

PERFORMANCE REPORT

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FEDERAL AID IN SPORT FISH RESTORATION ACT

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FEDERAL AID PROJECT F-30-R-30

STATEWIDE FRESHWATER FISHERIES MONITORING AND MANAGEMENT PROGRAM

2004 Survey Report

**Granger Reservoir**

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## Executive Summary

Granger Reservoir was surveyed in 2004 using trap nets and boat electrofisher, and in 2005 using gill nets. Structural habitat, aquatic vegetation, and angler access surveys were conducted in 2004. An angler creel survey was conducted in spring (March – May) 2005. This report summarizes the results of these surveys and contains a fisheries management plan for the reservoir based on those findings.

- **Reservoir Description:** Granger Reservoir is a 4,009-acre impoundment of the San Gabriel River in Williamson County. The reservoir is located approximately 40 miles northeast of Austin, Texas, within the Brazos River drainage. It was constructed in 1980 by the U. S. Army Corps of Engineers (USACOE) for purposes of flood control and water conservation. Granger Reservoir has a drainage area of approximately 709 square miles and a shoreline length of about 40 miles.
- **Angler access:** A significant portion of the reservoir is bordered by the Granger Wildlife Management Area. The USACOE controls four parks. Each park provided camping and a boat ramp. Bank access was good within the park boundaries and Wilson Fox park on the south shore contained a fishing pier accessible to physically challenged persons.
- **Aquatic vegetation:** Turbid water limited the presence of submerged aquatic plants. Water clarity, expressed as secchi depth, was typically less than 1 foot, but clarity generally increased toward the dam. No aquatic plants were observed growing in Granger Reservoir prior to 2003. In 2003, hydrilla was discovered within the Wilson Fox Park boat ramp cove. The USACOE conducted a herbicide treatment in 2003, and no hydrilla was observed in 2004. However, the 2004 aquatic vegetation survey documented several isolated patches of the exotic, floating aquatic plant water hyacinth in the upper San Gabriel arm of the reservoir. Total coverage of these colonies was 0.3 acres. Following heavy rains and high reservoir inflows, no hyacinth plants were observed during survey trips in Spring 2005.
- **Spring 2005 creel survey summary:** Pole and line anglers expended an estimated 36,542 (RSE = 13.2) hours (9.1 hours/acre) of fishing during daylight hours from March through May 2005. Total angler trip expenditures were estimated at \$172,222 (RSE = 41.4). Most (61.8%) anglers traveled less than 30 miles, and 92.7% traveled less than 50 miles to fish this reservoir. White crappie was the most sought after species (61.5% directed angler effort), followed by catfishes (16.8%), white bass (5.1%), and largemouth bass (2.5%).
- **Prey species:** Gizzard shad electrofishing catch-per-unit-effort (CPUE) in 2004 was 219.0/hour, and appeared to be dominated by age-0 fish. No gizzard shad were aged, but fish measuring less than 5 inches were assumed to be age-0. Annual variability in production of young shad has occurred, but catch rates of older shad (> 7 inches) have typically been less than 10/hour. The index of vulnerability (IOV) for the gizzard shad sample was 100, which indicates that all gizzard shad were less than 8 inches in length, making them susceptible to

predation by most predators. The IOV values have remained similar between surveys, ranging from 95 (2000) to 100 (2004), indicating that the gizzard shad population was dominated by young fish. Threadfin shad were collected at the rate of 21.0/hour in 2004 compared to 2000 (44.7/hour) and 1997 (23.3/hour).

Bluegill electrofishing CPUE (40.0/hour) was higher than previous surveys (1997 = 12.7/hour; 2000 = 0/hour), but still could be described as low. Longear sunfish CPUE (28.0/hour) and size structure were also consistent with previous surveys. No redbreast sunfish were collected in 2004, but were sampled in past surveys (2000 = 2.0/hour). Warmouth were also collected in low numbers (8.0/hour). Sunfish recruitment could be negatively impacted by abundant gizzard shad through inter-specific competition for zooplankton at larval stages (Noble 1981), or because of lack of suitable habitat.

- **Catfishes:** Blue catfish were stocked in 1995 and 1996 to take advantage of abundant shad and to provide additional angling opportunities. Gill nets collected few of these fish in 1997 (1.8/net night), 2001 (0.2/net night), and 2003 (0.3/net night). However in 2005, blue catfish became the dominant catfish species collected (3.0/net night). Recruitment of young blue catfish to adult sizes was evidenced by the expanded size distribution. The blue catfish expansion has occurred concurrent with a decline in channel catfish numbers.

The gill netting catch rate for channel catfish in 2005 (0.9/net night) was the lowest recorded for this reservoir. Catch rates have steadily declined since 1997 (1997 = 9.0/net night; 2001 = 2.4/net night; 2003 = 1.8/net night). No evidence exists to link the blue catfish expansion to the channel catfish decline. However, this relationship is worth noting.

Flathead catfish were collected in the 2005 gill netting survey in low numbers (0.4/net night). Historical catch rates have varied but were typically less than 1.0/net night. Flathead catfish were the least abundant catfish species present, but gave anglers the opportunity to catch large fish.

In the Spring (March – May) 2005 creel survey, 16.8% (1.5 hours/acre) of pole-and-line angler effort was directed for catfishes. Anglers specifically targeting blue catfish comprised the highest percentage (31.4%) of that effort. Anglers targeting channel catfish and flathead catfish were too few to estimate meaningful catch statistics. The estimated catch rate for anglers targeting blue catfish was 0.26 fish/hour (RSE = 22.7). Of the estimated 1,365 (RSE = 184.3) blue catfish caught, 78.3% were harvested. Ninety-four percent of legal-sized blue catfish caught were harvested. Size distribution of blue catfish measured during creel survey interviews ranged from 14 to 32 inches. Passive gear (i.e., trot lines and jug lines) anglers were not enumerated or interviewed during the creel survey. However, anecdotal reports suggested that passive gear angling for catfishes was a popular activity on this reservoir.

- **White bass:** White bass gill net catch rate (2.9/net night) was slightly higher than recent surveys. Since 1991, white bass gill net catch rates have been consistent, averaging 1.3/net

night and ranging from 0.8 – 2.0/net night. In the two most recent surveys, white bass size distribution ranged from 6 to 16 inches.

White bass anglers comprised 5.0% (0.5 hours/acre) of the total directed angling effort during the Spring 2005 creel survey. Angler catch rate for white bass was high (3.3 fish/hour; RSE = 60.7). Of the 11,321 (RSE = 38.1) white bass estimated harvested during the creel survey period, 30.8% were harvested. Of the legal-sized white bass caught, 82.2% were harvested by anglers. Harvested white bass observed during creel interviews measured between 10 and 16 inches in length.

- **Largemouth bass:** Largemouth bass electrofishing catch rate (7.0/hour) in 2004 was similar to the low catch rate in 2000 (4.0/hour). Largemouth bass relative abundance declined since the 1980s (1989 = 42.7/hour, 1991 = 30.7/hour, 1994 = 28.7/hour, 1997 = 15.3/hour). As in recent surveys, the few adult largemouth bass sampled exhibited exceptional body condition which is indicative of a low-abundant population with access to a surplus of prey. Possible reasons for low density are lack of suitable spawning and/or juvenile habitat, or indirect negative impacts of an abundant gizzard shad population depressing sunfish prey numbers (Kirk and Davies 1985). Low sunfish production could negatively impact age-0 largemouth bass recruitment in situations when most young-of-the-year largemouth bass were not large enough to prey on fast growing age-0 gizzard shad (Allen et al. 1999).

Anglers spent 0.2 hours/acre fishing for largemouth bass at Granger Reservoir during the Spring 2005 creel survey. Only 2.5% of all anglers targeted largemouth bass. Bass angling popularity among anglers ranked fourth behind white crappie, catfishes, and white bass. Too few angler interviews precluded the estimation of meaningful catch statistics for this species.

- **Crappie:** Granger Reservoir supported a good white crappie population. Trap net catch rates during 2004 were 13.3 fish per net night, which was near the upper range for previous years (Range 1991 – 2003 = 2.8 – 15.3/net; Mean = 8.0; SE = 1.4). Evidenced by age-0 catch rates, white crappie produced strong year classes in 1997, 2001, and 2003. Strong year classes in 2001 and 2003 were partly responsible for higher than average trap net catch rates from 2001 through 2004 (> 10.0/net). White crappie size structure was good with a variety of sizes (Range = 2 – 14 inches) represented in samples. Growth of white crappie in Granger Reservoir was good. Average age at 10 inches was 1.8 years (N = 15; Range = 1 – 3 years). Granger Reservoir white crappie were heavier on average (mean Wr = 105.9; N = 140; SD = 7.4) than crappie of similar lengths in most reservoirs as evidenced by relative weights greater than 100. This indicated that prey resources were not in short supply.

White crappie were the most sought after species by anglers interviewed in the Spring 2005 creel survey (61.5% total effort; 5.6 hours/acre). Bank anglers expended similar effort (2.7 hours/acre) compared to boat anglers (2.9 hours/acre), and experienced similar catch rates (CPUE<sub>bank</sub> = 1.3 fish/hour; CPUE<sub>boat</sub> = 1.4 fish/hour). White crappie anglers caught an

estimated 55,057 (RSE = 22.0) white crappie, of which 41.8% were harvested. Of legal-sized white crappie caught by anglers, 96.2% were harvested. The majority of white crappie harvested were between 10 and 14 inches. Two percent of harvested white crappie measured during the creel survey were less than the minimum size limit (i.e., 10 inches).

- **Management Strategies**

Based on current information, the reservoir should continue to be managed with existing regulations. White crappie anglers accounted for the majority of fishing effort during spring months. Anecdotal angler reports attest to the popularity of this species throughout the year. Year class production and relative abundance have fluctuated in past years. Trap net surveys should be conducted annually to better monitor the population dynamics of this species.

Bank anglers were equally successful at catching white crappie during spring months compared with boat anglers. The shallow/near-shore movements of spawning white crappie allowed these fish to be accessible to bank anglers during this time. Public bank access was good inside park boundaries and on a fishing pier. Many anglers without access to a boat may not be aware of bank fishing opportunities on this reservoir. Bank fishing opportunities should be communicated to anglers through appropriate media outlets.

The blue catfish population has established a self-sustaining population. Additional blue catfish stockings are not warranted. The channel catfish population continued to decline following the stocking of blue catfish. Anglers may be able to improve success by altering angling techniques to target blue catfish. This strategy should be communicated to local anglers through appropriate media outlets.

