

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

Millers Creek Reservoir

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TABLE OF CONTENTS

| | |
|---|------|
| Survey and management summary | 2 |
| Introduction..... | 3 |
| Reservoir description..... | 3 |
| Management history..... | 3 |
| Methods..... | 4 |
| Results and discussion..... | 4 |
| Fisheries management plan..... | 6 |
| Literature cited..... | 7 |
| Figures and tables..... | 8-20 |
| Water level (Figure 1)..... | 8 |
| Reservoir characteristics (Table 1) | 8 |
| Harvest regulations (Table 2)..... | 8 |
| Stocking history (Table 3)..... | 9 |
| Habitat survey (Table 4) | 10 |
| Gizzard shad (Figure 2)..... | 11 |
| Bluegill (Figure 3) | 12 |
| Blue catfish (Figure 4) | 13 |
| Channel catfish (Figure 5) | 14 |
| White bass (Figure 6)..... | 15 |
| Palmetto bass (Figure 7; Table 5)..... | 16 |
| Largemouth bass (Figure 8; Table 6)..... | 18 |
| White crappie (Figure 9) | 20 |
| Proposed Sampling Schedule (Table 7) | 21 |
| Appendix A | |
| Catch rates for all species from all gear types | 22 |
| Appendix B | |
| Map of 2007-2008 sampling locations | 23 |

SURVEY AND MANAGEMENT SUMMARY

Fish populations in Millers Creek Reservoir were surveyed in 2007 using trap nets and electrofishing and in 2008 using gill nets. This report summarizes the results of the surveys and contains a management plan for the reservoir based on those findings.

- **Reservoir Description:** Millers Creek is a 1,794-acre impoundment located in Baylor county on Millers Creek in the Brazos River Basin approximately 77 miles southwest of Wichita Falls. The reservoir was completed in 1974 and is owned and operated by the North Central Texas Municipal Water Authority in Munday, Texas. At the time of the habitat survey the reservoir was over spillway elevation and the shoreline habitat consisted of flooded terrestrial vegetation. Shoreline and boat access are adequate, including limited handicapped access at normal pool levels. Conservation pool elevation is 1,333.9 feet above mean sea level (MSL). The improved three lane boat ramp is serviceable at elevations above 1,322 (MSL).
- **Management history:** Important sport fish include catfish, white bass, palmetto bass, largemouth bass, and white crappie. The 2003 management plan recommended continuing the palmetto bass stocking program and promoting the palmetto bass fishery which was excellent. Also to promote the reservoir to anglers outside the district since creel data indicates 20% of the anglers are from the Lubbock area. Millers Creek has always been managed with statewide regulations.
- **Fish Community**
 - **Prey species:** Gizzard shad catch rate was higher than average for the reservoir indicating adequate prey for game fish. The catch per unit effort (CPUE) for bluegill was also higher than previous surveys.
 - **Catfishes:** Blue catfish were well represented in the gill net survey of 2008, but CPUE was down from the previous two surveys. Body condition was down some from the previous two surveys. The gill net survey for the channel catfish population was similar to the two previous surveys. Flathead catfish were sampled during the 2007 and 2008 surveys.
 - **White bass:** White bass CPUE has declined the last two surveys. It is probable that the white bass population had not returned from their spawning run when the 2008 gill net survey was conducted.
 - **Palmetto bass:** Palmetto bass CPUE declined from 2006, but was similar to 2004. Body condition declined slightly from 2006, but is still quite good. Growth rates were near or above the ecological region average.
 - **Largemouth bass:** Largemouth bass had a lower electrofishing catch rate than during the 2003 survey but higher than 1999. Abundance of flooded terrestrial vegetation made electrofishing near shore difficult and possibly affected the catch rate.
 - **White crappie:** The 2007 CPUE was lower than the 2003 survey but higher than in 1999. The abundance of legal-size fish among the adult population has increased over the previous survey. Body condition was considered to be very good.
- **Management Strategies:** Millers Creek is recognized by anglers as an excellent reservoir for catfish, white bass, palmetto and largemouth bass and should be promoted to increase angler effort. An abundant gizzard shad population exists, so palmetto bass stockings can now be requested annually instead of every other year.

INTRODUCTION

This document is a summary of fisheries data collected from Millers Creek Reservoir in 2007 and 2008. The purpose 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 important sport fish and prey species. Historical data is also presented for comparison.

Reservoir Description

Millers Creek Reservoir is a 1,794-acre impoundment constructed in 1974 on Millers Creek. It is located in Baylor County approximately 77 miles southwest of Wichita Falls and is operated and controlled by North Central Texas Municipal Water Authority-Texas Water Development Board. Primary uses include municipal water supply and recreation. Mean depth was 14 ft., shoreline development index was 4.17, and conductivity in July was 391 umhos/cm. Habitat at time of sampling consisted of flooded terrestrial vegetation. Water level has been rising since 2004 when the reservoir water level was about 11 feet below conservation pool (Figure 1). Boat access consisted of a single, three lane boat ramp. Bank fishing is available at the public access points including the boat ramp. A public fishing pier is maintained near the ramp. Other descriptive characteristics for Millers Creek are in Table 1.

Management History

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

1. Develop angler interest in the quality palmetto bass fishery that has been established at Millers Creek. This species is an important open water predator on an abundant gizzard shad population. Palmetto bass in Millers Creek have exhibited the potential to attain trophy size (≥ 25 inches). The certified lake record is 16.0 pounds (31 inches) and was caught in 1991. A closely related species, the white bass is the second most popular species (16.8%) for anglers to target behind catfish so there should also be angler interest in palmetto bass.
 - Action:** Continued stocking palmetto bass fingerlings every other year at the rate of 10 fingerlings per acre.
 - Action:** Collected additional information on hybrid striped bass by increased gill net survey effort. Gill net surveys were completed every other year at an effort of 10-gill net nights per survey.
 - Action:** Promoted palmetto bass fishery to increase utilization.
2. Analysis of creel survey information showed that about 20% of the anglers utilizing Millers Creek resided in the Lubbock area, which is 140 miles away. This metropolitan area is outside of the district boundaries and does not always receive the latest reservoir angling information.
 - Action:** Identified media outlets in the Lubbock area and provided news release information promoting Millers Creek angling opportunities.

Harvest regulation history: Sport fish species in Millers Creek Reservoir have always been managed using statewide regulations (Table 2).

