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

Nocona Reservoir

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SURVEY AND MANAGEMENT SUMMARY

Fish populations in Nocona Reservoir were surveyed in 2007 using an electrofisher and trap nets and in 2008 using gill nets. Habitat was surveyed in 2007. This report summarizes the results of the surveys and contains a management plan for the reservoir based on those findings.

- **Reservoir description:** Nocona Reservoir is a 1,323-acre impoundment on Farmers Creek, a tributary of the Red River, in Montague County. Water level was below conservation elevation (827 ft-msl) from April 2005 until May 2007. The reservoir waters are high in nutrients because of the watershed properties; hence, high productivity. Habitat features consisted mainly of rocky shoreline, flooded dead terrestrial vegetation, and native emergent vegetation. Standing timber was also present.

- **Management history:** Important sport fishes include blue and channel catfish, white bass, largemouth bass, and white crappie. The management plan from the 2004 survey report included recommendations to encourage North Montague County Water Supply District to construct outdoor lighting and access facilities compliant with the American Disabilities Act, conduct supplemental electrofishing survey in the fall of 2004 to assess a decline in largemouth bass abundance, conduct supplemental gill netting for blue catfish in spring of 2005, and update the Nocona Reservoir web page on the TPWD web site.

- **Fish community**

  - **Prey species:** Electrofishing catch rate of gizzard shad was low and has dropped every survey since 1999. Prey-size gizzard shad (7-inch group and below) continued to be low. Record high electrofishing catch rates of threadfin shad and bluegill indicated the prey base was more than adequate, reflecting high nutrient levels.

  - **Catfishes:** Gill net catch rate of blue catfish was much lower than previous surveys. All the sample population was legal size and in poor to excellent condition. Recruitment was not evident.

    Gill net catch rate of channel catfish was lower than the 2004 survey. One-half of the sample population was legal size. Relative weights were fair. Recruitment was evident.

  - **Temperate basses:** The historical gill net catch rate of white bass was low and during this survey we recorded the lowest catch rate since 1991. The entire sample was legal size, but their body condition was poor.

    Gill net catch rate of palmetto bass was low and reflected lack of recruitment from supplemental stocking. Only two fish were collected. The last stocking was in 1997. By 2005 the gill net catch rate had begun a serious decline.

  - **Largemouth bass:** Electrofishing catch rate of largemouth bass was high, growth rates were fair, and the fish were in average condition. Electrophoretic samples produced two pure Florida bass and the sample had above the minimum of 20% Florida largemouth bass alleles.

  - **White crappie:** Trap net catch rate of white crappie was a record low. The crappie were in good condition and growth rates were good.

- **Management strategies:** Based on current information, Nocona Reservoir should continue to be managed with existing fish harvest regulations. Investigate over-exploitation of largemouth bass by tournament angling by creel survey, spring 2009. Increase trap netting for white crappie in fall 2011.

INTRODUCTION

This document is a summary of fisheries data collected from Nocona Reservoir in 2007-2008. The purpose of the document is to provide fisheries information and make management recommendations to protect and improve the sport fishery. While information on other species of fishes was collected, this report deals primarily with major sport fishes and important prey species. Historical data are presented with the 2007-2008 data for comparison.

Reservoir Description

Nocona Reservoir is a 1,323-acre impoundment on Farmers Creek, a tributary of the Red River, in Montague County. It was constructed in 1961 by the North Montague County Water Supply District for municipal water supply and recreation. The average depth is 17 feet with a maximum depth of 80 feet. Water level was below conservation elevation (827 ft-msl) April 2005 to May 2007 (Figure 1). The reservoir has a drainage area of approximately 94 square miles and a shoreline length of 23 miles. Approximately 49% of the reservoir was $\leq$ 15 feet deep. Nocona Reservoir was eutrophic with a mean TSI chl-*a* of 47.48 (Texas Commission on Environmental Quality 2008). A TSI chl-a of 45 is considered mesotrophic; hence, the reservoir was borderline moderate to high productivity. Habitat at time of sampling consisted of rocky shoreline, flooded dead terrestrial vegetation, and native emergent vegetation. Standing timber was also present. Eurasian water milfoil, a non-native aquatic plant, was present, but in small quantities. Boat access consisted of three public boat ramps with parking, boarding piers, and ample illumination. Bank fishing access near each boat ramp was augmented by a fishing pier. Further information about Nocona Reservoir and its facilities can be obtained by visiting the Texas Parks & Wildlife Department (TPWD) website at www.tpwd.state.tx.us and navigating within the fishing link. Other descriptive characteristics for Nocona Reservoir are in Table 1.

Management History

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

1. Encourage North Montague County Water Supply District to construct outdoor lighting and access and facilities compliant with the American Disabilities Act.
   Action: Recommended improvements have been completed at all three access areas.
2. Assess largemouth bass population with supplemental electrofishing during the fall of 2004.
   Action: Supplemental electrofishing was conducted in the fall of 2004 and 2005.
3. Assess blue catfish population with low amp and low pulse electrofishing in summer of 2004 and with supplemental gill netting in spring of 2005.
   Action: Conducted low amp and low pulse electrofishing for blue catfish in August, 2004 and conducted supplemental gill netting for blue catfish spring 2004 and 2005.
4. Recommend updating the Nocona Reservoir web page on the TPWD web site.
   Action: Updated information was posted on the TPWD web site and news releases have covered current events on Nocona Reservoir.