An herbicide treatment eliminated hydrilla from the Wilson Fox boat ramp cove in 2003. High reservoir inflows eliminated newly discovered (Summer 2004) water-hyacinth plants from the upper San Gabriel arm of the reservoir by Spring 2005. These exotic aquatic plants have the potential to rapidly spread and inhibit bank fishing access. Annual surveys should be conducted to monitor for the presence of these two aquatic plants. If hydrilla or water hyacinth plants return, treatment options should be coordinated with the USACOE.

## Introduction

This document is a summary of fisheries data collected from Granger Reservoir from July 2004 to June 2005. Historical data are also provided for comparative purposes. The purpose of the document is to provide fisheries information and make fisheries management recommendations to protect and improve the sport fishery. While information on other species of fishes was collected, this report deals primarily with major sport fishes and important prey species. Management strategies are included to address existing problems or opportunities.

Harvest regulations for Granger Reservoir in 2004.

Species	Bag Limit	Length Limit (inches)
Blue and channel catfish	25	12
Flathead catfish	5	18
Largemouth bass	5	14
White bass	25	10
White crappie	25	10

### Methods

- Fishes were collected by electrofishing (1.0 hour at 12 stations), gill netting (15 net nights at 15 stations), and trap netting (15 net nights at 15 stations). Sampling locations for all gear types presented in this report were selected randomly. 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 netting as the number of fish caught in one net set overnight. Largemouth bass electrophoresis samples and access, aquatic vegetation, and angler creel surveys were collected according to the Texas Parks and Wildlife Department Inland Fisheries Assessment Procedures (TPWD, Inland Fisheries Division, unpublished manual revised 2004).
- Sampling statistics (CPUE for various length categories), structural indices (Proportional Stock Density [PSD], Relative Stock Density [RSD]), and relative weight indices were calculated for target fishes according to Anderson and Neumann (1996).
- Otoliths were used to determine ages for white crappie and white bass. No age data were collected for catfish species or largemouth bass.
- IOV was computed for the gizzard shad electrofishing sample according to DiCenzo et al. (1996). This index computes the percentage of shad measuring < 8 inches in the sample (i.e., those sizes that are vulnerable to predation by most sizes of predator fish).
- Reservoir surface acreage was determined using data provided by the Texas Water Development Board. Surface acreage differs from previous Granger reports, when acreage was determined using United States Geological Survey quadrangle maps.

## Literature Cited

- Allen, M. S., J. C. Greene, F. J. Snow, M. J. Maceina, and D. R. DeVries. 1999. Recruitment of largemouth bass in Alabama reservoirs: relations to trophic state and larval shad occurrence. *North American Journal of Fisheries Management* 19:67-77.
- Anderson, R. O., and R.M. Neumann. 1996. Length, weight, and associated structural indices. Pages 283-300 in B.R. Murphy and D. W. Willis, editors. *Fisheries Techniques*. American Fisheries Society, Bethesda, Maryland.
- 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.
- Kirk, J. P., and W. D. Davies. 1985. Competitive influences of gizzard shad on largemouth bass and bluegill in small impoundments. *Proc. Annu. Conf. Southeastern Association of Fisheries and Wildlife Agencies* 39:116-124.
- Noble, R. L. 1981. Management of forage fishes in impoundments of the southern United States. *Transactions of the American Fisheries Society* 110:738-750.

## Physical and historical data for Granger Reservoir, Texas

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Inland Fisheries water body code: 0319                      IF District: 2C – San Marcos  
 Controlling authority: United States Army Corps of Engineers (USACOE)  
 Acres: 4,009  
 Water Uses: Water supply, flood control  
 County: Williamson    Location: 15 miles N of Taylor  
 Latitude: 30° 20'    Longitude: 97° 42'  
 Nearest major metropolitan area and distance: Austin – 40 miles  
 Reservoir description: Mainstream                          River system: San Gabriel  
 Mean depth (ft): 9.0    Maximum depth (ft): 70.0  
 Shoreline development index: 4.3  
 Secchi disc range (ft): < 2 feet                              Conductivity (umhos/cm): 380  
 Constructed: 1980

## Survey History:

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Method	Year
Gill net	1984, 1987, 1989, 1991, 1994, 1997, 2001, 2005
Electrofisher	1984, 1987, 1989, 1991, 1994, 1997, 2000, 2004
Trap net	1986, 1987, 1989, 1991, 1994, 1997 - 2004
Creel survey	1984, 2005 (March – May)
Angler access	1994, 1997, 2004
Structural habitat	1994, 1997, 2004
Aquatic vegetation	1994, 1997, 2000, 2004

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Habitat survey of littoral zone and physical habitat types, Granger Reservoir, Texas, July, 2004. A linear shoreline distance (miles) was recorded for each habitat type found. Water elevation at time of survey was 504.2 feet msl. Conservation pool elevation is 504.0 feet msl.

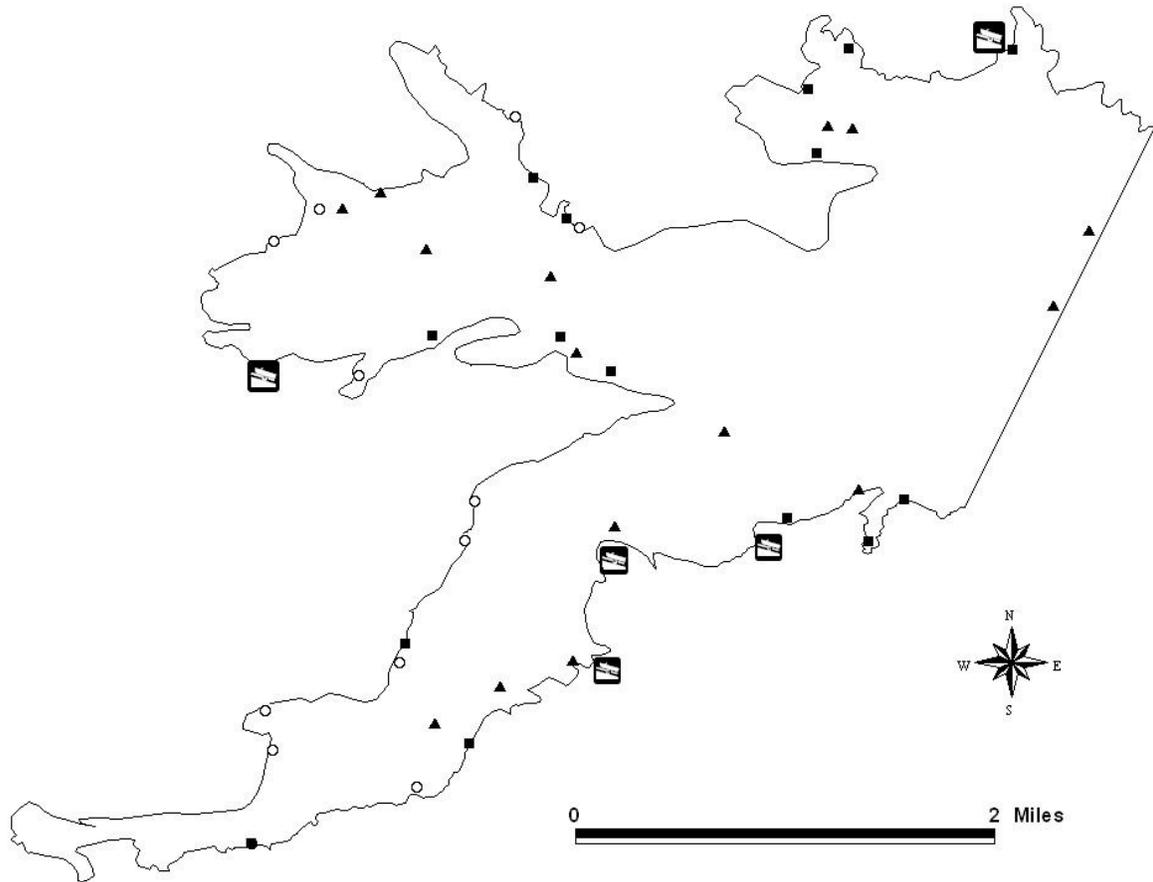
Shoreline Habitat Type	Shoreline Miles	% of Shoreline Mileage
Eroded bank	0.5	1.7
Featureless	1.4	5.1
Riprap	0.7	2.6
Rocky shoreline	0.4	1.3
Vegetated bank	13.3	47.2
Vegetated bank/dead trees and stumps	11.9	42.1
Total	28.2	100.0

Aquatic vegetation species composition and coverage, and open-water habitat types, Granger Reservoir, Texas, July, 2004.

Common name	Scientific name	Acres	% Coverage	Public Access Inhibited?
Water hyacinth	<i>Eichhornia crassipes</i>	0.3	< 1	No
Flooded timber		689.5	17.2	No

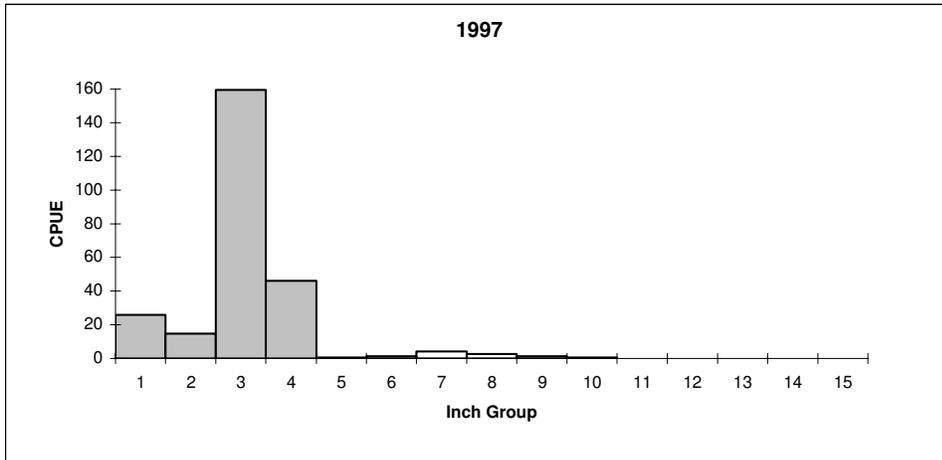
Stocking history of Granger Reservoir, Texas. All stocked fish were fingerling size.

