8
 RSD-P = 0



Effort = 1.0 hr.
 Total CPUE = 186.0
 Stock CPUE = 159.0
 PSD = 4
 RSD-P = 0

Figure 5. Comparison of the number of bluegill caught per hour (CPUE, bars), mean relative weight (lines), and population indices for fall electrofishing collections, Lake Cypress Springs, Texas, November 1996 and October 1998 and 2002.

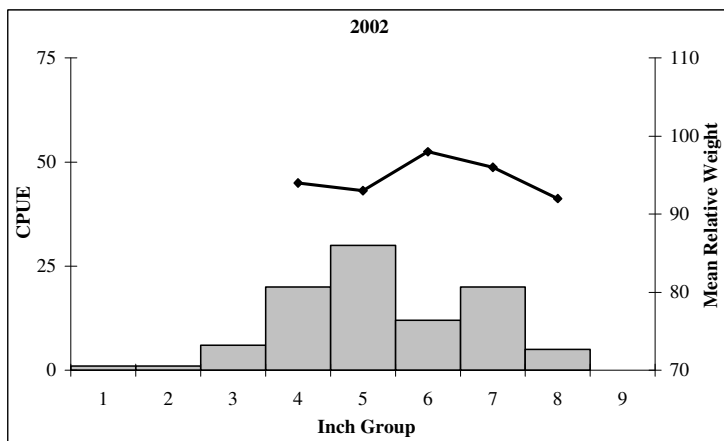
Redear Sunfish



Effort = 1.5 hr.
 Total CPUE = 170.7
 Stock CPUE = 51.3
 PSD = 21
 RSD-P = 1



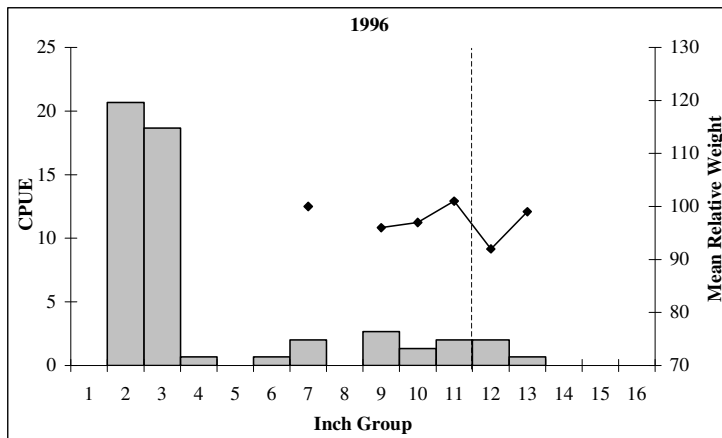
Effort = 1.5 hr.
 Total CPUE = 112.0
 Stock CPUE = 76.0
 PSD = 22
 RSD-P = 0



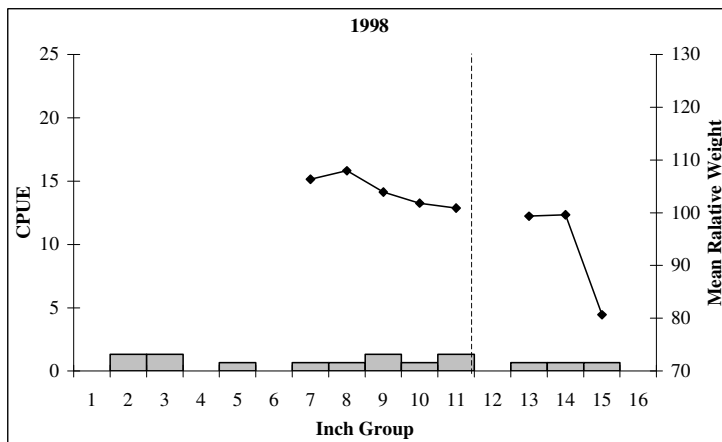
Effort = 1.0 hr.
 Total CPUE = 95.0
 Stock CPUE = 87.0
 PSD = 29
 RSD-P = 0

Figure 6. Comparison of the number of redear sunfish caught per hour (CPUE, bars), mean relative weight (lines), and population indices for fall electrofishing collections, Lake Cypress Springs, Texas, November 1996 and October 1998 and 2002.