Harvest regulation history: Sport fishes in Nocona Reservoir are currently managed with statewide regulations (Table 2).

Stocking history: Nocona Reservoir was first stocked in 1976 with 8,500 adult threadfin shad (Table 3). In the 20 years between 1983 and 2003 another 6,490 adult threadfin shad were stocked. In 1976 747 tiger muskie (northern pike X muskellunge) fingerlings were stocked. Nocona Reservoir was one of only six reservoirs stocked with these fish in 1976. The state record tiger muskie was caught in Nocona Reservoir in 1979 and will probably never be broken. Florida largemouth bass fingerlings were stocked at 57/acre in 1981 and 56/acre in 1982. From 1983 through 1997, 104,256 Palmetto bass fingerlings were stocked.

Vegetation/habitat history: Nocona Reservoir supported mostly native emergent vegetation (Table 4). The most abundant species was floating pondweed (*Potamogeton* sp.). Other fish habitat consisted of rocky shoreline and flooded dead terrestrial vegetation. Historically, non-native Eurasian water milfoil (*Myriophyllum* sp.) was common and problematic (Hysmith and Moczygemba 1994 and 1997). We recommended chemical control, but because the potable water intake is mid-point on the reservoir, there was insufficient distance between point-source treatment and the water intake to insure uncontaminated water. Therefore, treatment was never done. Eurasian water milfoil was documented in 1982 (Hysmith 1983) and was intermittently problematic thereafter. Currently it occupies approximately 1 acre and is not problematic (Table 4).

METHODS

Fishes were collected by electrofishing (1 hour at 12 5-min stations), gill netting (5 net nights at 5 stations), and trap netting (5 net nights at 5 stations). Catch per unit effort (CPUE) for electrofishing was recorded as the number of fish caught per hour (fish/h) of actual electrofishing and, for gill 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 2006).

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 X SE of the estimate/estimate) was calculated for all CPUE statistics and for creel statistics and SE was calculated for structural indices and IOV. Ages were determined using Category 2 protocol according to the Fishery Assessment Procedures (TPWD, Inland Fisheries Division, unpublished manual revised 2006). The manual specifies procedures for largemouth bass age-and-growth analysis, but we adapted channel catfish and white crappie to the protocol. Source for water level data was the United States Geological Survey (USGS) website.

Fin tissue samples from 30 age-0 largemouth bass were collected, preserved, and transported for electrophoretic analysis according to Fishery Assessment Procedures (TPWD, Inland Fisheries Division, unpublished manual revised 2006).

RESULTS AND DISCUSSION

Habitat: Littoral zone habitat consisted primarily of native emergent vegetation, dead terrestrial vegetation, and rocky shoreline (Table 4). Native emergent vegetation was good habitat and has increased since July 2003 (Hysmith and Moczygemba 2004).

Prey species: Electrofishing catch rates of gizzard and threadfin shad were 76.0/h and 656.0/h, respectively. Index of vulnerability (IOV) for gizzard shad was higher than 2003, indicating almost half of gizzard shad sampled were available to existing predators (Figure 2). The catch rate of threadfin shad was the highest since their successful introduction in 2003, which supplemented the poor gizzard shad size structure and abundance (Figure 2 and Appendix D). The electrofishing CPUE of 229.0 for bluegill was the highest on record (Figure 3 and Appendix D). This was part of an increasing trend since 1996. Besides adding to the prey base, bluegill exhibited some angling possibilities with a PSD of 20.

Catfishes: Gill net catch CPUE of 0.8/nn for blue catfish in 2008 was about half the CPUE of 2004 (Figure 4). Only four fish were collected in 2008 and there was no recruitment. Blue catfish have never been stocked in Nocona Reservoir and, based on current data, they may be disappearing.

The gill net catch CPUE of 2.4/nn for channel catfish in 2008 (Figure 5), was lower than 5.0/nn collected in 2004. Too few fish were collected to conduct a category 2 age and growth analysis, however, recruitment

was evident, and relative weight indicated fair to good body condition (average Wr 88.6 [range = 83 – 95]). Approximately one-half of the sample population was legal size and larger.

Temperate basses: Gill net CPUE of 0.6/nn for white bass in 2008 (Figure 6), indicated a 50% reduction of the 2004 value (1.4/nn). Historically, CPUE of white bass has been <2.0/nn since 1996 (Appendix D). There was no evidence of recruitment and relative weight was poor (average Wr 69 [range = 64 – 74]).

Gill net CPUE of 0.4/nn for palmetto bass was well below 2.6/nn in 2005 (Figure 7). Relative weights of the two fish were poor (average Wr 69 [range = 64 - 73]) and, as expected without supplemental stocking, there were no sub-legal fish.