Species	Year	Number
Blue catfish	1995	247,224
	1996	<u>220,000</u>
	Species total	467,224
Channel catfish	1979	31,860
	1990	64,998
	1996	<u>220,429</u>
	Species total	317,287
Coppernose bluegill	1981	<u>100,000</u>
	Species total	100,000
Florida largemouth bass	1980	50,584
	1992	220,166
	1994	<u>220,976</u>
	Species total	491,726
Striped bass	1981	110,371
	1983	<u>15,927</u>
	Species total	126,298

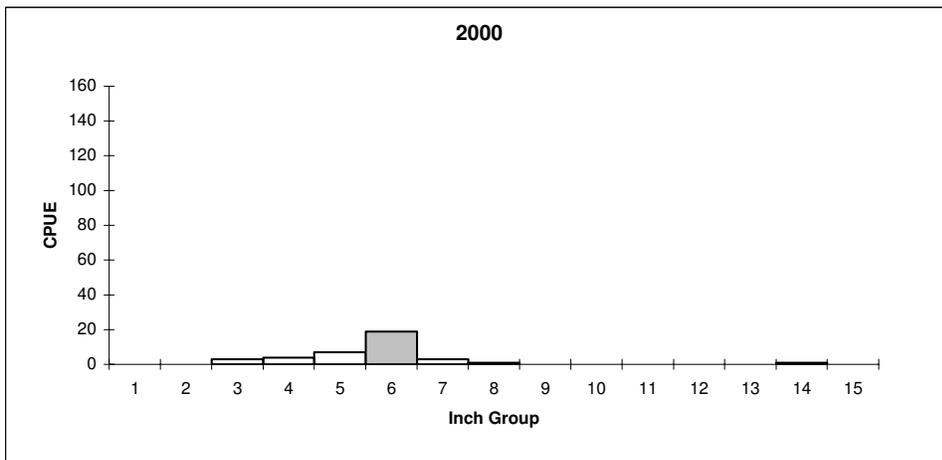


Location of sampling sites, Granger Reservoir, Texas, 2004 – 2005. Trap netting, gill netting, and electrofishing stations are indicated by squares, triangles, and open circles, respectively. Boat ramps are represented by a boat ramp symbol.

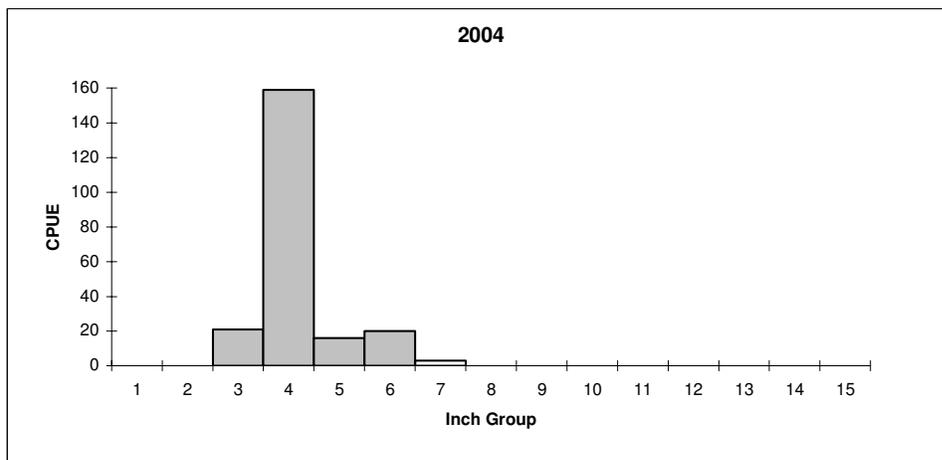
### Gizzard Shad



Effort = 1.5  
 Total CPUE = 256.7  
 Stock CPUE = 8.7  
 PSD = 0  
 IOV = 98



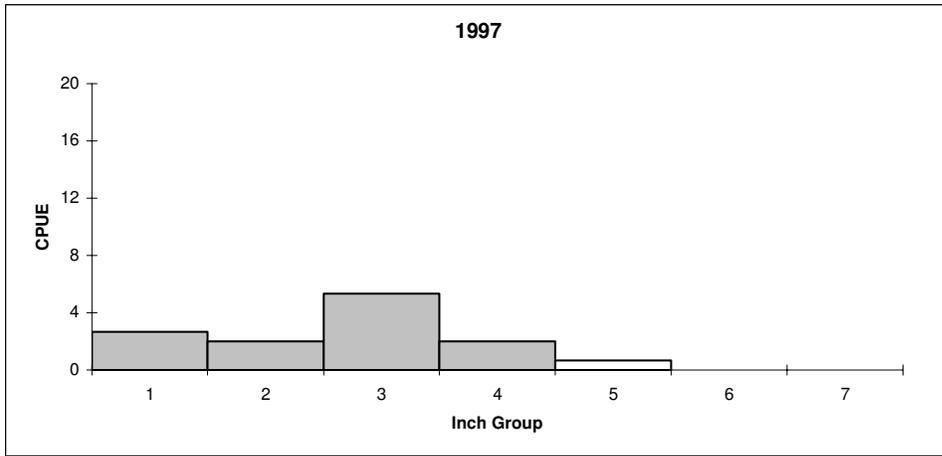
Effort = 1.0  
 Total CPUE = 38.0  
 Stock CPUE = 5.0  
 PSD = 20  
 IOV = 95



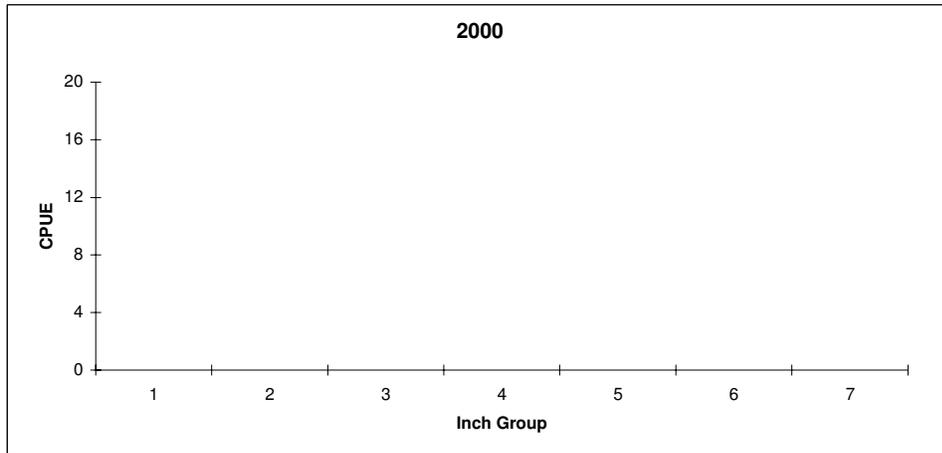
Effort = 1.0  
 Total CPUE = 219.0  
 Stock CPUE = 3.0  
 PSD = 0  
 IOV = 100

Comparison of the number of gizzard shad caught per hour (CPUE, bars) and population indices for fall electrofishing surveys, Granger Reservoir, Texas, 1997, 2000, and 2004.

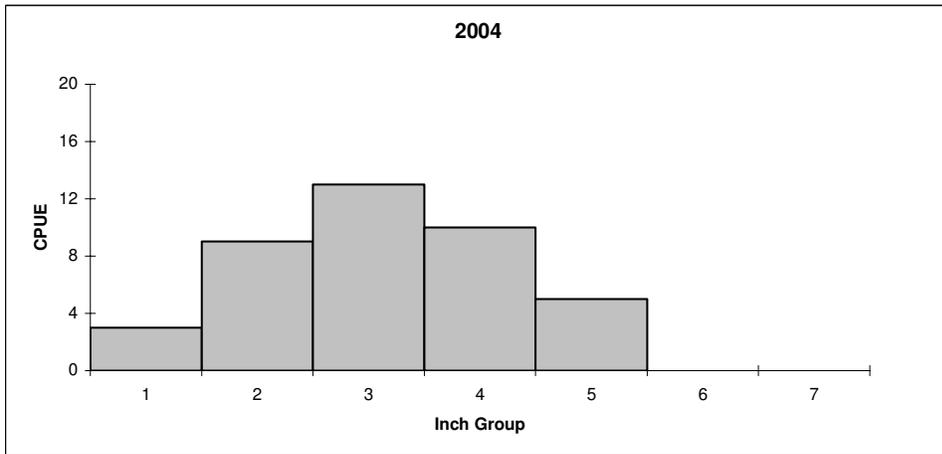
### Bluegill



Effort = 1.5  
 Total CPUE = 12.7  
 Stock CPUE = 8.0  
 PSD = 0  
 RSD-8 = 0



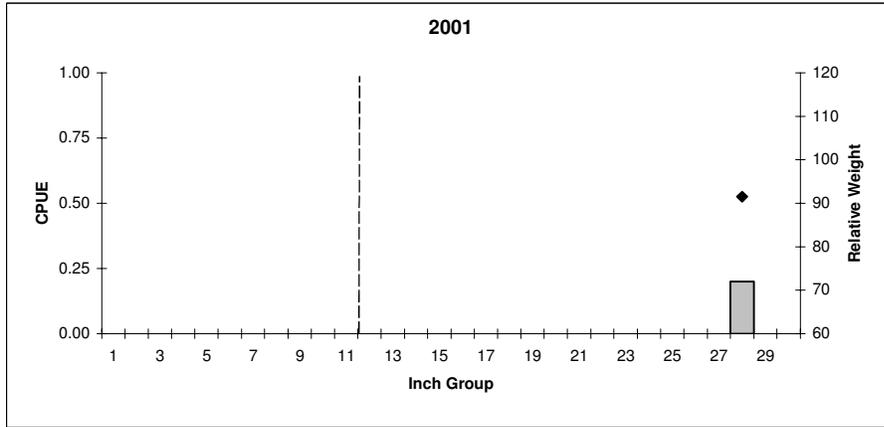
Effort = 1.0  
 Total CPUE = 0  
 Stock CPUE = 0  
 PSD = NA  
 RSD-8 = NA



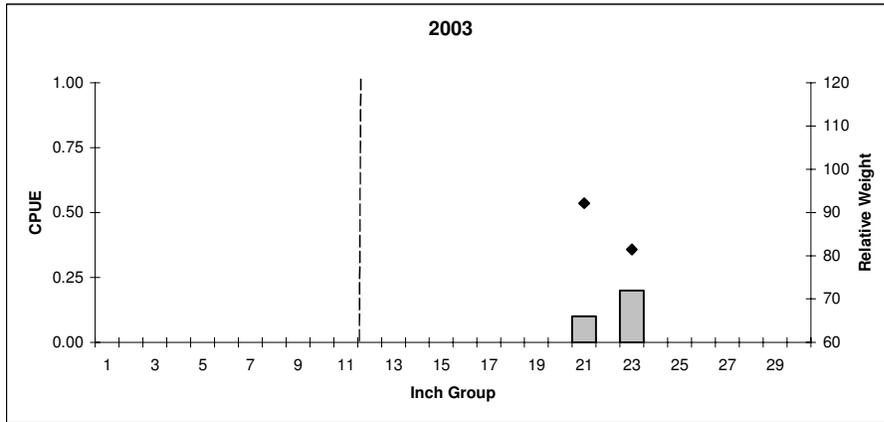
Effort = 1.0  
 Total CPUE = 40.0  
 Stock CPUE = 28.0  
 PSD = 0  
 RSD-8 = 0

Comparison of the number of bluegill caught per hour (CPUE, bars) and population indices for fall electrofishing surveys, Granger Reservoir, Texas, 1997, 2000, and 2004.