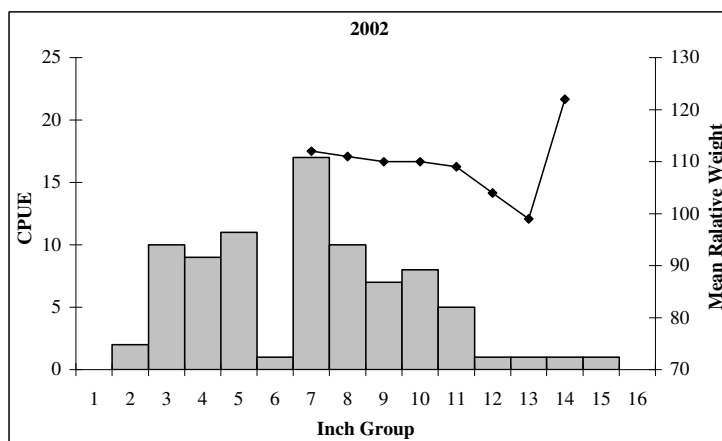
Spotted Bass



Effort = 1.5 hr.
 Total CPUE = 51.3
 Stock CPUE = 10.7
 PSD = 44
 RSD-P = 0



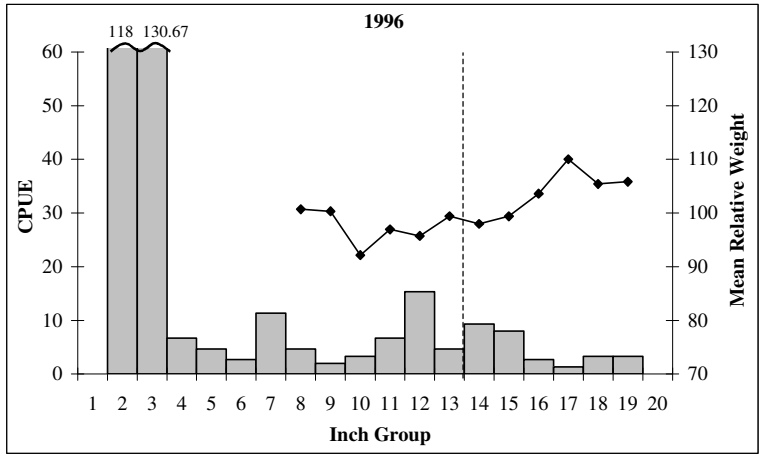
Effort = 1.5 hr.
 Total CPUE = 10.0
 Stock CPUE = 6.7
 PSD = 50
 RSD-P = 20



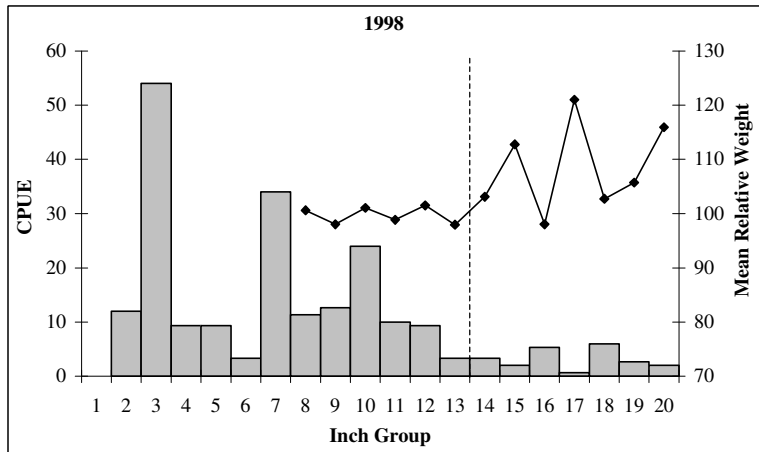
Effort = 1.0 hr.
 Total CPUE = 84.0
 Stock CPUE = 51.0
 PSD = 18
 RSD-P = 4

Figure 7. Comparison of the number of spotted bass caught per hour (CPUE, bars), mean relative weight (lines), and population indices for fall electrofishing collections, Lake Cypress Springs, Texas, November 1996 and October 1998 and 2002. Dashed-line indicates minimum length limit at time sample was collected.