Stocking history: Palmetto bass have been stocked every other year since 2002. Other sport fish have not been stocked recently since surveys have indicated adequate populations and reproduction. The

complete stocking history is in Table 3.

Vegetation/habitat history: Millers Creek has no significant vegetation/habitat management history. Noxious vegetation has not been observed at the reservoir.

METHODS

Fishes were collected by electrofishing (1.0 hours at 12 five-min stations), gill netting (10 net nights at 10 stations), and trap netting (7 net nights at 7 stations). Catch per unit effort for electrofishing was recorded as the number of fish caught per hour (fish/h) of actual electrofishing and for gill and trap 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 (Wr)] were calculated for target fishes according to Anderson and Neumann (1996). Index of vulnerability (IOV) was calculated for gizzard shad (DiCenzo et al. 1996). Relative standard error (RSE = $100 \times \text{SE of the estimate/estimate}$) was calculated for all CPUE statistics and SE was calculated for structural indices and IOV. Ages were determined using otoliths from 5 to 10 fish per inch group. Source for water level data was the United States Geological Survey.

RESULTS AND DISCUSSION

Habitat: A physical habitat survey conducted August 15, 2007 indicated the littoral zone habitat consisted of primarily flooded terrestrial vegetation (Table 4). The previous physical habitat survey was conducted in 2003 (Mauk and Howell 2004). Very few manmade changes to the physical habitat had occurred during the four year period.

Prey species: Electrofishing catch rates of bluegill and gizzard shad during 2007 were 200.0/h and 1,201.0/h, respectively. Index of vulnerability for gizzard shad was good, indicating that 76.3% of gizzard shad were available to predators; this was lower than IOV estimates in previous years. Total CPUE of gizzard shad was higher in 2007 compared to the 1999 (794.0) and 2003 (940.0) surveys (Figure 2). Total CPUE of bluegill in 2007 was also higher than the 1999 (137.3) and 2003 (120.0) surveys (Figure 3).

Blue catfish: Blue catfish 2008 gill net CPUE (10.2/nn) was down from the 2006 CPUE (15.5/nn) and the 2004 CPUE of 25.0/nn (Figure 4). Blue catfish were introduced into the reservoir in 1990 and 1991 but CPUE was low until the 2004 survey when many small fish were sampled. Blue catfish ranged in size from 7- to 31 inches in length. Wr's for blue catfish under 23 inches ranged from 80- to 91 which is lower than the previous two surveys when Wr's ranged from 91- to 116 in 2006 and 88- to 102 in 2004.

Channel catfish: Channel catfish 2008 gill net CPUE was 1.1/nn, similar to the 2006 and 2004 CPUE's of 1.5/nn and 1.2/nn respectively (Figure 5). These catch rates are 50% of the 1999 survey CPUE documented before blue catfish became well established in the reservoir. Because of the low numbers sampled with only an individual fish representing an inch group, it is hard to make a statement on the Wr's.

White bass: The gill net catch rate for white bass was 0.1/nn in 2008, which was down from 0.6/nn in 2006 and well below the 2.8/nn in 1994 (Figure 8). Whether there is a true decline in the population or if the white bass had not returned to the reservoir from their spawning run is unknown.

Palmetto bass: Palmetto bass gill net CPUE was 1.2/nn, down from 2.5/nn sampled in 2006 but similar to the CPUE of 1.4/nn in 2004 (Figure 7). Wr's have declined since 2006 when they ranged from 99- to 109 compared to the latest survey when they ranged from 87- to 96. This is still considered good with

plenty of gizzard shad forage available in the utilizable size range (Figure 2). Growth, as measured in 2008, appeared normal compared to ecological regional averages (Table 5).

Largemouth bass: The electrofishing CPUE of largemouth bass was 46.0/h in 2007, a decrease from the previous survey in 2003 (76.0/h), but an increase over 1999 (40.0/h); (Figure 8). The 2007 electrofishing survey was adversely affected by the large amount of flooded terrestrial vegetation that made it difficult to get near the shoreline. Body condition for these fish was good (relative weight near 100) for legal size bass (≥ 14 inches). The percentage of Florida alleles decreased to 27.7% from 37.9% in 2003 and no pure Florida largemouth bass were identified during genetic analysis (Table 5).

White crappie: The trap net catch rate of white crappie was 44.3/nn in 2007, lower than the previous survey of 2003 (60.7/nn), but higher than 1999 (24.7/nn); (Figure 9). Stock size and above crappie had Wr's near 100 indicating good body condition. RSD-P increased from 14 in 2003 to 20 indicating a greater proportion of stock size crappie are of legal harvest size.

Fisheries management plan for Millers Creek Reservoir, Texas

Prepared – July 2008

ISSUE 1: An abundant population of gizzard shad exists in the reservoir. This prey population has increased during the last few years while the reservoir has been stocked with palmetto bass every two years at the rate of 10/acre. Palmetto bass are a target species for anglers.

MANAGEMENT STRATEGY

1. Request stocking Palmetto bass every year at the rate of seven per acre.

ISSUE 2: Millers Creek is recognized by anglers as an excellent reservoir for catfish, white bass, palmetto and largemouth bass and should be promoted to increase angler effort. However, since it is at the edge of the district boundary, it needs to be promoted outside of the district.

MANAGEMENT STRATEGY

1. Continue to promote fishery, especially beyond our district boundaries. A creel survey in 2003 found that most of the Millers Creek anglers reside outside of our district with many from the Lubbock area. News releases should include the Lubbock media.

SAMPLING SCHEDULE JUSTIFICATION:

Gill netting for palmetto bass will be conducted on an every other year basis to keep anglers and TPWD biologists well informed about the population status. Standard surveys with trap nets and electrofishing will be conducted every 4 years to monitor other species relative abundances.