Largemouth bass: Electrofishing total CPUE (90.0/h) was the highest recorded for largemouth bass since 1996 (Figure 8, Appendix D). Good recruitment was evidenced by consistent catch rates of stock-size largemouth bass represented by two year classes (Figure 8). High water levels probably contributed to strong recruitment. Size structure was marginal (PSD = 29), but 10% of the sample population was $\geq$14 inches, and relative weight of stock largemouth bass indicated fair body condition (average Wr 87.9 [range = 60 – 100]). Growth was fair, largemouth bass required 3 years to become legal (N = 4; all = 3 years). Florida largemouth bass alleles was 39.6% and two pure Florida largemouth bass were collected (Table 5).

White crappie: Trap net CPUE of 5.4/nn for white crappie was well below the CPUE of 17.8/nn in 2003 (Figure 9) and the lowest catch on record (Appendix D). Relative weight, average Wr 90, was higher than in previous years. Growth was good and white crappie grew to 10 inches in 1.5 years (N=10; range 1 – 2 years).

Fisheries management plan for Nocona Reservoir, Texas

Prepared – July 2008.

ISSUE 1: Anecdotal information suggests over-exploitation of largemouth bass by tournament angling; a condition similar to that on Amon G. Carter Reservoir.

MANAGEMENT STRATEGY

1. Conduct an 18-day spring-quarter creel survey in spring 2009.

ISSUE 2: Catch rates for legal size largemouth bass have been depressed in the last four electrofishing surveys. Recruitment of 10- and 11-inch largemouth bass has improved. Therefore legal size largemouth bass abundance should have increased since fall of 2007.

MANAGEMENT STRATEGY

1. Conduct supplemental electrofishing survey in the fall of 2008 to monitor the largemouth bass population.

ISSUE 3: CPUE of white crappie was lowest on record. Was our sample an accurate representation of the population?

1. Increase trap netting to 10 nn in fall 2008 and 2009.

SAMPLING SCHEDULE JUSTIFICATION:

The proposed sampling schedule consists of a supplemental creel survey in the spring of 2009, additional trap netting in fall of 2008 and 2009, additional electrofishing in fall of 2008, and mandatory monitoring in 2011/2012 (Table 6).

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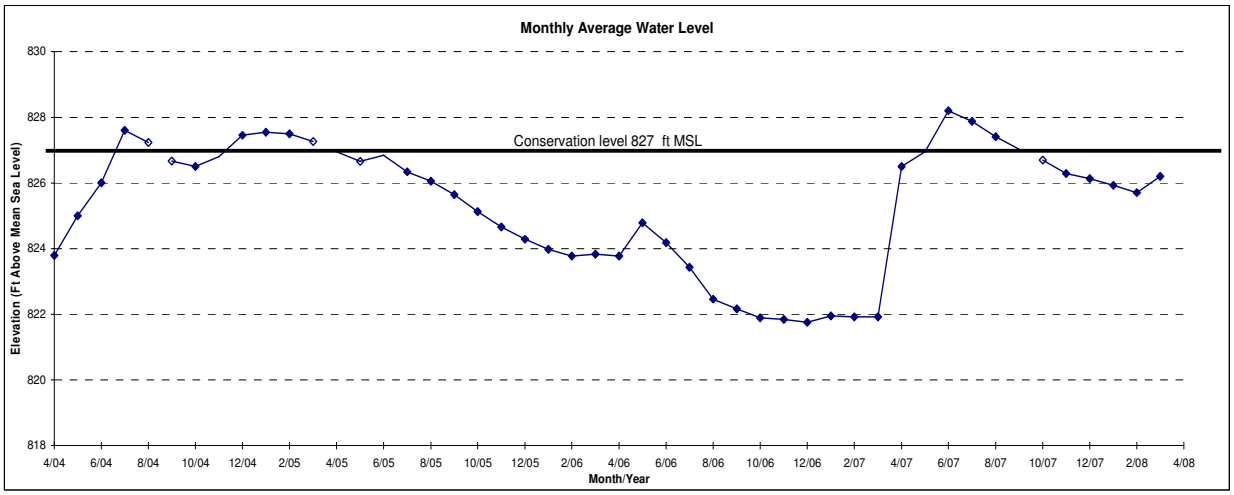


Figure 1. Monthly average water level elevations in feet above mean sea level (MSL) recorded for Nocona Reservoir, Texas, April 2004 - March 2008.

Table 1. Characteristics of Nocona Reservoir, Texas.

Characteristic	Description
Year constructed	1961
Controlling authority	North Montague County Water Supply District
County	Montague
Reservoir type	Offstream
Shoreline development index	4.5
Conductivity	523 µmhos/cm

Table 2. Harvest regulations for Nocona Reservoir.