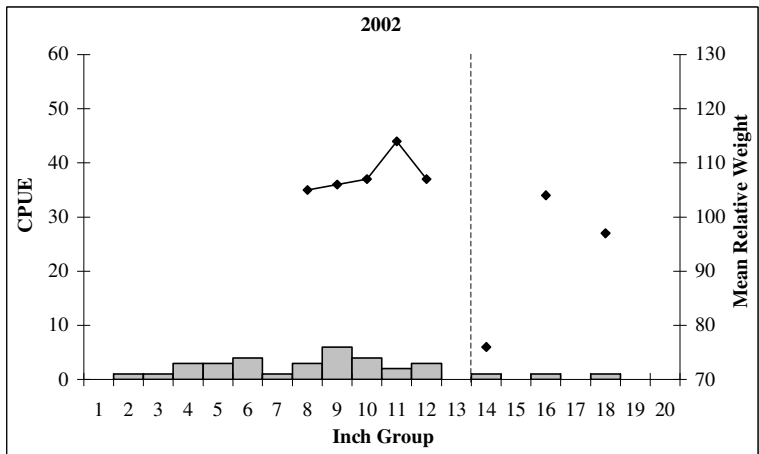
Largemouth Bass



Effort = 1.5 hr.
 Total CPUE = 338.7
 Stock CPUE = 64.7
 PSD = 74
 RSD-P = 29
 % FLMB alleles= N/A



Effort = 1.5 hr.
 Total CPUE = 214.7
 Stock CPUE = 92.7
 PSD = 37
 RSD-P = 20
 % FLMB alleles= 20.6



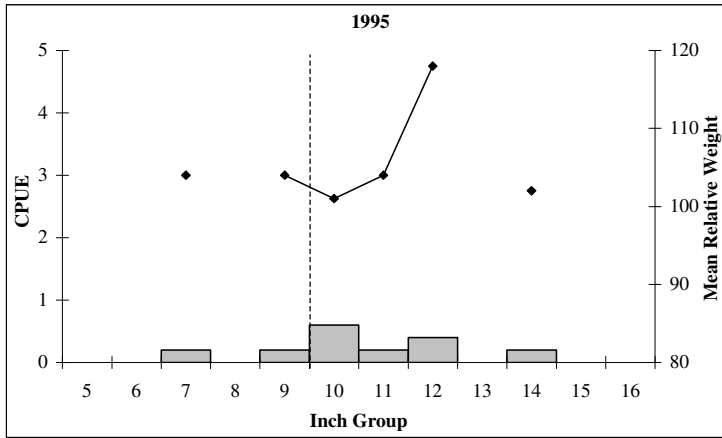
Effort = 1.0 hr.
 Total CPUE = 34.0
 Stock CPUE = 21.0
 PSD = 29
 RSD-P = 10
 % FLMB alleles= 29.9

Figure 8. Comparison of the number of largemouth bass caught per hour (CPUE, bars), mean relative weight (lines), and population indices for fall electrofishing collections, Lake Cypress Springs, Texas, November 1996 and October 1998 and 2002. Dashed-line indicates minimum length limit at time sample was collected.

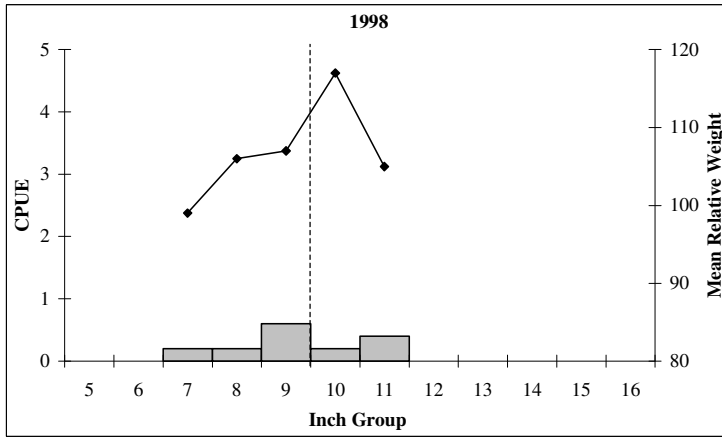
Table 8. Mean length at capture by age for largemouth bass collected during fall electrofishing, Lake Cypress Springs, Texas, October 1988-1995, 1998, and 2003, and November 1986 and 1996. Sample sizes are in parentheses.