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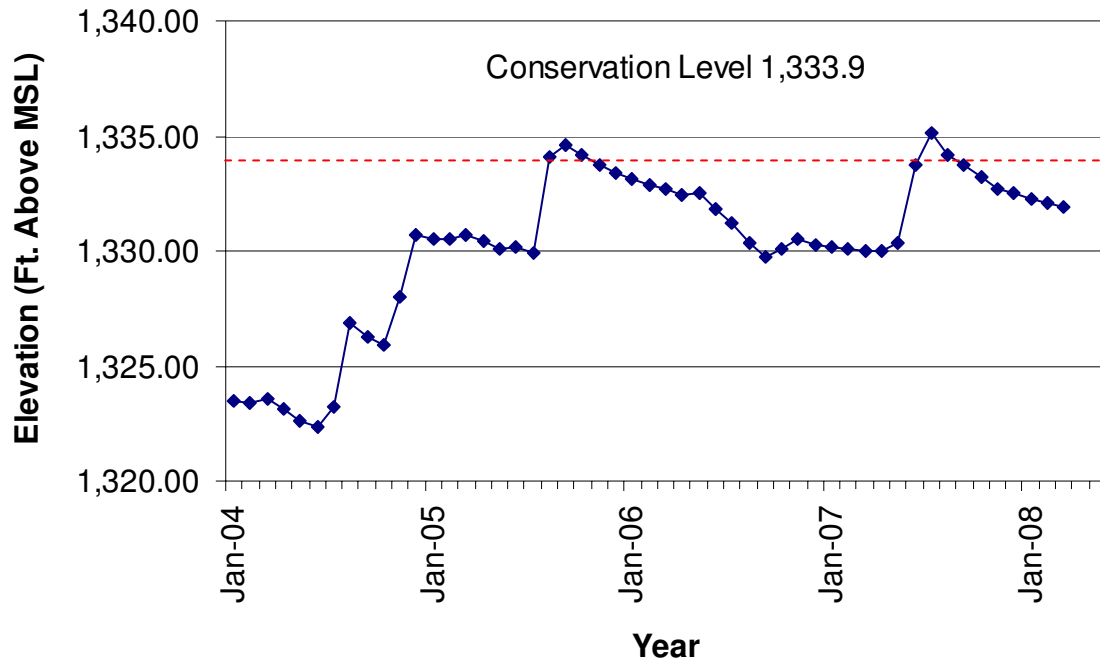


Figure 1. Monthly water level elevations in feet above mean sea level (MSL) recorded for Millers Creek Reservoir, Texas.

Table 1. Characteristics of Millers Creek Reservoir, Texas.

| Characteristic | Description |
|-----------------------------------|---|
| Year Constructed | 1974 |
| Controlling authority | North Central Texas Municipal Water Authority |
| County | Baylor |
| Reservoir type | Tributary |
| Shoreline Development Index (SDI) | 4.17 |
| Conductivity | 391 μ mhos/cm |

Table 2. Harvest regulations for Millers Creek Reservoir, Texas.

| Species | Bag Limit | Length Limit (inches) |
|---|----------------------------|-----------------------|
| Catfish: Channel and blue catfish, their hybrids and subspecies | 25 (in any combination) | 12 minimum |
| Catfish, Flathead | 5 | 18 minimum |
| Bass, White | 25 | 10 minimum |
| Bass, Palmetto | 5 | 18 minimum |
| Bass, Largemouth | 5 | 14 minimum |
| Crappie, White | 25 | 10 minimum |

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

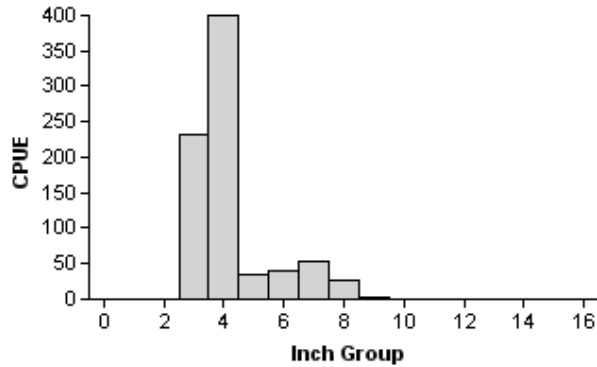
| Species | Year | Number | Life Stage | Mean TL (in) |
|---|-------|---------|------------|--------------|
| Blue catfish | 1990 | 19,354 | FGL | 2.0 |
| | 1991 | 19,000 | FGL | 2.1 |
| | Total | 38,354 | | |
| Channel catfish | 1974 | 62,500 | AFGL | 7.9 |
| | 1980 | 750 | UNK | UNK |
| | Total | 63,250 | | |
| Florida largemouth bass | 1985 | 93,341 | FGL | 1.0 |
| | Total | 93,341 | | |
| Largemouth bass | 1974 | 25,000 | UNK | UNK |
| | Total | 25,000 | | |
| Palmetto Bass (striped X white bass hybrid) | 1980 | 12,376 | UNK | UNK |
| | 1982 | 21,036 | UNK | UNK |
| | 1994 | 24,900 | FGL | 1.6 |
| | 1995 | 30,457 | FGL | 1.1 |
| | 1997 | 16,256 | FGL | 1.1 |
| | 1999 | 23,048 | FGL | 1.3 |
| | 2002 | 23,090 | FGL | 1.3 |
| | 2004 | 18,013 | FGL | 1.7 |
| | 2006 | 19,000 | FGL | 1.7 |
| | Total | 188,176 | | |
| White crappie | 1994 | 479 | ADL | 6.0 |
| | 1994 | 3,094 | AFGL | 5.0 |
| | Total | 3,573 | | |

Table 4. Survey of littoral zone and physical habitat types, Millers Creek Reservoir, Texas, August 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. Reservoir elevation was 1,334.1 msl at time of survey (1,333.9 msl when full).

| Shoreline habitat type | Shoreline Distance | | Surface Area | |
|-------------------------------------|--------------------|------------------|--------------|-----------------------------------|
| | Miles | Percent of total | Acres | Percent of reservoir surface area |
| Featureless/nondescript | 1.8 | 5.4 | | |
| Flooded dead terrestrial vegetation | 12.7 | 38.4 | | |
| Flooded live terrestrial vegetation | 15.3 | 46.2 | | |
| Overhanging brush | 0.9 | 2.7 | | |
| Rocky shore | 1.3 | 3.9 | | |
| Riprap | 1.1 | 3.3 | | |
| Total shoreline length | 33.1 | | | |
| <hr/> | | | | |
| Habitat adjacent to shoreline | | | | |
| Standing timber | | | 4.6 | 0.3 |
| Native submerged vegetation | | | 0.1 | 0.0 |
| Native emerged vegetation | | | 0.1 | 0.0 |