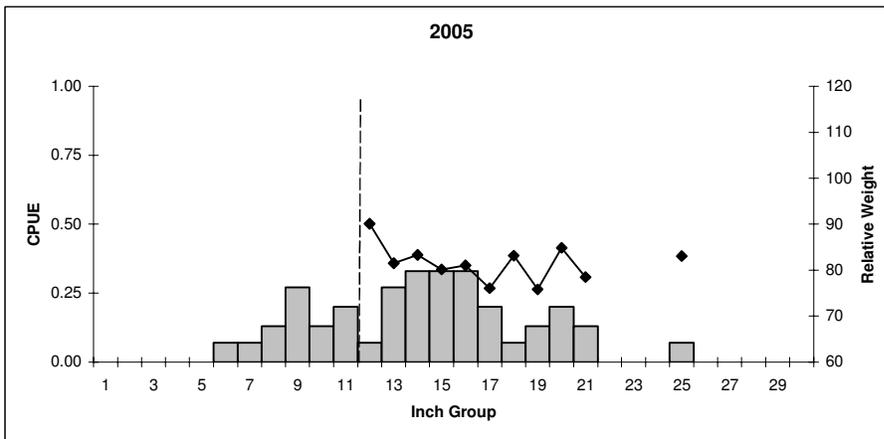
### Blue Catfish



Effort = 5  
 Total CPUE = 0.2  
 Stock CPUE = 0.2  
 PSD = 100  
 RSD-24 = 100

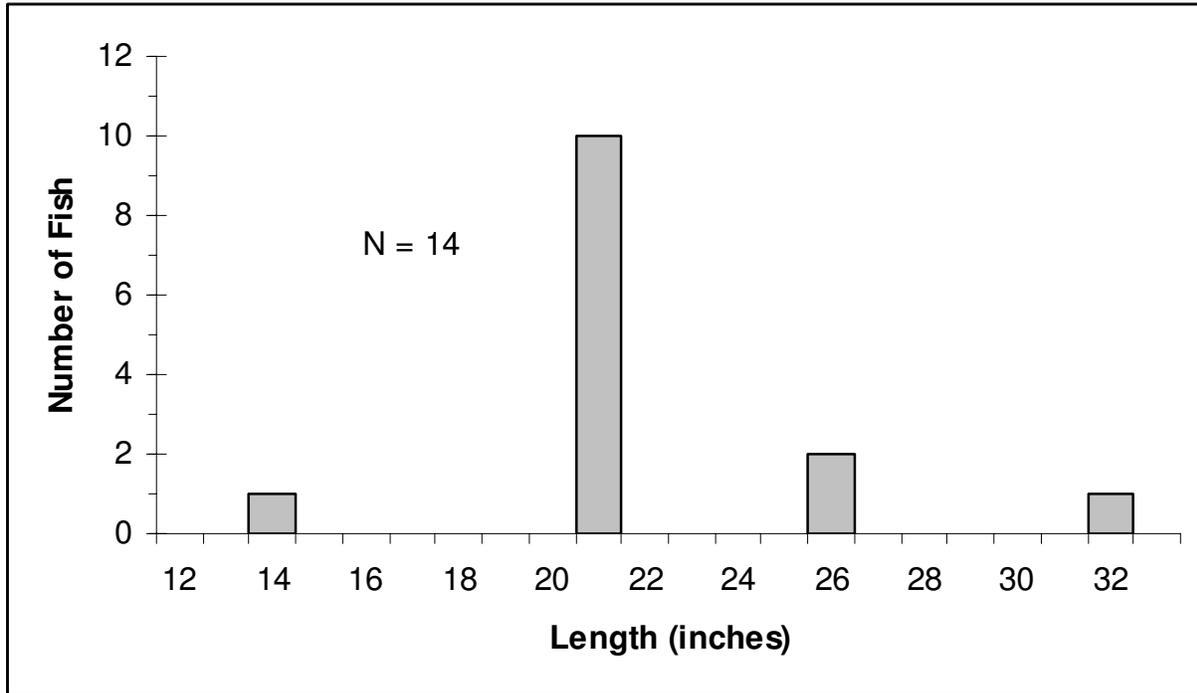


Effort = 10  
 Total CPUE = 0.3  
 Stock CPUE = 0.3  
 PSD = 100  
 RSD-24 = 0



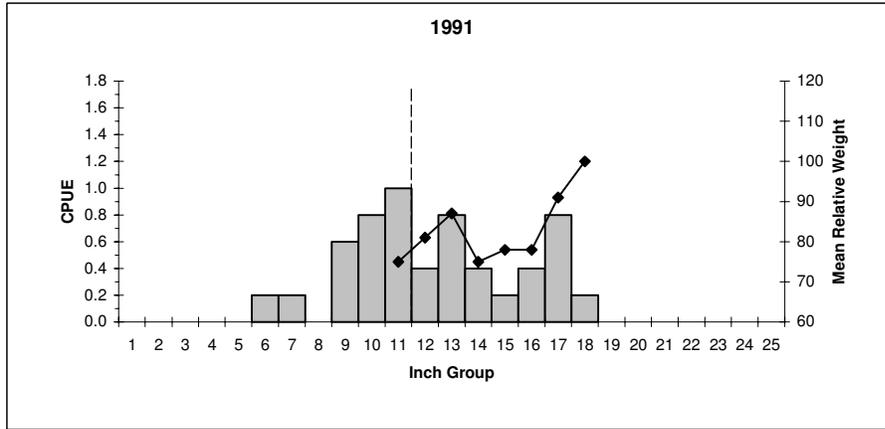
Effort = 15  
 Total CPUE = 3.0  
 Stock CPUE = 2.1  
 PSD = 19  
 RSD-24 = 3

Comparison of the number of blue catfish caught per net night (CPUE, bars), mean relative weight (lines), and population indices for spring gill net collections, Buchanan Reservoir, Texas, 2001, 2003, and 2005. Vertical dashed lines represent the minimum length limit.

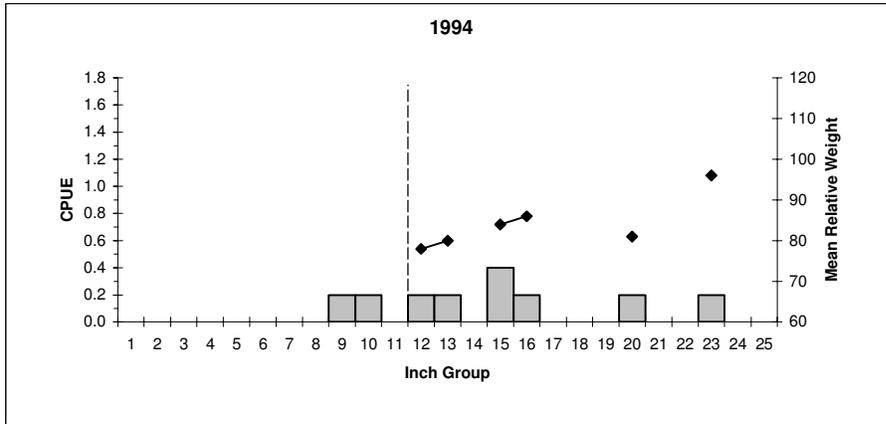


Number and sizes of blue catfish observed in the March – May 2005 creel survey, Granger Reservoir, Texas.

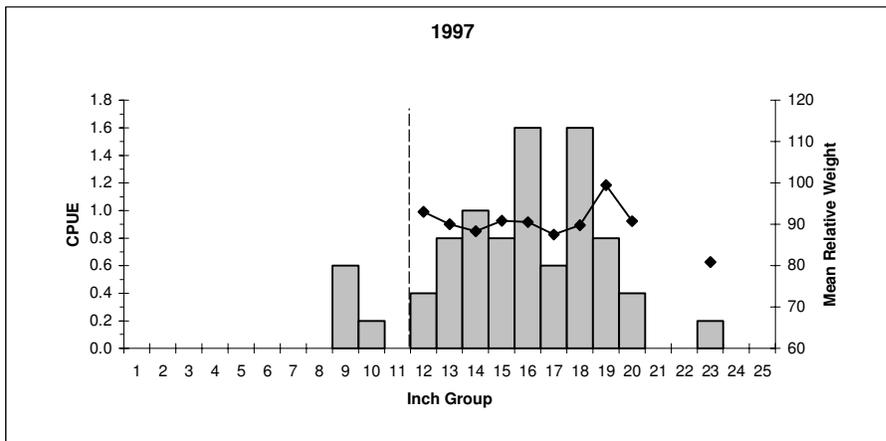
### Channel Catfish



Effort = 5  
 Total CPUE = 6.0  
 Stock CPUE = 4.2  
 PSD = 33  
 RSD-14 = 48



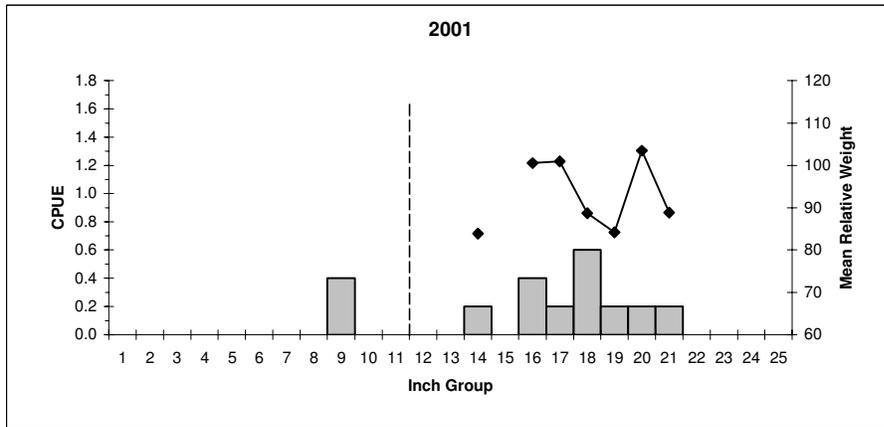
Effort = 5  
 Total CPUE = 1.8  
 Stock CPUE = 1.4  
 PSD = 43  
 RSD-14 = 71