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 and black crappie, their hybrids and subspecies.	25 (in any combination)	10 minimum

Table 3. Stocking history of Nocona, 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)
Florida Largemouth bass	1981	75,600	FGL	2.0
	1982	73,692	FGL	2.5
	Total	149,292		
Northern pike x muskellunge	1976	747		UNK
	Total	747		
Palmetto Bass (striped X white bass hybrid)	1983	16,362	UNK	UNK
	1994	23,700	FGL	1.6
	1995	29,439	FGL	1.3
	1996	20,055	FGL	1.9
	1997	14,700	FGL	1.3
	Total	104,256		
Threadfin shad	1976	8,500	AFGL	2.9
	1984	1,500	AFGL	3.0
	1985	700	AFGL	3.0
	2003	1,295	ADL	3.1
	Total	11,995		

Table 4. Survey of littoral zone and physical habitat types, Nocona Reservoir, Texas, 2007. A linear shoreline distance (miles) was recorded for each habitat type found. Surface area (acres) and percent of reservoir surface area was determined for each type of aquatic vegetation found.

Shoreline habitat type	Shoreline distance		Surface area	
	Miles	Percent of total	Acres	Percent of reservoir surface area
Riprap	0.3	1.3		
Rocky shore	1.0	4.4		
Eroded bank	0.1	0.5		
Cut bank	0.1	0.4		
Bulkhead	0.5	2.2		
Featureless	1.3	5.4		
Flooded dead terrestrial vegetation	1.0	4.4		
Flooded live terrestrial vegetation	0.5	2.2		
Native submerged vegetation	<0.1	0.3	1.0	<1.0
Native emergent	16.9	73.5	66.2	5.5
Boat docks	0.7	3.0	2.2	0.2
Dead trees	0.5	2.2	5.0	0.4
Eurasian water milfoil	<0.1	0.3	1.0	<1.0

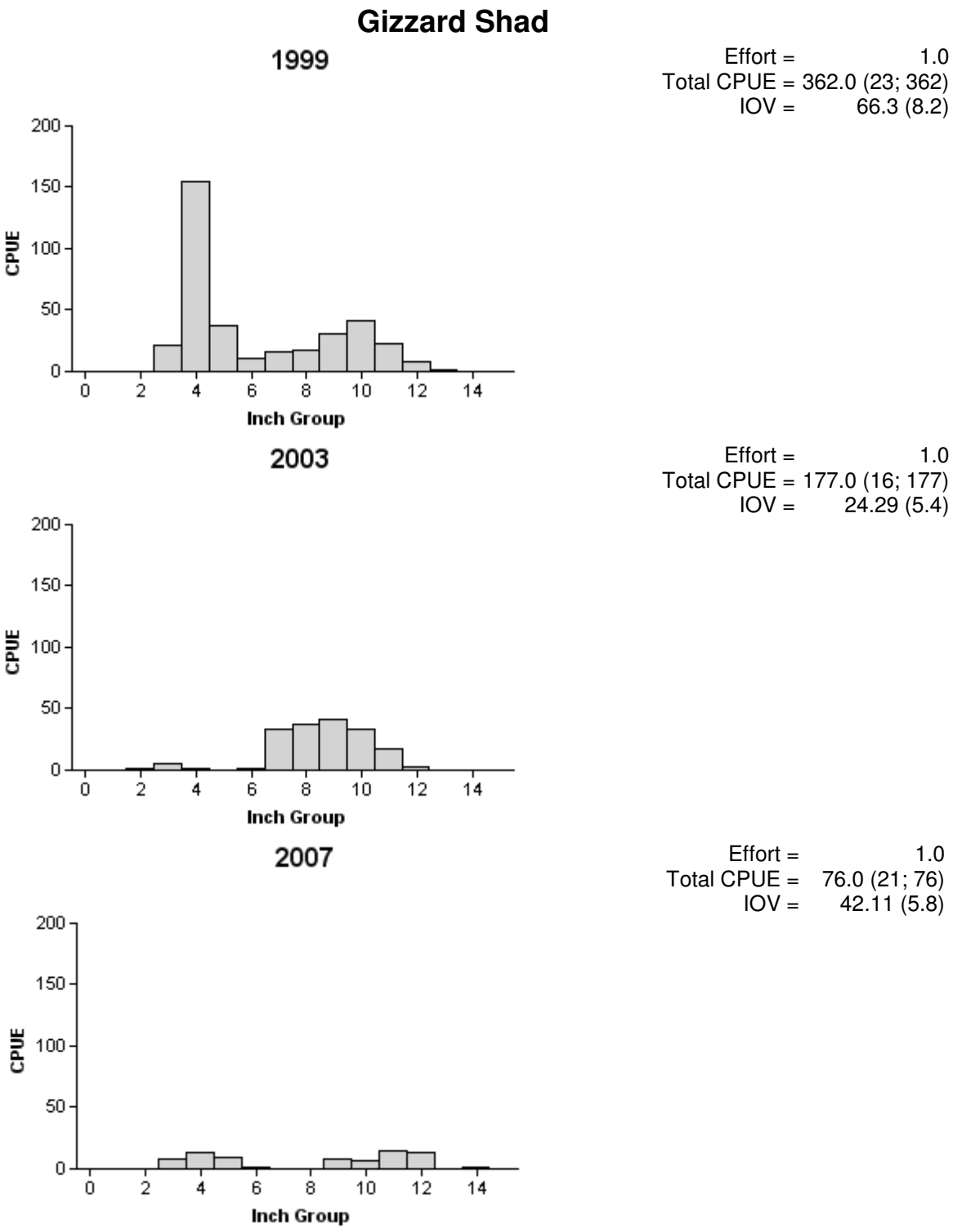
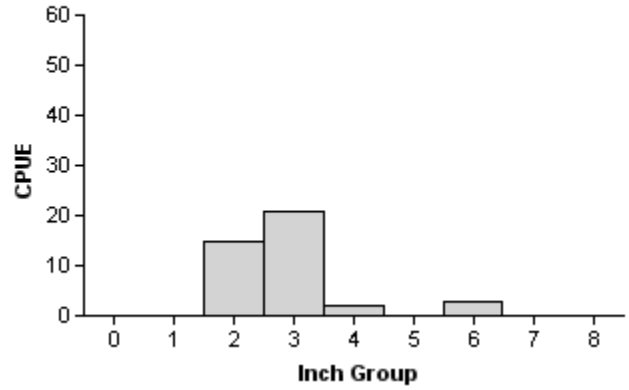