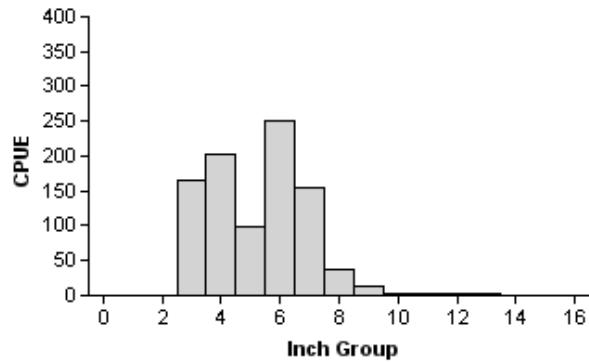
Gizzard Shad

1999



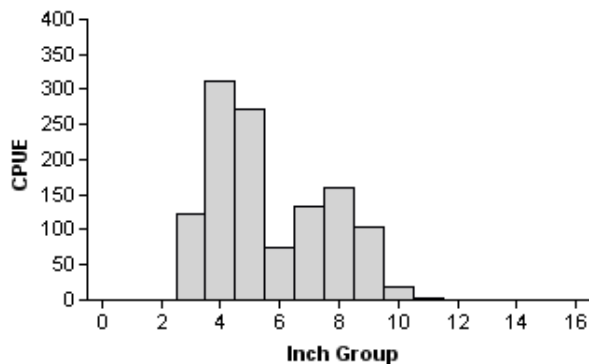
Effort = 1.0
 Total CPUE = 794.0 (23; 794)
 Stock CPUE = 86.0 (23; 86)
 PSD = 2 (1.7)
 IOV = 95.84 (1.5)

2003



Effort = 1.0
 Total CPUE = 940.0 (21; 940)
 Stock CPUE = 220.0 (31; 220)
 PSD = 5 (2.1)
 IOV = 93.19 (1.7)

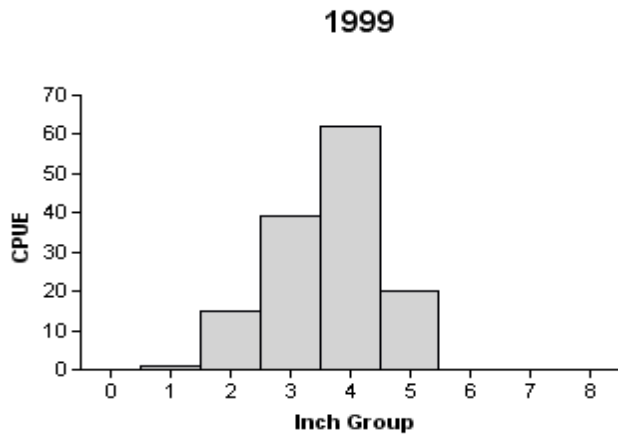
2007



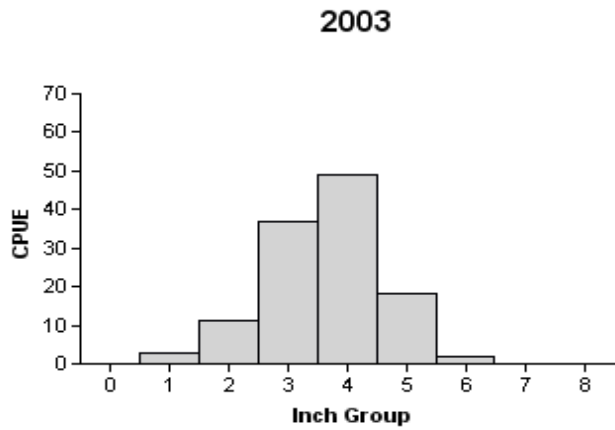
Effort = 1.0
 Total CPUE = 1,201.0 (18; 1201)
 Stock CPUE = 418.0 (16; 418)
 PSD = 1 (0.4)
 IOV = 76.27 (4.2)

Figure 2. Number of gizzard shad caught per hour (CPUE) and population indices (RSE and N for CPUE and SE for IOV are in parenthesis) for fall electrofishing surveys, Millers Creek Reservoir, Texas, 1999, 2003, and 2007.

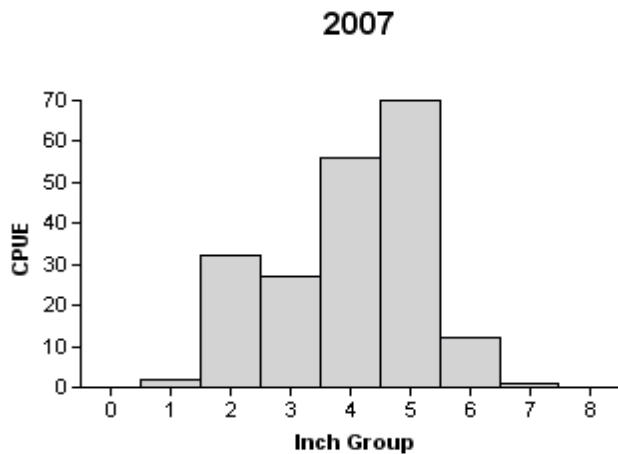
Bluegill



Effort = 1.0
 Total CPUE = 137.0 (31; 137)
 Stock CPUE = 121.0 (30; 121)
 PSD = 0 (49)
 RSD-P = 0 (0)



Effort = 1.0
 Total CPUE = 120.0 (37; 120)
 Stock CPUE = 106.0 (37; 106)
 PSD = 2 (1.1)
 RSD-P = 0 (0)

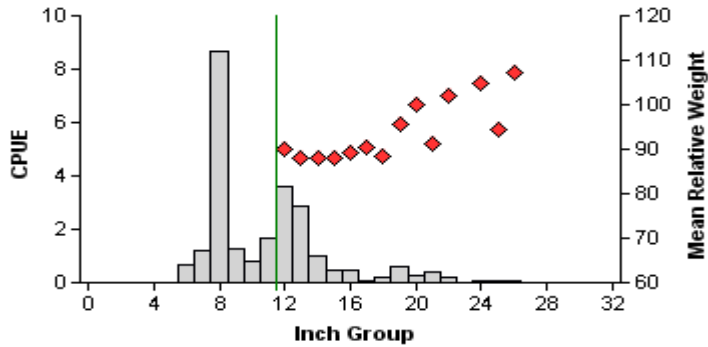


Effort = 1.0
 Total CPUE = 200.0 (49; 200)
 Stock CPUE = 166.0 (44; 166)
 PSD = 8 (1.5)
 RSD-P = 0 (0)

Figure 3. Number of bluegill caught per hour (CPUE) and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, Millers Creek Reservoir, Texas, 1999, 2003, and 2007.