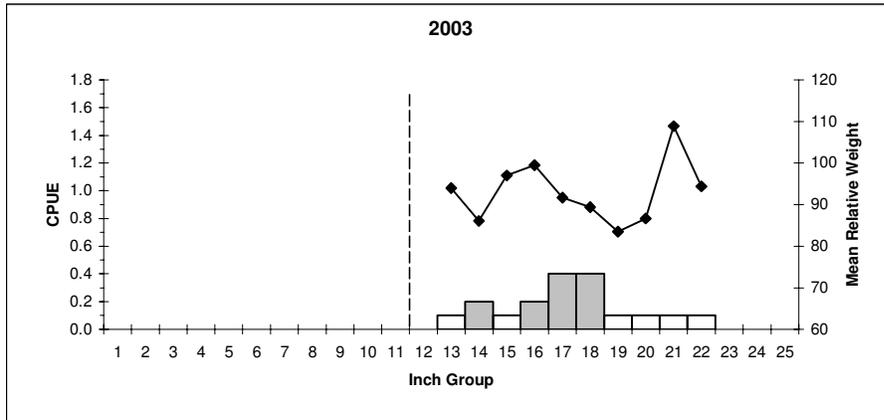
Effort = 5  
 Total CPUE = 9.0  
 Stock CPUE = 8.2  
 PSD = 63  
 RSD-14 = 85

Comparison of the number of channel catfish caught per net night (CPUE, bars), mean relative weight (lines), and population indices for spring gill net collections, Granger Reservoir, Texas, 1991, 1994, and 1997. Vertical dashed lines represent the minimum length limit.

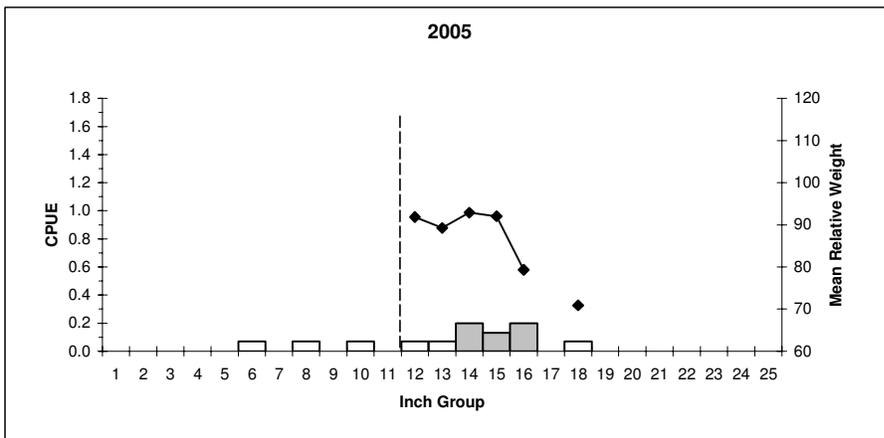
### Channel Catfish



Effort = 5  
 Total CPUE = 2.4  
 Stock CPUE = 2.0  
 PSD = 90  
 RSD-14 = 100

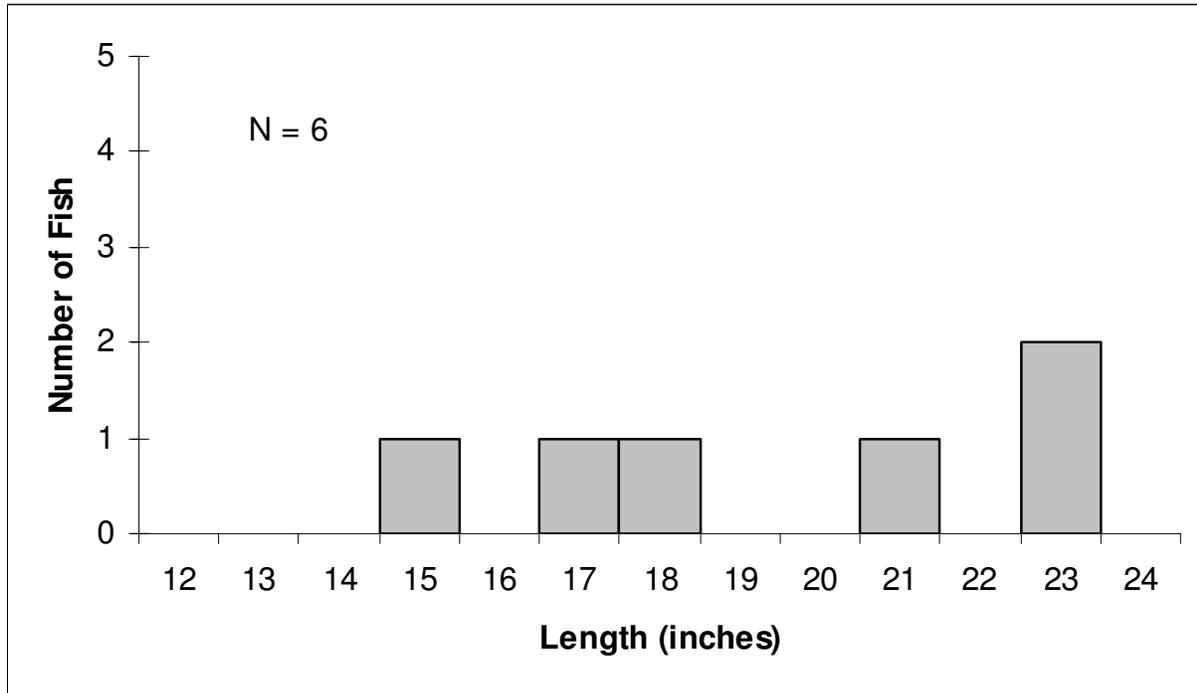


Effort = 10  
 Total CPUE = 1.8  
 Stock CPUE = 1.8  
 PSD = 78  
 RSD-14 = 94



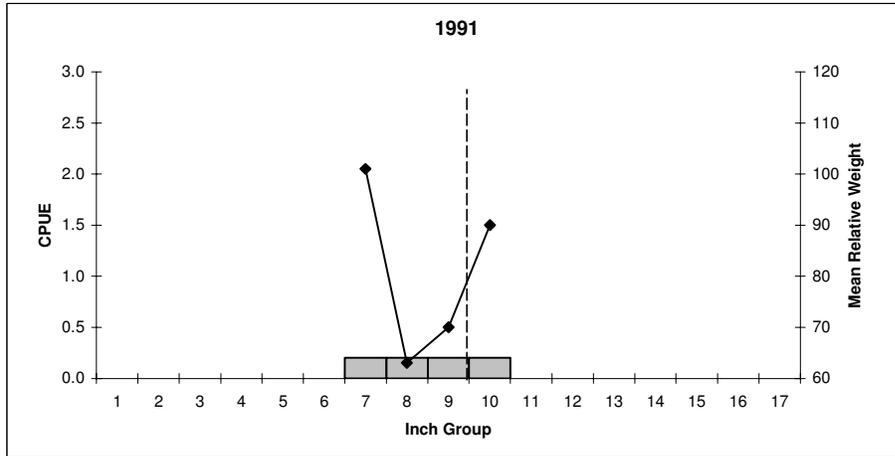
Effort = 15  
 Total CPUE = 0.9  
 Stock CPUE = 0.7  
 PSD = 36  
 RSD-14 = 86

Comparison of the number of channel catfish caught per net night (CPUE, bars), mean relative weight (lines), and population indices for spring gill net collections, Granger Reservoir, Texas, 2001, 2003, and 2005. Vertical dashed lines represent the minimum length limit.

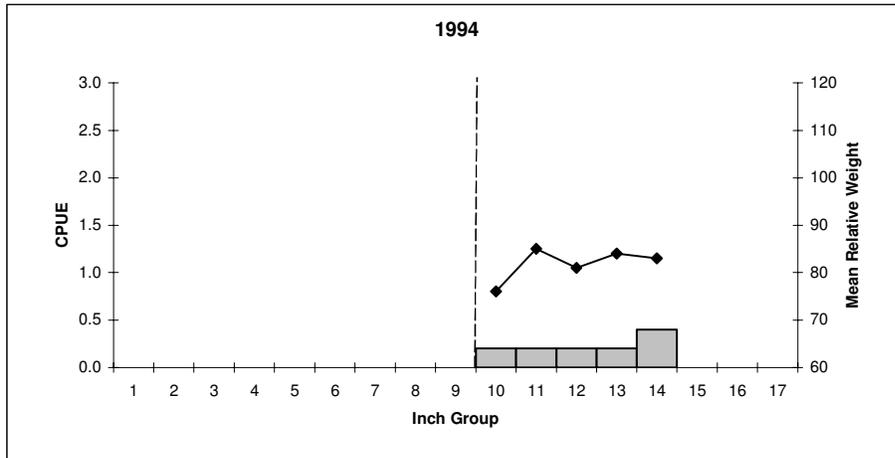


Number and sizes of channel catfish observed in the March – May 2005 creel survey, Granger Reservoir, Texas.