Figure 2. Number of gizzard shad caught per hour (CPUE) and population indices (RSE and N for CPUE and SE for IOV are in parentheses) for fall electrofishing surveys, Nocona Reservoir, Texas 1999, 2003, and 2007.

Bluegill

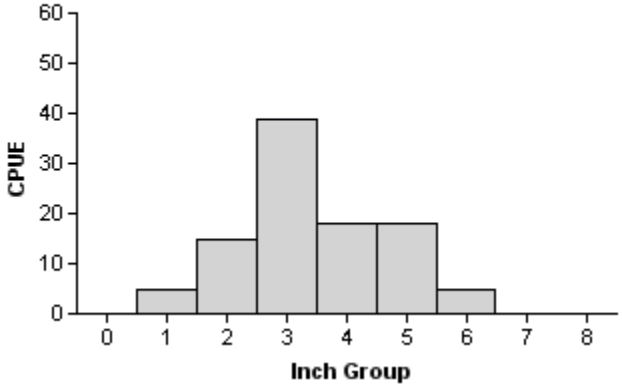
1999

Effort = 1.0
Total CPUE = 41.0 (30; 41)
PSD = 12 (6.4)



2003

Effort = 1.0
Total CPUE = 100.0 (39; 100)
PSD = 6 (2.0)



2007

Effort = 1.0
Total CPUE = 229.0 (16; 229)
PSD = 20 (3.7)

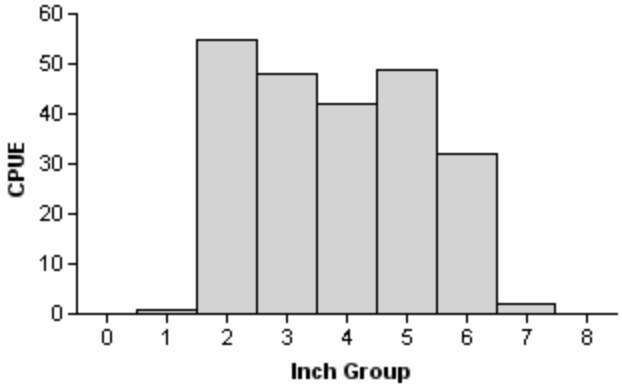


Figure 3. Number of bluegill caught per hour (CPUE) and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, Nocona Reservoir, Texas, 1999, 2003, and 2007.