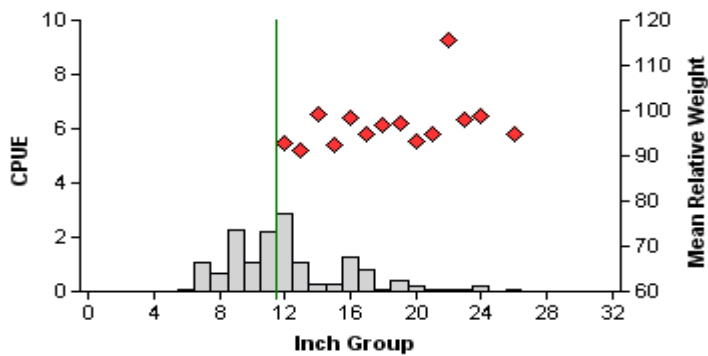
Blue Catfish

2004



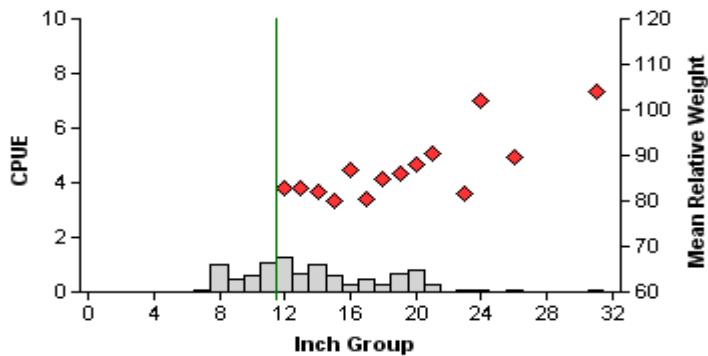
Effort = 10.0
Total CPUE = 25.0 (22; 250)
Stock CPUE = 10.6 (16; 106)
PSD = 11 (2.3)
RSD-P = 0 (0)

2006



Effort = 10.0
Total CPUE = 15.5 (13; 155)
Stock CPUE = 8.0 (14; 80)
PSD = 10 (3.9)
RSD-P = 0 (0)

2008

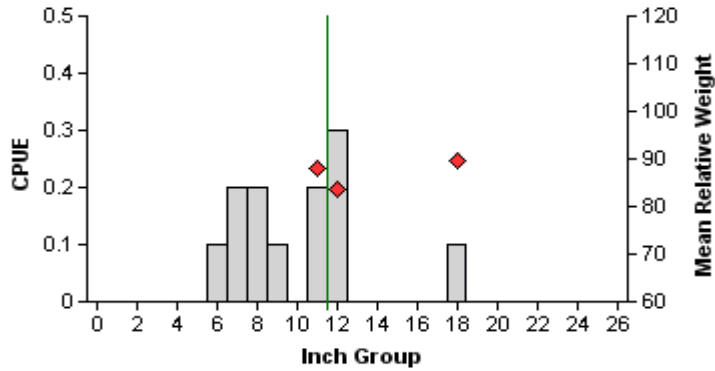


Effort = 10.0
Total CPUE = 10.2 (18; 102)
Stock CPUE = 6.9 (24; 69)
PSD = 22 (2.9)
RSD-P = 1 (1.5)

Figure 4. Number of blue catfish caught per net night (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring gill netting surveys, Millers Creek Reservoir, Texas, 2004, 2006, and 2008. Line indicates minimum size limit at time of sampling.

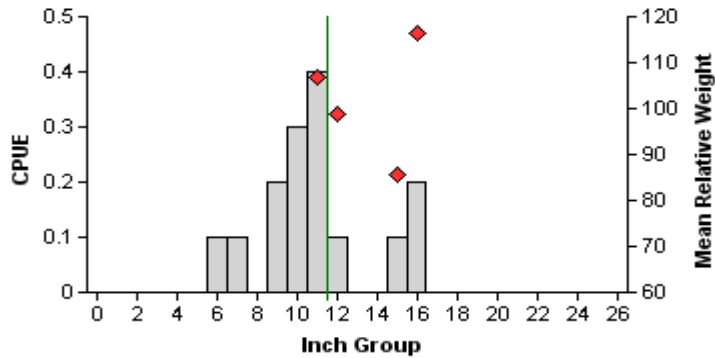
Channel Catfish

2004



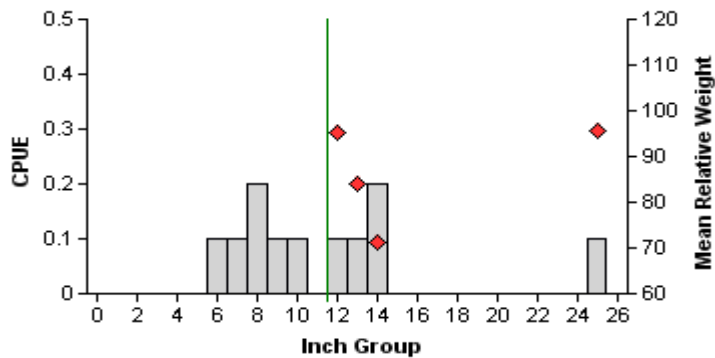
Effort = 10.0
 Total CPUE = 1.2 (32; 12)
 Stock CPUE = 0.6 (44; 6)
 PSD = 17 (13.7)
 RSD-P = 0 (0)

2006



Effort = 10.0
 Total CPUE = 1.5 (47; 15)
 Stock CPUE = 0.8 (52; 8)
 PSD = 25 (12.3)
 RSD-P = 0 (0)

2008

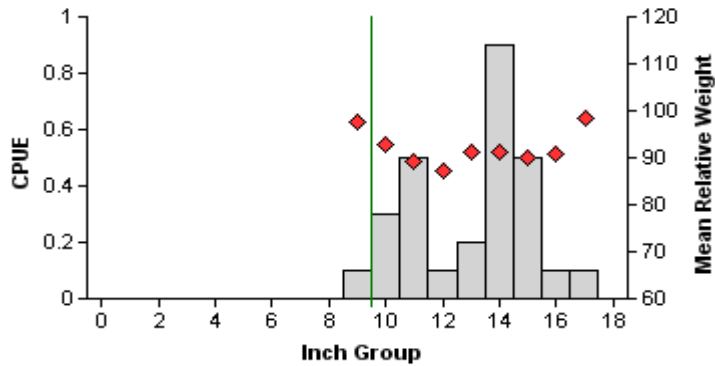


Effort = 10.0
 Total CPUE = 1.1 (29; 11)
 Stock CPUE = 0.5 (33; 5)
 PSD = 20 (18.9)
 RSD-P = 20 (18.9)

Figure 5. Number of channel catfish caught per net night (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring gill netting surveys, Millers Creek Reservoir, Texas, 2004, 2006, and 2008. Line indicates minimum size limit at time of sampling.