Year	Age (years)							
	0	1	2	3	4	5	6	7
1986	6.5 (9)	10.2 (19)	13.8 (6)	18.2 (2)				
1988	7.1 (7)	9.2 (19)	14.2 (2)	18.2 (1)		18.7 (1)		
1992	5.9 (28)	10.8 (26)	14.1 (9)	14.0 (1)		19.7 (1)	23.9 (1)	
1995	6.9 (39)	10.4 (28)	13.1 (13)	16.0 (9)	16.8 (3)	18.9 (1)	20.6 (1)	
1996	6.9 (19)	11.2 (24)	14.3 (13)	16.1 (7)	18.5 (7)	19.0 (3)	18.7 (2)	
1998	7.0 (15)	10.9 (21)	14.2 (8)	16.3 (6)	16.8 (4)	18.6 (3)	19.4 (7)	18.7 (1)
2002	4.9 (48)	10.1 (18)	14.1 (1)	18.2 (1)	16.7 (1)			

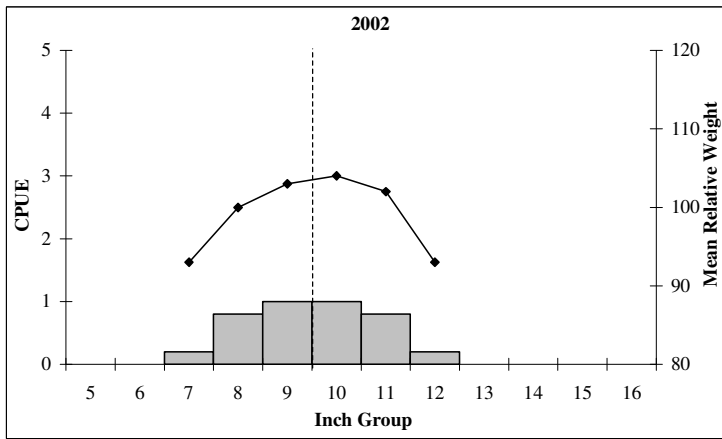
White Crappie



Effort = 5 net-nights
 Total CPUE = 1.8
 Stock CPUE = 1.8
 PSD = 89
 RSD-P = 78



Effort = 5 net-nights
 Total CPUE = 1.6
 Stock CPUE = 1.6
 PSD = 88
 RSD-P = 38



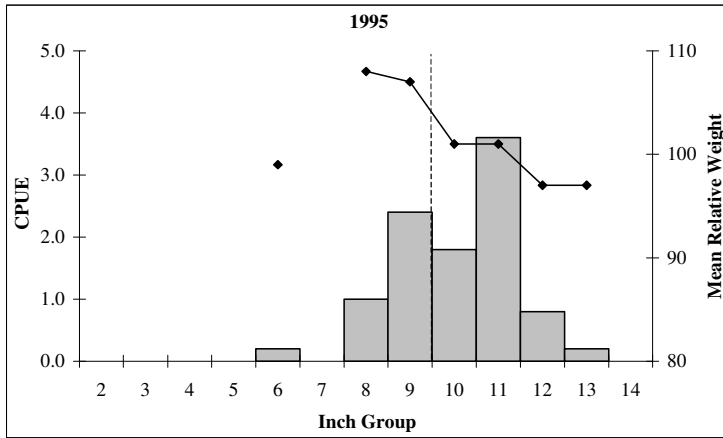
Effort = 5 net-nights
 Total CPUE = 4.0
 Stock CPUE = 4.0
 PSD = 95
 RSD-P = 50

Figure 9. Comparison of the number of white crappie caught per net-night (CPUE, bars), mean relative weight (lines), and population indices for fall trap netting surveys, Lake Cypress Springs, Texas, November 1995, 1998, and 2002. Dashed-line indicates minimum length limit at time sample was collected.

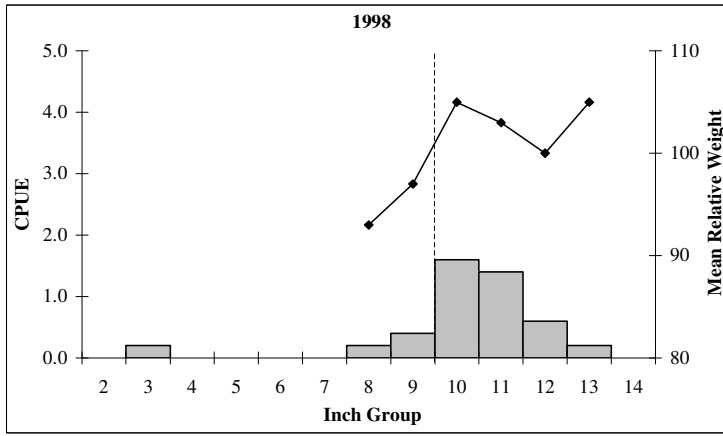
Table 9. Mean length at capture by age for white crappie collected during fall trap netting, Lake Cypress Springs, Texas, November 1988 and 1995-2002, and December 1992. Sample sizes are in parentheses.