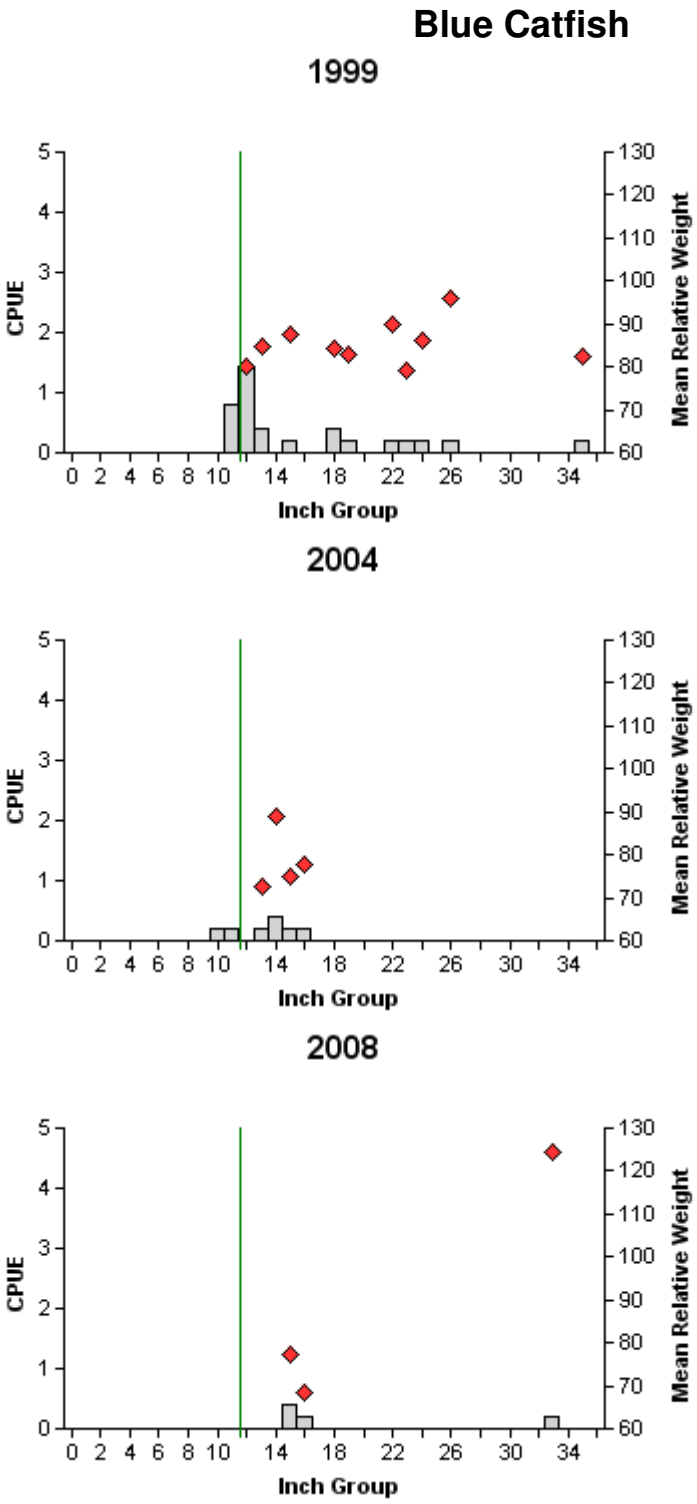


Figure 4. Number of blue catfish caught per net night (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring gill net surveys, Nocona Reservoir, Texas, 1999, 2004, and 2008. Vertical lines represent length limit at time of collection.

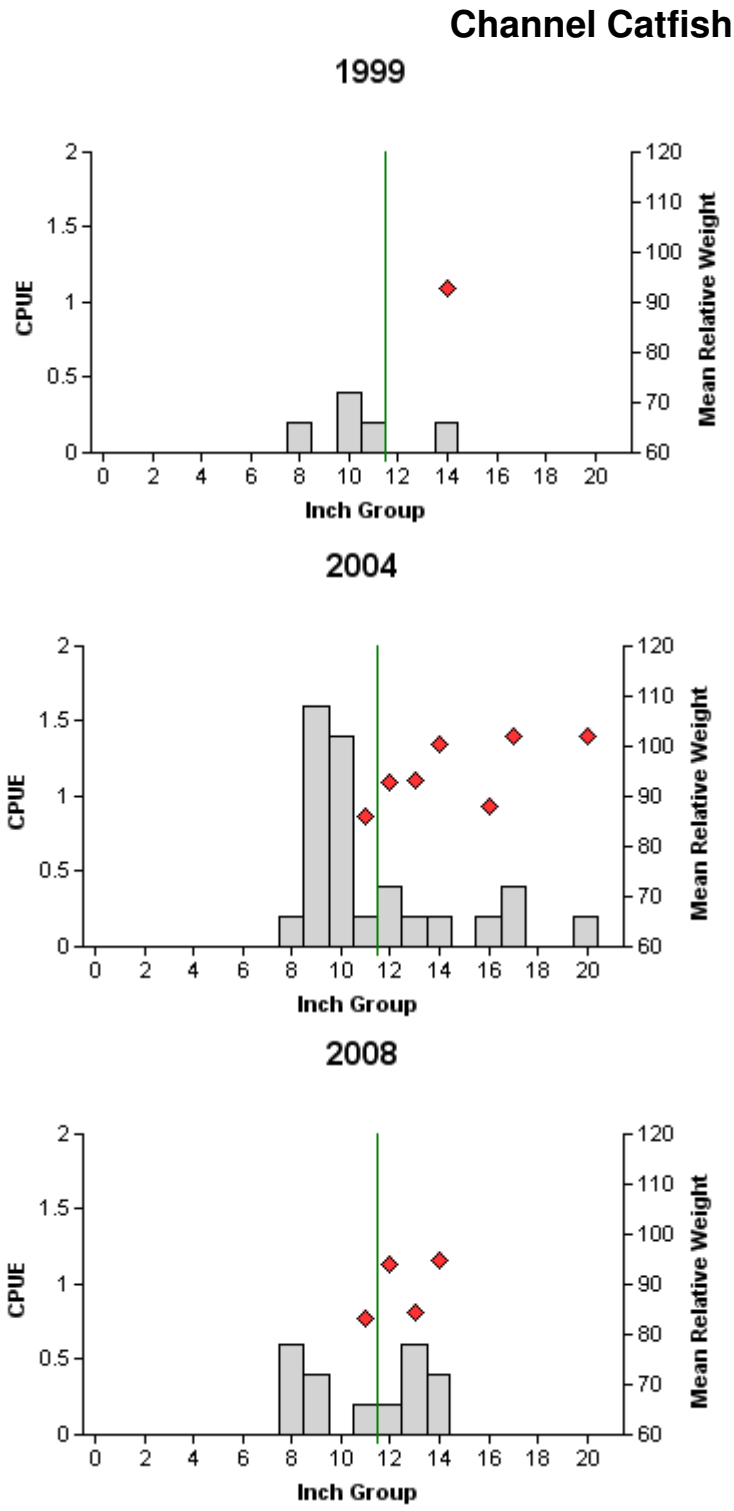


Figure 5. Number of channel catfish caught per net night (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring gill net surveys, Nocona Reservoir, Texas, 1999, 2004, and 2008. Vertical lines represent length limit at time of collection.