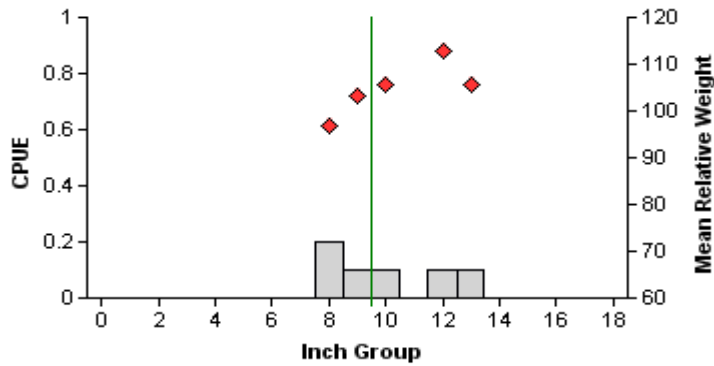
White Bass

2004



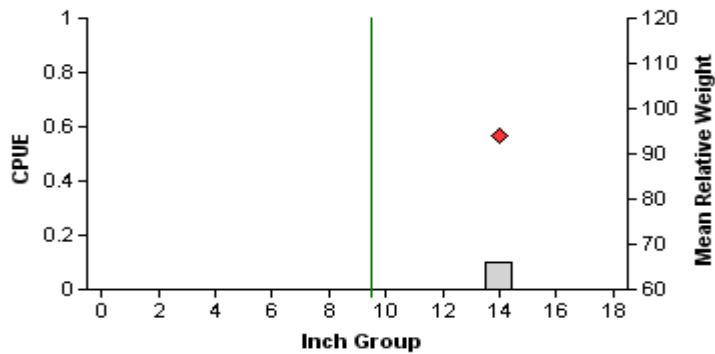
Effort = 10.0
 Total CPUE = 2.8 (33; 28)
 Stock CPUE = 2.8 (33; 28)
 PSD = 100 (0)
 RSD-P = 68 (13.6)

2006



Effort = 10.0
 Total CPUE = 0.6 (51; 6)
 Stock CPUE = 0.6 (51; 6)
 PSD = 67 (14.4)
 RSD-P = 33 (14.4)

2008

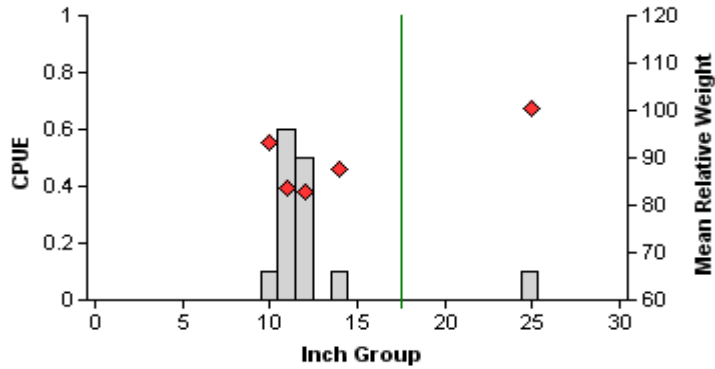


Effort = 10.0
 Total CPUE = 0.1 (100; 1)
 Stock CPUE = 0.1 (100; 1)
 PSD = 100 (0)
 RSD-P = 100 (0)

Figure 6. Number of white bass caught per net night (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring gill netting surveys, Millers Creek Reservoir, Texas, 2004, 2006, and 2008. Line indicates minimum size limit at time of sampling.

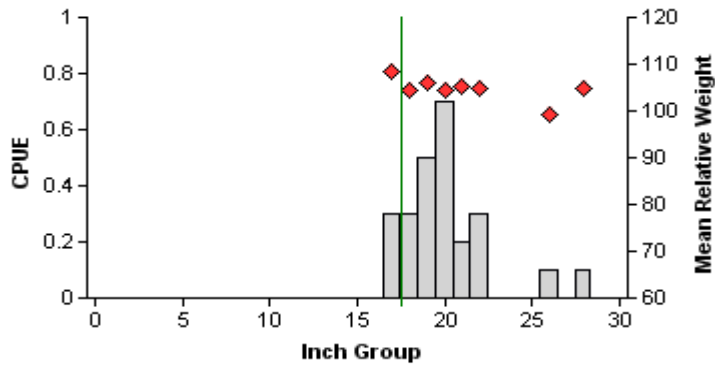
Palmetto bass

2004



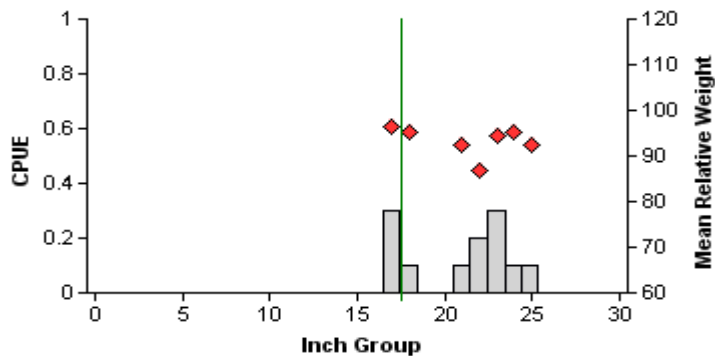
Effort = 10.0
 Total CPUE = 1.4 (64; 14)
 Stock CPUE = 1.4 (64; 14)
 PSD = 50 (7.5)
 RSD-P = 7 (7.6)

2006



Effort = 10.0
 Total CPUE = 2.5 (34; 25)
 Stock CPUE = 2.5 (34; 25)
 PSD = 100 (0.0)
 RSD-P = 100 (0)

2008



Effort = 10.0
 Total CPUE = 1.2 (37; 12)
 Stock CPUE = 1.2 (37; 12)
 PSD = 100 (0)
 RSD-P = 100 (0)

Figure 7. Number of palmetto bass caught per net night (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring gill netting surveys, Millers Creek Reservoir, Texas, 2004, 2006 and 2008. Line indicates minimum size limit at time of sampling.