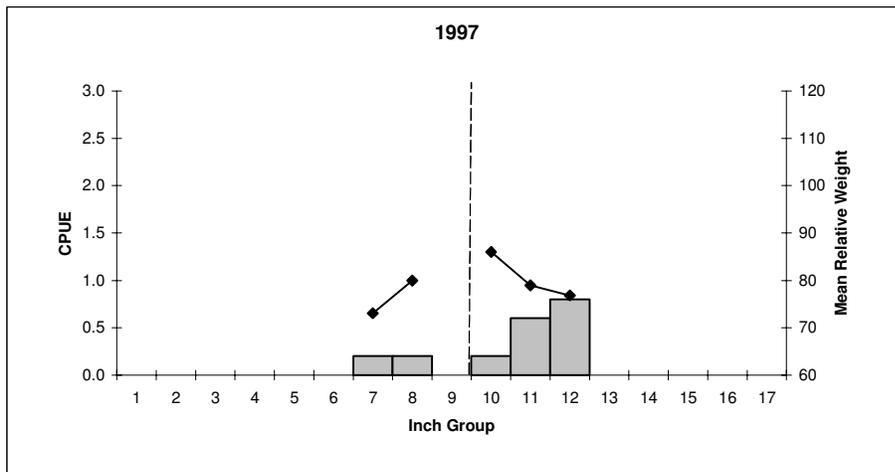
### White Bass



Effort = 5  
 Total CPUE = 0.8  
 Stock CPUE = 0.8  
 PSD = 50  
 RSD-10 = 25



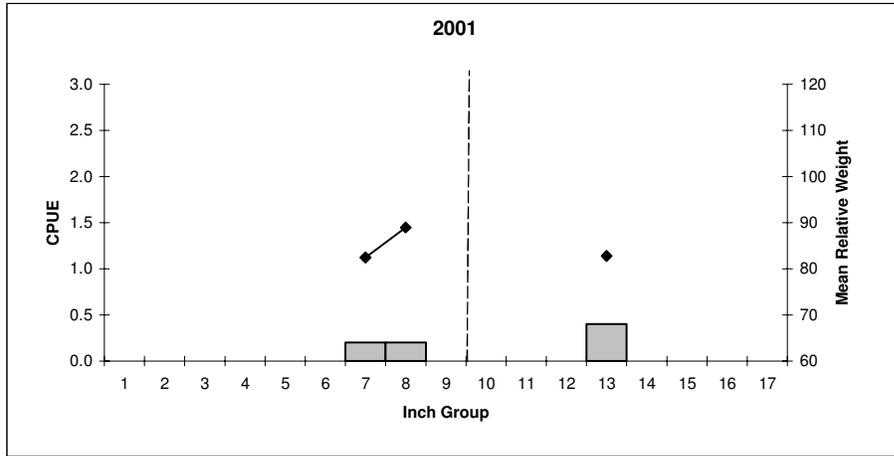
Effort = 5  
 Total CPUE = 1.2  
 Stock CPUE = 1.2  
 PSD = 100  
 RSD-10 = 100



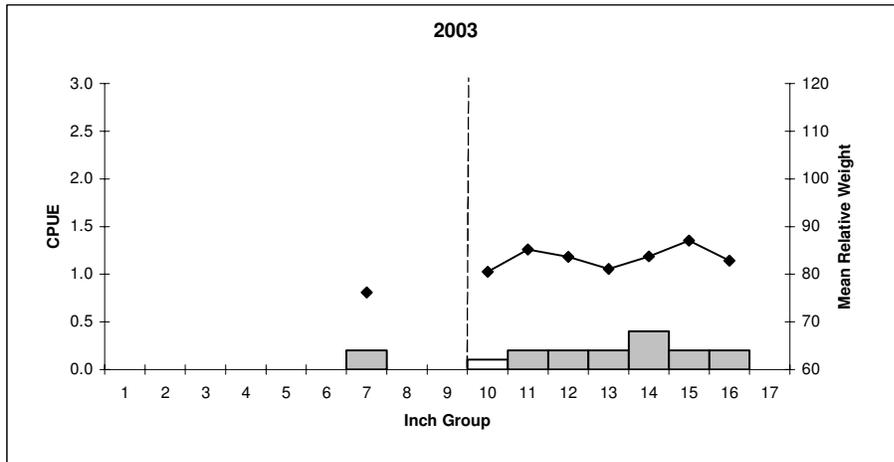
Effort = 5  
 Total CPUE = 2.0  
 Stock CPUE = 2.0  
 PSD = 80  
 RSD-10 = 80

Comparison of the number of white bass caught per net night (CPUE, bars), mean relative weight (lines), and population indices for spring gill net collections, Granger Reservoir, Texas, 1991, 1994, and 1997. Vertical dashed lines represent the minimum length limit.

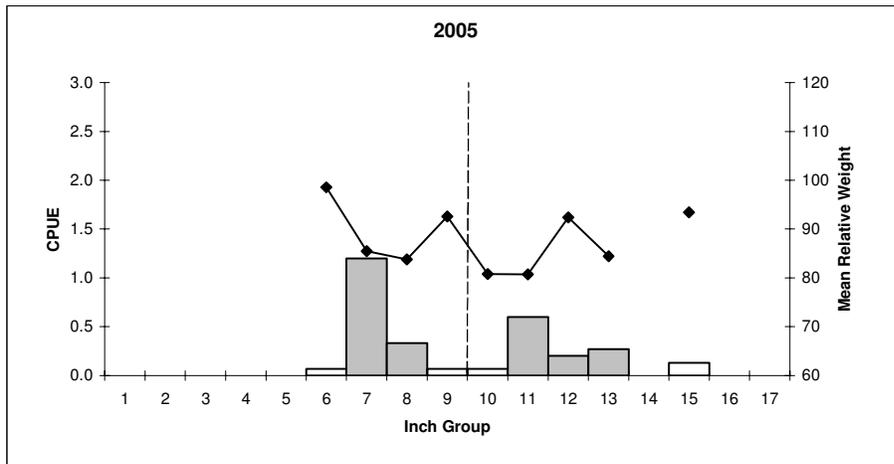
### White Bass



Effort = 5  
 Total CPUE = 0.8  
 Stock CPUE = 0.8  
 PSD = 50  
 RSD-10 = 50

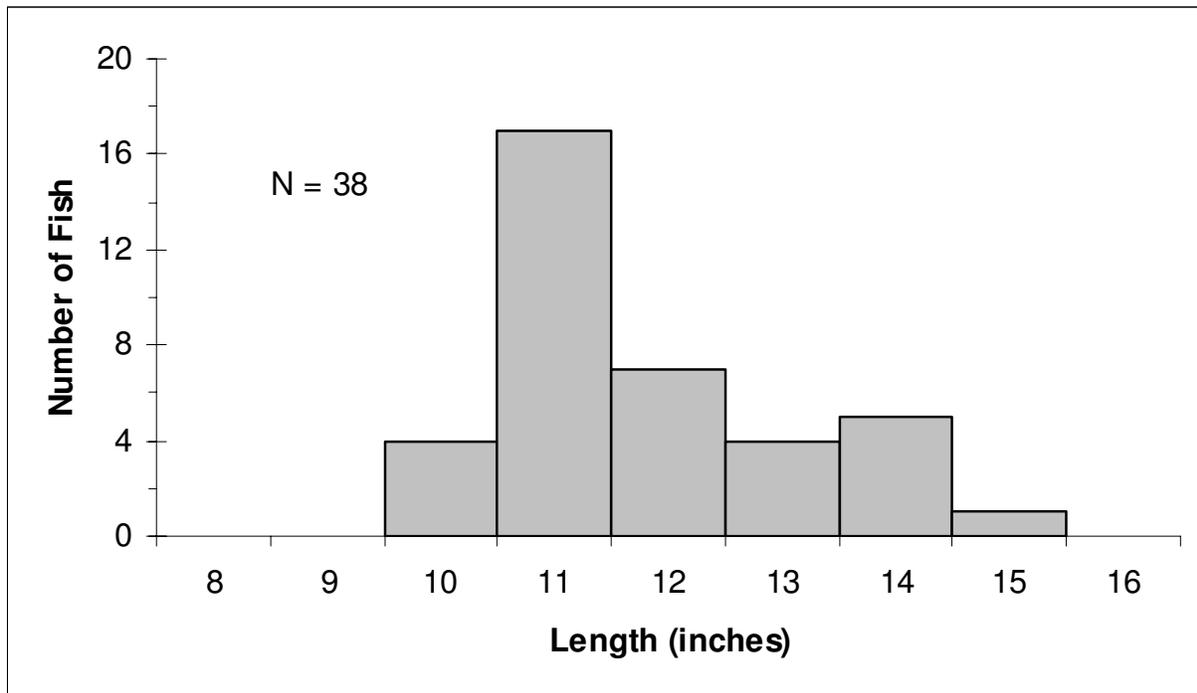


Effort = 10  
 Total CPUE = 1.7  
 Stock CPUE = 1.7  
 PSD = 88  
 RSD-10 = 88



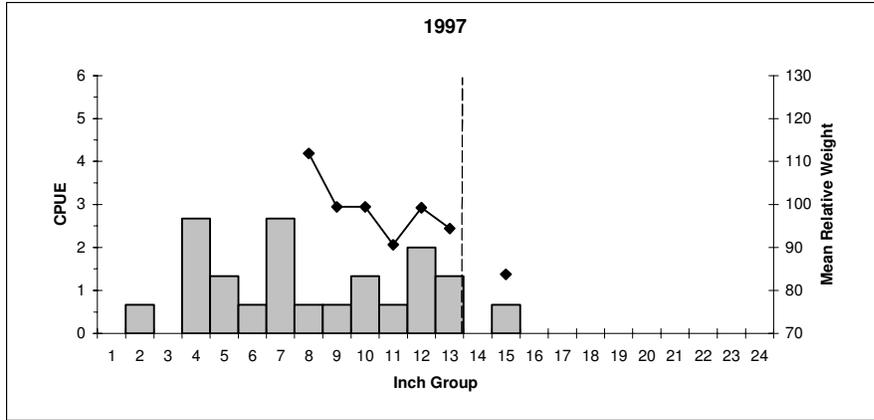
Effort = 15  
 Total CPUE = 2.9  
 Stock CPUE = 2.9  
 PSD = 45  
 RSD-10 = 43

Comparison of the number of white bass caught per net night (CPUE, bars), mean relative weight (lines), and population indices for spring gill net collections, Granger Reservoir, Texas, 2001, 2003, and 2005. Vertical dashed lines represent the minimum length limit.

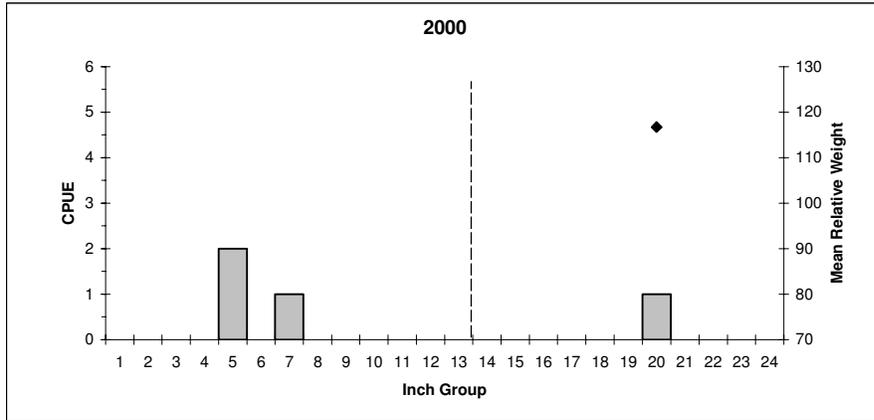


Number and sizes of white bass observed in the March – May 2005 creel survey, Granger Reservoir, Texas.