Year	Age (years)						
	0	1	2	3	4	5	6
1988			9.0 (5)	11.9 (19)	12.2 (6)		
1992		9.3 (21)	10.9 (42)	12.3 (10)		11.9 (1)	13.5 (1)
1995	7.6 (1)	10.3 (4)	11.7 (1)	12.2 (2)	14.3 (1)		
1998		9.5 (7)		11.6 (1)			
2002		10.0 (20)					

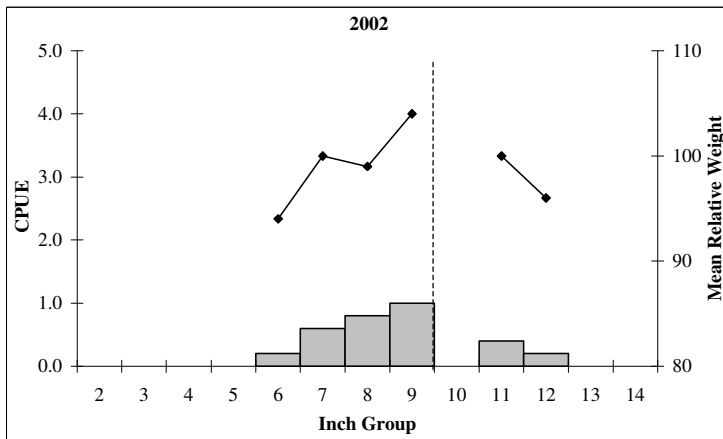
Black Crappie



Effort = 5 net-nights
 Total CPUE = 10.0
 Stock CPUE = 10.0
 PSD = 98
 RSD-P = 64



Effort = 5 net-nights
 Total CPUE = 4.6
 Stock CPUE = 4.4
 PSD = 100
 RSD-P = 86



Effort = 5 net-nights
 Total CPUE = 3.2
 Stock CPUE = 3.2
 PSD = 75
 RSD-P = 19

Figure 10. Comparison of the number of black crappie caught per net-night (CPUE, bars), mean relative weight (lines), and population indices for fall trap netting surveys, Lake Cypress Springs, Texas, November 1995, 1998, and 2002. Dashed-line indicates minimum length limit at time sample was collected.

Table 10. Mean length at capture by age for black crappie collected during fall trap netting, Lake Cypress Springs, Texas, November 1988 and 1995-2002, and December 1992. Sample sizes are in parentheses.

Year	Age (years)					
	0	1	2	3	4	5
1992	4.4 (1)	8.7 (20)	10.1 (16)	10.7 (3)		
1995		9.0 (16)	10.8 (19)	11.7 (10)	12.4 (5)	
1998		9.0 (3)	10.7 (7)	11.9 (7)	12.6 (1)	13.0 (1)
2002		8.5 (13)	11.1 (2)	12.1 (1)		

Fishery Management Plan Lake Cypress Springs, Texas

Prepared – July 2003

ISSUE 1

Recruitment of some centrarchid species (bluegill and largemouth bass) may have been reduced following recent declines in aquatic vegetation. Decline in recruitment has translated into reduction in abundance of preferred/legal-size centrarchids available for harvest. Structural habitat (brush and timber) is also limited in the reservoir. Efforts to restore habitat conditions will improve sportfish populations and angling opportunities on this important reservoir.

MANAGEMENT STRATEGIES

- Encourage FCWD to continue to install brush in littoral areas adjacent to public parks to increase fishing success of non-boating anglers.
- Continue annual monitoring to evaluate aquatic vegetation restoration program efforts and determine changes in macrophyte densities.
- Encourage FCWD to continue efforts to establish native aquatic macrophytes.
- Conduct electrofishing survey in 2003 to monitor centrarchid populations.
- Conduct creel survey 2004-2005 to monitor angler utilization and harvest.

ISSUE 2

Information sources have been utilized to keep anglers aware of harvest regulations, fishing methods, and other fisheries-related topics.