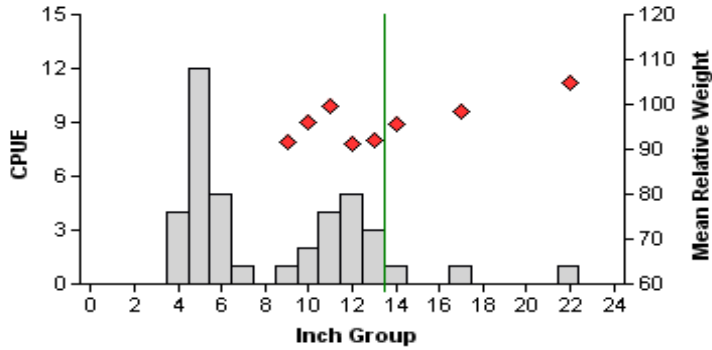
Table 5. Mean length at age of capture for palmetto bass (sexes combined) collected by gill nets, Millers Creek Reservoir, Texas, April 1996, 1999, 2008 and March 2002. Sample sizes are in parentheses. Ages were determined using otoliths.

| Year | Length (inches) at age | | | | | | | |
|-----------|------------------------|----------|----------|----------|-----------|----------|-----------|----------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 1996 | 9.6 (1) | 13.9 (8) | | | | | | |
| 1999 | | 14.5 (7) | | 20.4 (3) | 22.5 (1) | | | |
| 2002 | | | 18.7 (7) | | 22.6 (11) | | 24.3 (10) | 25.2 (3) |
| 2008 | | 17.7 (3) | | | | 23.3 (8) | | |
| Averages* | 13.6 | 17.4 | 20.3 | 22.6 | 24.5 | 25.9 | 27.0 | 27.9 |

* Ecological region averages from Prentice (1987); lengths derived for April 15.

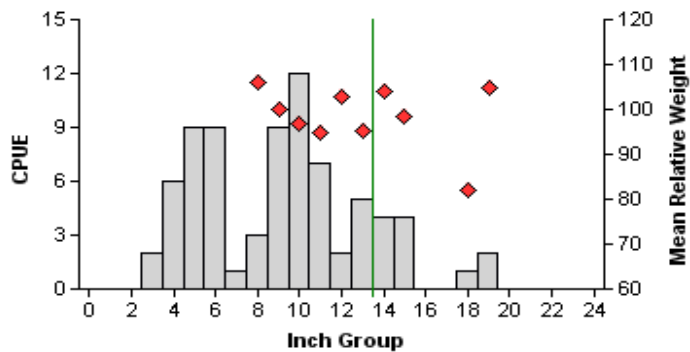
Largemouth Bass

1999



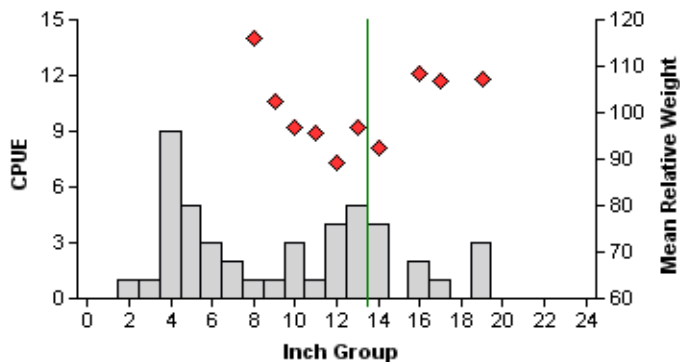
Effort = 1.0
 Total CPUE = 40.0 (19; 40)
 Stock CPUE = 18.0 (30; 18)
 PSD = 61 (11)
 RSD-P = 11 (9.1)

2003



Effort = 1.0
 Total CPUE = 76.0 (33; 76)
 Stock CPUE = 49.0 (36; 49)
 PSD = 37 (6.5)
 RSD-P = 14 (3.6)

2007



Effort = 1.0
 Total CPUE = 46.0 (43; 46)
 Stock CPUE = 25.0 (35; 25)
 PSD = 76 (6.8)
 RSD-P = 24 (4.4)

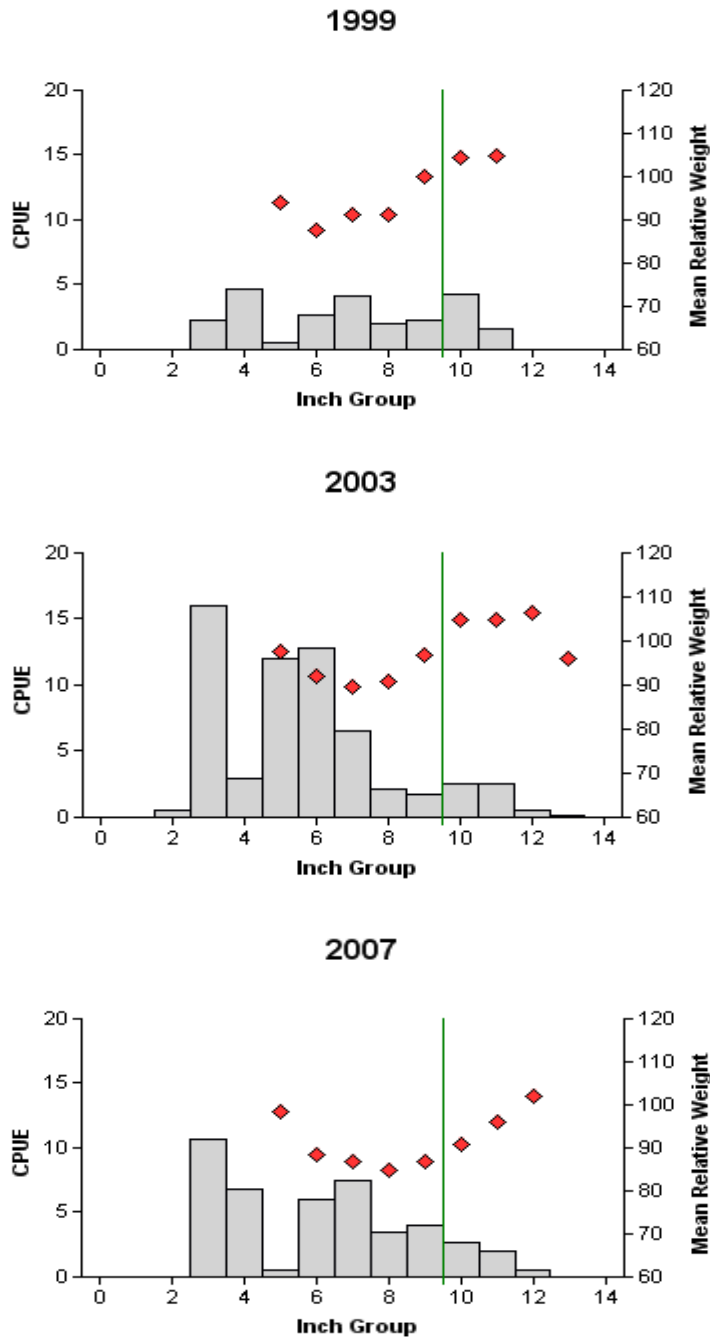
Figure 8. Number of largemouth bass caught per hour (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, Millers Creek Reservoir, Texas, 1999, 2003, and 2007. Line indicates minimum size limit at time of sampling.