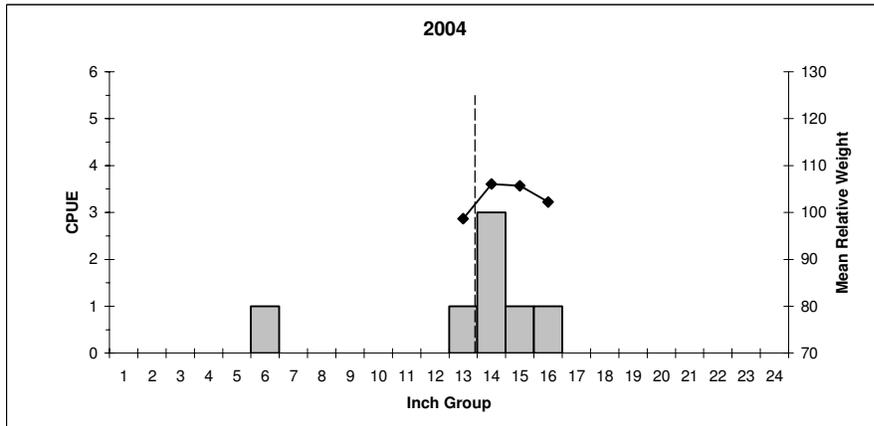
### Largemouth Bass



Effort = 1.5  
 Total CPUE = 15.3  
 Stock CPUE = 7.3  
 PSD = 55  
 RSD-14 = 9  
 % FLMBA = 51  
 % FLMB = 8  
 electrophoresis N = 24



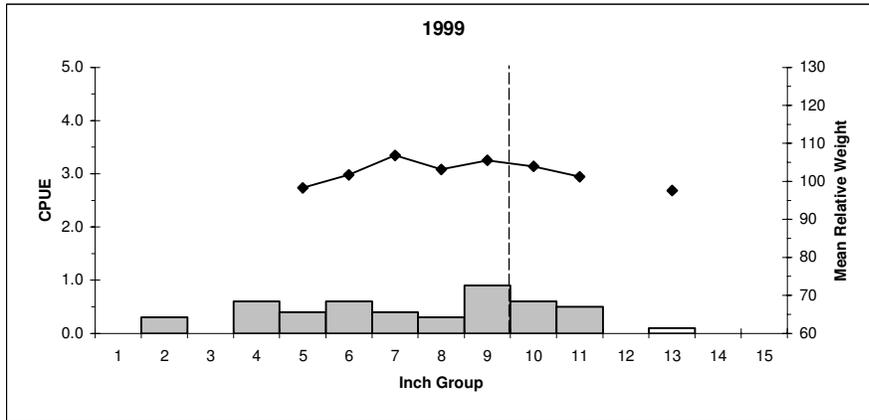
Effort = 1.0  
 Total CPUE = 4.0  
 Stock CPUE = 1.0  
 PSD = 100  
 RSD-14 = 100  
 % FLMBA = 67  
 % FLMB = 33  
 electrophoresis N = 3



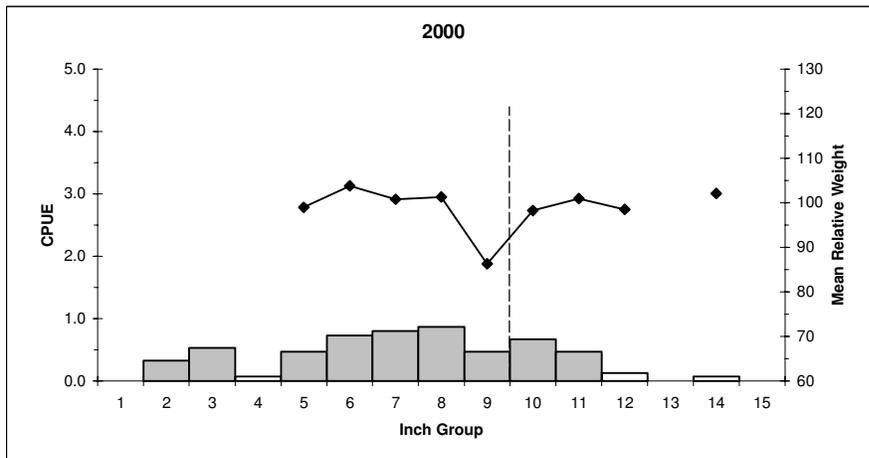
Effort = 1.0  
 Total CPUE = 7.0  
 Stock CPUE = 6.0  
 PSD = 100  
 RSD-14 = 83  
 % FLMBA = NA  
 % FLMB = NA  
 electrophoresis N = 0

Comparison of the number of largemouth bass caught per hour (CPUE, bars), mean relative weight (lines), and population indices for fall electrofishing surveys, Granger Reservoir, Texas, 1997, 2000 and 2004. Vertical dashed lines represent the minimum length limit. When assessed, the percentage of Florida largemouth bass alleles (%FLMBA) and pure Florida bass (%FLMB) are given.

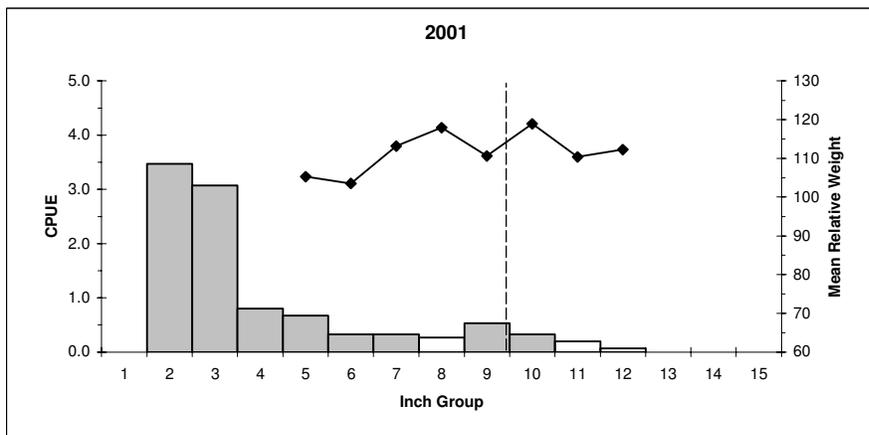
### White Crappie



Effort = 10  
 Total CPUE = 4.7  
 Stock CPUE = 3.8  
 PSD = 63  
 RSD-10 = 32



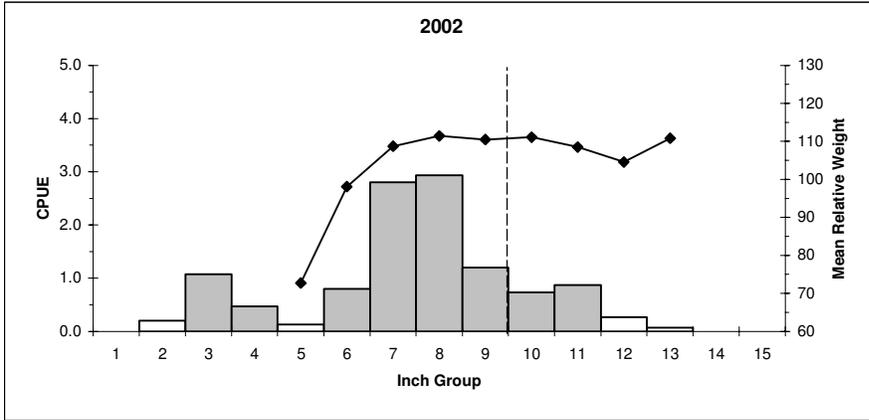
Effort = 15  
 Total CPUE = 5.6  
 Stock CPUE = 4.7  
 PSD = 57  
 RSD-10 = 29



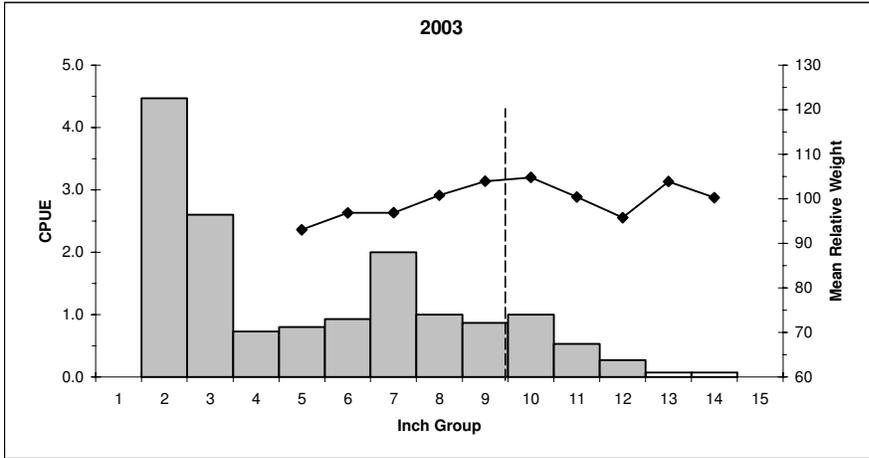
Effort = 15  
 Total CPUE = 10.1  
 Stock CPUE = 2.7  
 PSD = 51  
 RSD-10 = 22

Comparison of the number of white crappie caught per net night (CPUE, bars), mean relative weight (lines), and population indices for fall trap net collections, Granger Reservoir, Texas, 1999, 2000 and 2001. Vertical dashed lines represent the minimum length limit.