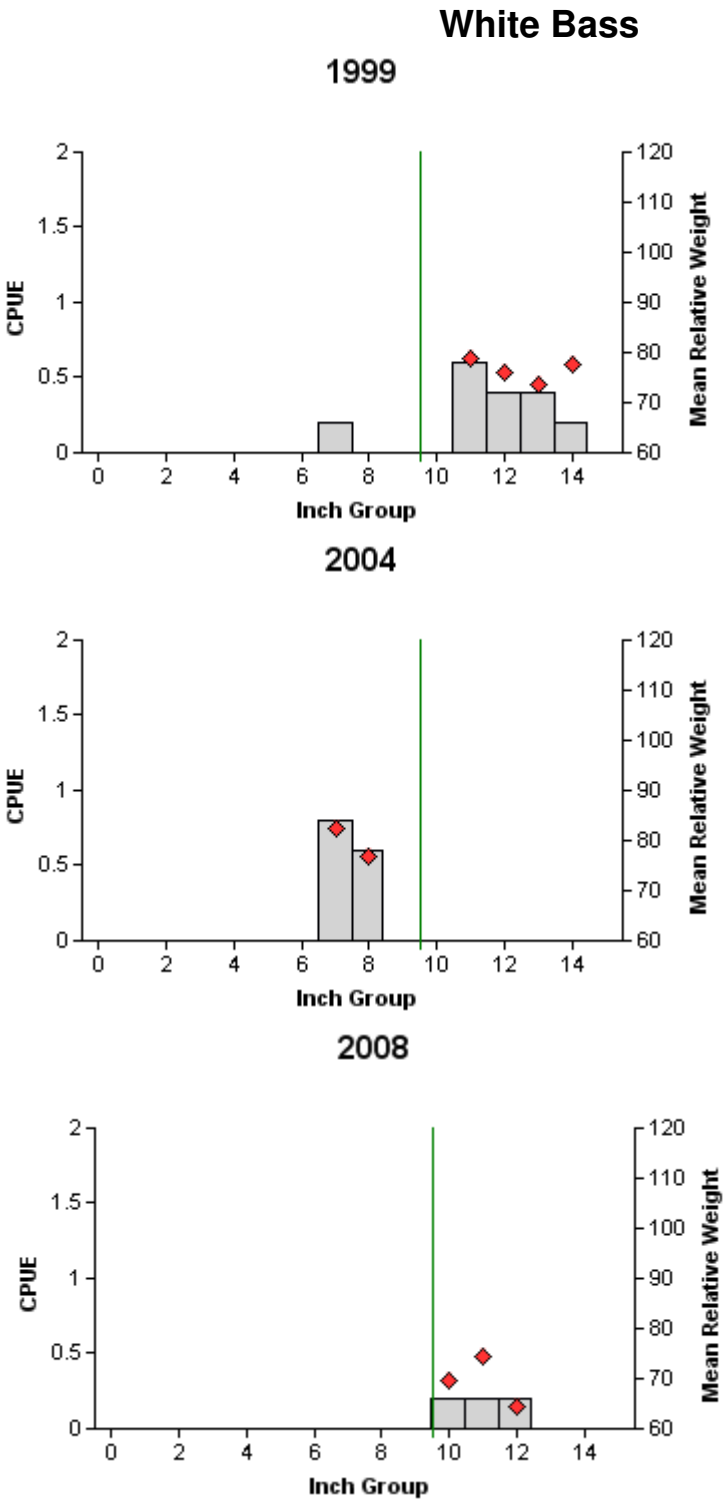
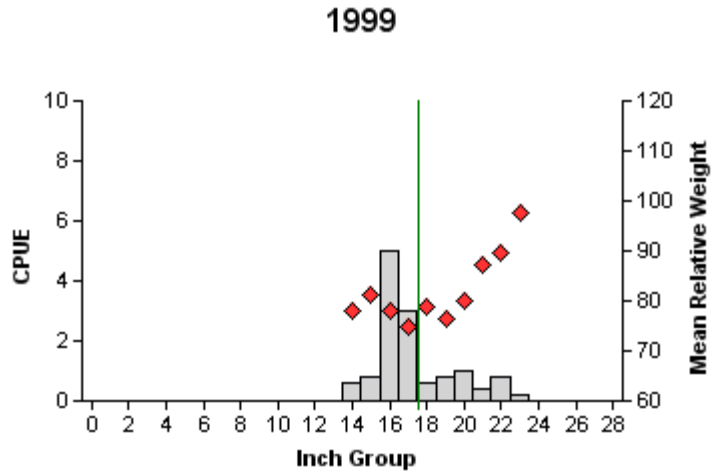
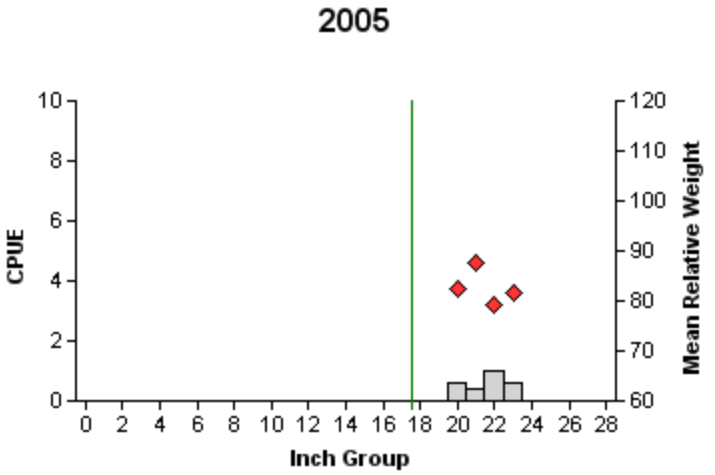