MANAGEMENT STRATEGIES

- Update fishing regulation posters that have been distributed to FCWD, private marinas, and stores located in close proximity to the lake.
- Disseminate news releases to the local news media.
- Present seminars to local fishing/conservation groups.

ISSUE 3

Lake Cypress Springs has an abundance of parks that provide good access to the lake. These facilities meet the needs of day-use and camping enthusiasts, but most are not ADA compliant. Additionally, there are no public fishing piers available to anglers at FCWD parks. Construction of ADA compliant fishing piers would allow improved access to more anglers and increase fishing success.

MANAGEMENT STRATEGIES

- All facilities should be upgraded to meet ADA standards when existing parks are renovated.
- Lighted T-shaped fishing pier(s) should be constructed to increase fishing opportunities for non-boaters at high use park(s). Inform FCWD of ideal pier sites and sources of funding.

Appendix 1

Number and catch rate (CPUE) of all fish species collected by all gear types from Lake Cypress Springs, Texas, 2002-2003.

Species	<u>Gill Netting</u>		<u>Trap Netting</u>		<u>Electrofishing</u>	
	N	CPUE	N	CPUE	N	CPUE
Spotted gar	10	2.0			1	1.0
Gizzard shad	36	7.2			242	242.0
Threadfin shad					145	145.0
Common carp	5	1.0			1	1.0
Golden shiner					1	1.0
Smallmouth buffalo	1	0.2				
Spotted sucker	5	1.0			12	12.0
Channel catfish	99	19.8			25	25.0
White bass	28	5.6				
Bluegill	1	0.2	152	30.4	186	186.0
Longear sunfish			9	1.8	133	133.0
Redear sunfish	11	2.2	16	3.2	95	95.0
Spotted sunfish					6	6.0
Spotted bass	13	2.6			84	84.0
Largemouth bass	5	1.0			34	34.0
White crappie	5	1.0	20	4.0		
Black crappie	10	2.0	16	3.2	2	2.0

Appendix 2

Number of fish caught per net-night during spring gill netting, Lake Cypress Springs, Texas, April 1979 and 1998, and May 1988, 1992, 1995, and 2003. Sampling effort was 5 net-nights each year. Random sampling techniques began in 1998.

Species	1979	1988	1992*	1995**	1998**	2003**
Spotted gar	1.4	1.4	1.2	2.8	6.6	2.0
Bowfin	0.2				0.2	
Gizzard shad	8.2	27.6	19.8	21.6	24.8	7.2
Threadfin shad		18.4				
Common carp	3.4	2.2	0.8	0.4	2.4	1.0
Golden shiner				0.2		
Blacktail shiner	0.8					
Lake chubsucker		0.4				
Smallmouth buffalo						0.2
Spotted sucker	1.6	1.0	0.4	1.0		1.0
Blue catfish	0.8		0.4			
Black bullhead					0.2	
Brown bullhead	1.2					
Channel catfish	4.8	2.2	10.4	10.4	6.2	19.8
Pirate perch		0.2				
White bass		0.6	3.2	9.4	6.0	5.6
Warmouth	0.2	0.4				
Bluegill	10.0	1.8	0.6			0.2
Longear sunfish	1.8		0.2	0.2		
Redear sunfish	3.2	2.4	2.0	2.4		2.2
Spotted bass		8.0	0.6	1.2		2.6
Largemouth bass	0.8	1.4	2.4	2.4	6.6	1.0
White crappie	3.4	13.2	1.2	1.8	1.0	1.0
Black crappie	1.4	2.2	0.2	2.2	2.8	2.0
Freshwater drum			10.4			

* 175 ft gill net, 1"-4" bar mesh

** 125 ft gill net, 1"-3" bar mesh

Number of fish caught per net-night during trap netting, Lake Cypress Springs, Texas, April 1979, and November 1988, 1995, 1998, and 2002, and December 1992. Sampling effort was 5 net-nights in 1979, 1992, 1995, 1998, and 2002, and 10 net-nights in 1988. Random sampling techniques began in 1998.