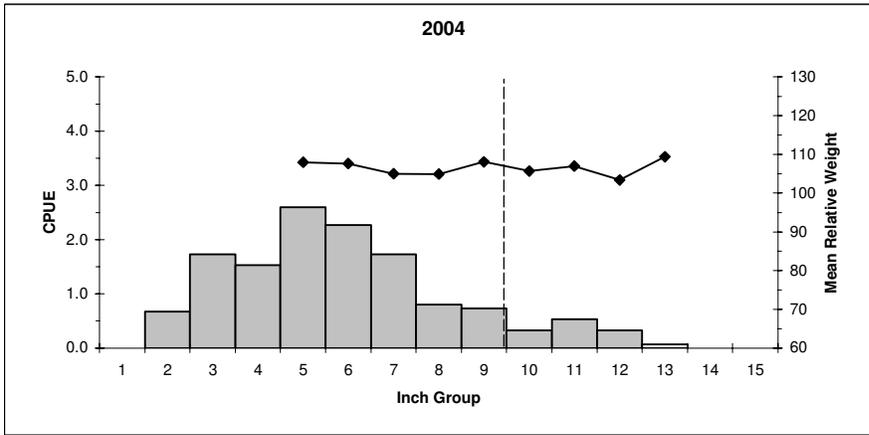
### White Crappie



Effort = 15  
 Total CPUE = 11.5  
 Stock CPUE = 9.8  
 PSD = 62  
 RSD-10 = 20

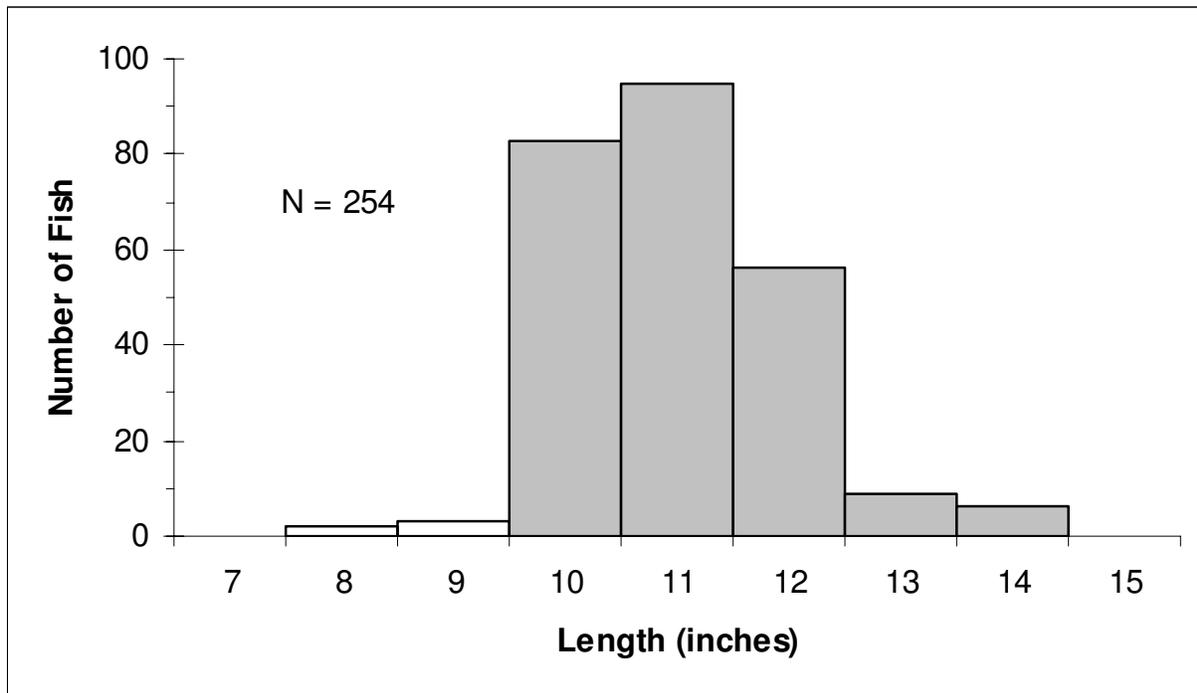


Effort = 15  
 Total CPUE = 15.3  
 Stock CPUE = 7.5  
 PSD = 50  
 RSD-10 = 26



Effort = 15  
 Total CPUE = 13.3  
 Stock CPUE = 9.4  
 PSD = 30  
 RSD-10 = 13

Comparison of the number of white crappie caught per net night (CPUE, bars), mean relative weight (lines), and population indices for fall trap net collections, Granger Reservoir, Texas, 2002, 2003 and 2004. Vertical dashed lines represent the minimum length limit.



Number and sizes of white crappie observed in the March – May 2005 creel survey, Granger Reservoir, Texas.

Average length at capture for white crappie (sexes combined) at successive ages collected in trap netting surveys, Granger Reservoir, Texas, 1994, 1998, and 2000 - 2004. Numbers within parenthesis represent sample sizes.

Sampling date	Length (inches) at capture for age					
	1	2	3	4	5	6
12/13/1994	6.7 (11)	9.3 (4)	10.5 (8)	10.0 (2)	8.8 (1)	
12/10/1998	7.8 (17)	10.9 (1)		12.2 (1)	13.2 (1)	
12/15/2000	8.2 (18)	10.5 (5)	11.6 (7)	14.3 (1)		
12/17/2001	9.1 (22)	10.9 (4)				
12/12/2002	8.6 (39)	11.8 (11)	11.6 (2)	13.3 (2)		
12/18/2003	8.1 (28)	10.2 (28)	11.5 (7)	12.7 (2)		14.2 (1)
12/28/2004	8.4 (28)	10.2 (9)	11.5 (12)	12.0 (1)		13.2 (1)

**Fisheries Management Plan  
Granger Reservoir, Texas**

Prepared – July 2005.

Issue 1            Crappie populations often exhibit dynamic population characteristics. This reservoir supports a popular white crappie fishery. The majority of Granger Reservoir anglers fishing from March through May 2005 targeted this species. We often receive angler requests for information concerning the white crappie population in this reservoir.

Management  
Strategy

1. Continue annual trap net surveys to intensively monitor the population characteristics of this popular fishery.

Issue 2            Bank anglers experienced similar success catching white crappie, white bass, and blue catfish during spring months compared to boat anglers. Bank access was good in many areas of the reservoir. Many Central Texas anglers that do not have access to boats may not be aware of bank angling opportunities at this reservoir.

Management  
Strategy

1. Write news releases to inform local anglers of bank angling opportunities at Granger Reservoir and provide to appropriate media outlets.

Issue 3            Blue catfish have developed a self-sustaining population that continued to expand in numbers. Channel catfish numbers have declined concomitant to blue catfish expansion. Anglers may increase success by altering angling techniques to better target blue catfish.

Management  
Strategy

1. Write news release to inform local anglers concerning blue catfish fishing techniques. Provide news release to appropriate media outlets.

Issue 4      Non-native aquatic plants hydrilla and water hyacinth were present in 2003 and 2004, respectively. Although these plants were not observed in Spring 2005, the potential for re-establishment and rapid expansion exists.

Management  
Strategy

1. Conduct annual aquatic vegetation surveys to monitor for the presence of these aquatic plants.
2. If hydrilla or water hyacinth are discovered, coordinate control strategies with the USACOE.

## Appendix A:

Number (N) and catch rate (CPUE) of species collected from all gear types from Granger Reservoir, Texas, 2004 and 2005.

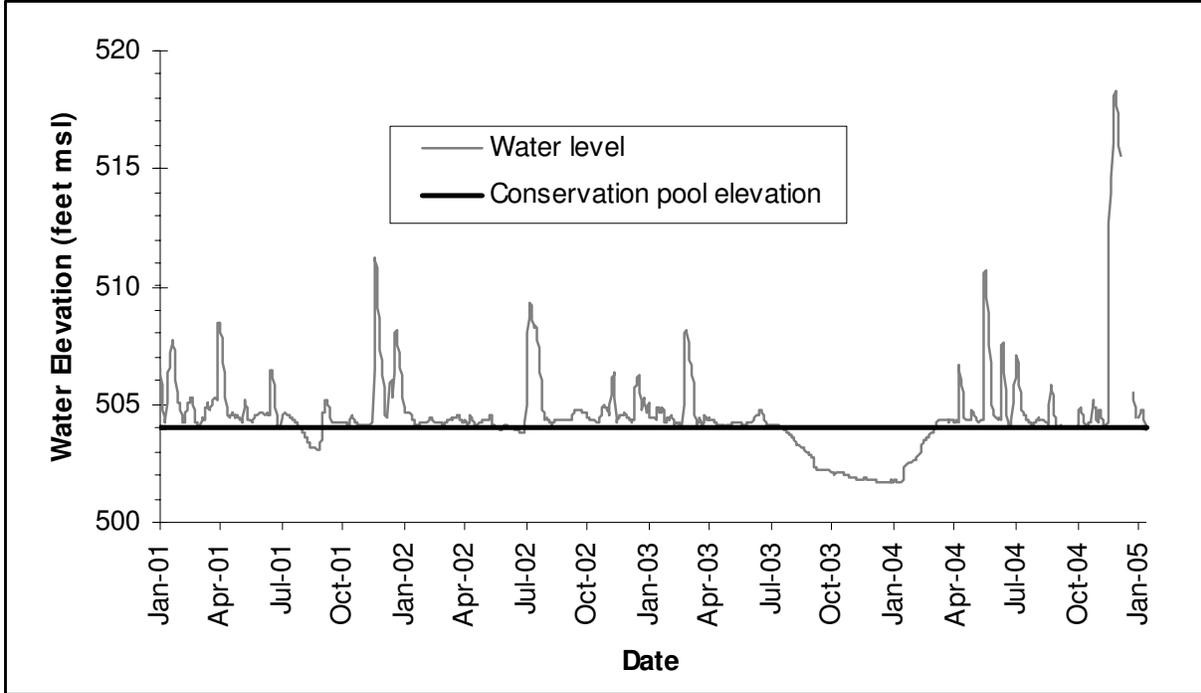
Species	Gill Netting		Trap Netting		Electrofishing	
	N	CPUE	N	CPUE	N	CPUE
Gizzard shad					219	219.0
Threadfin shad					21	21.0
Bullhead minnow					2	2.0
Blue catfish	45	3.0				
Channel catfish	14	0.9				
Flathead catfish	6	0.4				
White bass	44	2.9				
Warmouth					8	8.0
Bluegill					40	40.0
Longear sunfish					28	28.0
Largemouth bass					7	7.0
White crappie			200	13.3		
Rio Grande cichlid					2	2.0

## Appendix B:

Record fish caught by rod-and-reel from Granger Reservoir, Texas, as of June 2005.

Species	Weight (lbs.)	Total Length (in.)	Date Caught	Angler's Name
Largemouth bass	11.6	26.5	07/26/1992	J. Love
White bass	2.6	17.5	01/06/2005	E. Sapp
White crappie	2.3	16.0	03/26/2005	T. Tidwell

Appendix C:



Daily water level elevation for Granger Reservoir, Texas, January 2001 – January 2005.