Largemouth Bass

Table 6. Results of genetic analysis of largemouth bass collected by fall electrofishing, Millers Creek Reservoir, Texas, 1996, 1999, 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 or Fx | NLMB | | |
| 1996 | 30 | 1 | 23 | 6 | 30.0 | 3.3 |
| 1999 | 22 | 1 | 18 | 3 | 45.5 | 4.5 |
| 2003 | 29 | 1 | 24 | 4 | 37.9 | 3.4 |
| 2007 | 30 | 0 | 28 | 2 | 27.7 | 0.0 |

White Crappie



Effort = 6.0
 Total CPUE = 24.7 (25; 148)
 Stock CPUE = 17.7 (19; 106)
 PSD = 58 (7.4)
 RSD-P = 34 (5.3)

Effort = 10.0
 Total CPUE = 60.7 (26; 607)
 Stock CPUE = 41.1 (33; 411)
 PSD = 24 (2.1)
 RSD-P = 14 (2.9)

Effort = 7.0
 Total CPUE = 44.3 (22; 310)
 Stock CPUE = 26.7 (25; 187)
 PSD = 48 (5.8)
 RSD-P = 20 (5.9)

Figure 9. Number of white crappie caught per net night (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall trap netting surveys, Millers Creek Reservoir, Texas, 1999, 2003, and 2007. Line indicates minimum size limit at time of sampling.

Table 7. Proposed sampling schedule for Millers Creek Reservoir, Texas. Gill net surveys are conducted in the spring, while electrofishing and trap net surveys are conducted in the fall. S denotes standard survey and A denotes additional survey.

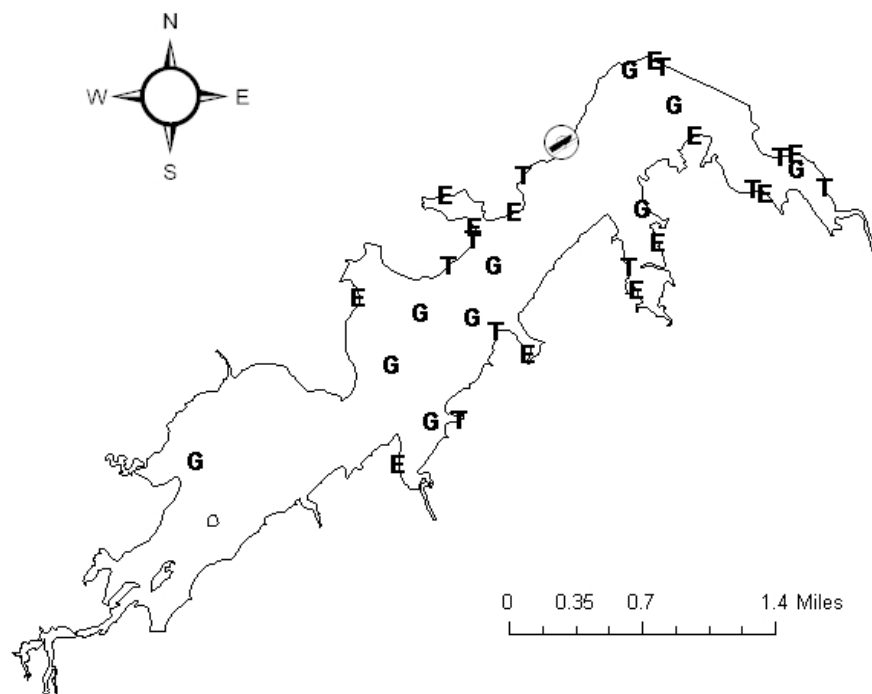
| Survey Year | Electrofishing | Trap Net | Gill Net | Creel | Report |
|-----------------------|----------------|----------|----------|-------|--------|
| Fall 2008-Spring 2009 | | | | | |
| Fall 2009-Spring 2010 | | | A | | |
| Fall 2010-Spring 2011 | | | | | |
| Fall 2011-Spring 2012 | S | S | S | | S |

APPENDIX A

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

| Species | Gill Nets | | Trap Nets | | Electrofishing | |
|--------------------|-----------|------|-----------|------|----------------|---------|
| | N | CPUE | N | CPUE | N | CPUE |
| Longnose gar | 4 | 0.4 | | | | |
| Gizzard shad | 584 | 58.4 | | | 1,201 | 1,201.0 |
| Threadfin shad | | | | | 4 | 4.0 |
| Common carp | 3 | 0.3 | | | | |
| River carpsucker | 13 | 1.3 | | | | |
| Smallmouth buffalo | 47 | 4.7 | | | | |
| Blue catfish | 102 | 10.2 | | | | |
| Channel catfish | 11 | 1.1 | | | | |
| Flathead catfish | 1 | 0.1 | 1 | 0.1 | | |
| White bass | 1 | 0.1 | | | | |
| Palmetto bass | 12 | 1.2 | | | | |
| Green sunfish | | | | | 76 | 76.0 |
| Bluegill | 2 | 0.2 | 206 | 29.4 | 200 | 200.0 |
| Longear sunfish | | | 13 | 1.9 | 62 | 62.0 |
| Largemouth bass | | | | | 46 | 46.0 |
| White crappie | 35 | 3.5 | 310 | 44.3 | | |
| Freshwater drum | 35 | 3.5 | 1 | 0.1 | | |

APPENDIX B



Location of sampling sites, Millers Creek Reservoir, Texas, 2007-2008. Trap net, gill net, and electrofishing stations are indicated by T, G, and E, respectively.