Species	1979	1988	1992	1995	1998*	2002
Spotted gar	0.4					
Gizzard shad	0.4					
Golden shiner	0.6					
Warmouth	0.2	0.1				
Bluegill	35.0	27.6	12.2	13.4		30.4
Longear sunfish		0.1				1.8
Redear sunfish	1.2	19.2	2.4	6.0		3.2
Spotted sunfish			0.6	0.2		
Spotted bass		0.1				
White crappie	0.6	8.7	14.8	1.8	1.6	4.0
Black crappie	0.6	1.8	8.0	10.0	4.6	3.2

*Data collected for target species only

Number of fish caught per hour during fall electrofishing, Lake Cypress Springs, Texas, October 1988, 1992, 1995, 1998, and 2002, and November 1986 and 1996. Sampling effort was 1.5 hours in all years except 2002 (1 hour) . Random sampling techniques began in 1996.

Species	1986	1988	1992*	1995*	1996*	1998*	2002*
Spotted gar	2.7		5.3	4.0	4.7		1.0
Bowfin				0.7	0.7		
Gizzard shad	24.7	38.0	57.3	30.0	40.7	28.0	242.0
Threadfin shad		35.3	182.0	260.7	274.0	340.0	145.0
Grass pickerel						0.7	
Common carp			2.7	0.7	4.0		1.0
Golden shiner	2.7		1.3	4.7	2.0	7.3	1.0
Bullhead minnow					0.7		
Inland silverside	0.7						
Brook silverside		2.0	3.3	1.3	20.0	2.7	
Lake chubsucker	4.0	0.7		3.3	0.7	4.7	
Bigmouth buffalo			0.7				
Spotted sucker			4.7	19.3	32.0	6.0	12.0
Blue catfish						1.3	
Black bullhead					0.7		
Yellow bullhead	0.7		3.3	6.7	6.0		
Channel catfish	2.7	2.0			3.3		25.0
Tadpole madtom			1.3				
Flathead catfish				0.7			
White bass			0.7				
Green sunfish	1.3	2.0	0.7				
Warmouth	14.0	8.0		3.3	7.3		
Bluegill	381.3	171.3	306.0	262.0	292.0	380.0	186.0
Longear sunfish	39.3	6.0	237.3	54.0	138.7	19.3	133.0
Redear sunfish	53.3	26.7	190.0	97.3	170.7	112.0	95.0
Spotted sunfish	0.7		60.0	11.3	91.3	7.3	6.0
Spotted bass	6.0	14.7	48.0	16.0	51.3	10.0	84.0
Largemouth bass	40.0	22.0	157.3	135.3	338.7	214.7	34.0
White crappie	0.7		0.7	0.7		2.7	
Black Crappie	2.7		19.3	5.3	21.3	6.0	2.0
Logperch	0.7	0.7	4.7	0.7	0.7	0.7	

*Smith-Root 5.0 GPP electrofishing unit.

Appendix 3

Summary of electrophoretic analyses of young-of-year largemouth bass collected during fall electrofishing from Lake Cypress Springs, Texas 1991, 1995, 1998, and 2002.

Year	Percent Florida Alleles	Pure Florida LMB		Pure Northern LMB		F1 hybrid	Fx hybrid	Total N
		# in Sample	% in Sample	# in Sample	% in Sample	# in Sample	# in Sample	
1991	14.0	1	3.3	22	73.3	0	7	30
1995	30.0	1	3.3	9	30.0	10	10	30
1998	20.6	0	0.0	16	31.4	3	32	51
2002	29.9	0	0.0	7	17.9	7	25	39

Appendix 4

Access and facility information for Lake Cypress Springs, Texas.

Facility type	Location	Latitude	Longitude	Fee charged (Yes/No)	Number of boat ramp lanes	Boat ramp parking capacity	ADA Accommodations (Yes/No)	Bank fishing (Yes/No)	Needed Improvements
Boat ramp	Dogwood Park	33° 03.06	94° 08.52	Yes	2	25	No	Yes	ADA
Boat Ramp	Walleye Park	33° 03.72	94° 09.12	Yes	1	10	Yes (restrooms)	Yes	ADA
Boat ramp	Tall Tree Marina	33° 04.02	94° 10.08	Yes	1	5	No	No	ADA
Boat ramp	Overlook Park	33° 03.78	94° 10.02	Yes	2	25	No	Yes	ADA
Boat ramp	Cypress Springs marina	33° 03.06	94° 13.02	Yes	1	10	No	Yes	ADA
Boat ramp	Mary King Park			No	1	25	No	No	ADA
Boat ramp	Jack Guthrie Park			Yes	1	10	No	Yes	ADA