Figure 6. Number of white bass caught per net night (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring gill net surveys, Nocona Reservoir, Texas, 1999, 2004, and 2008. Vertical lines represent length limit at time of collection.

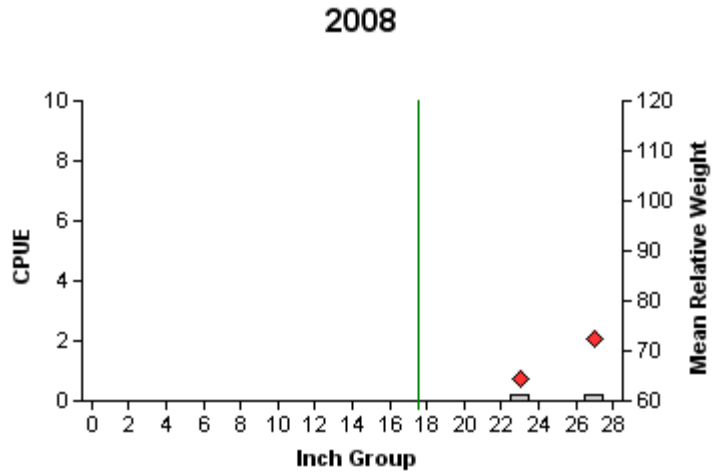
Palmetto Bass



Effort =	5.0
Total CPUE =	13.2 (39; 66)
Stock CPUE =	13.2 (39; 66)
PSD =	100 (0)



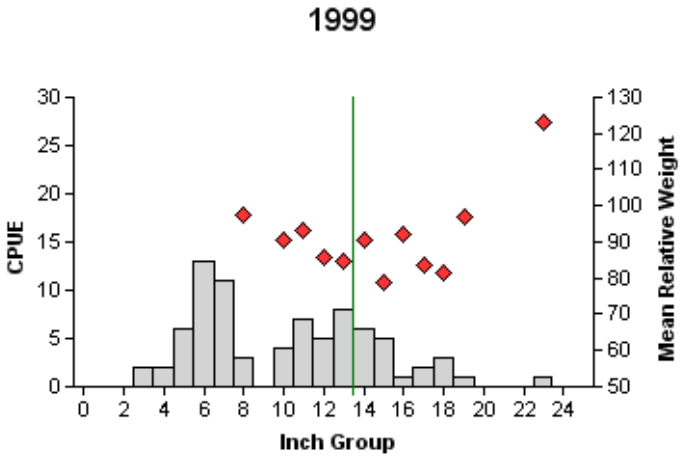
Effort =	5.0
Total CPUE =	2.6 (100; 13)
Stock CPUE =	2.6 (100; 13)
PSD =	100 (0.0)



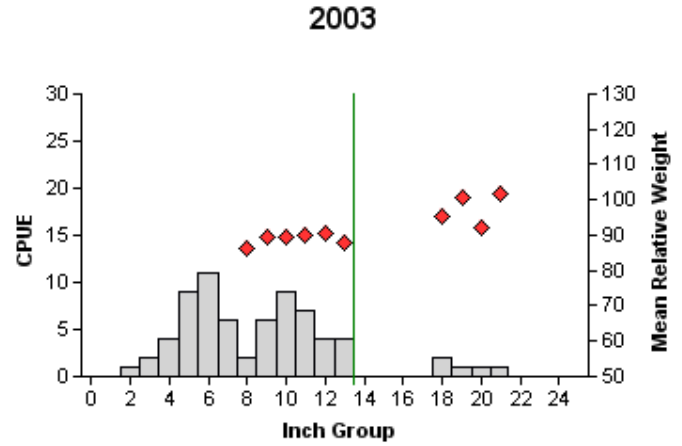
Effort =	5.0
Total CPUE =	0.4 (61; 2)
Stock CPUE =	0.4 (61; 2)
PSD =	100 (0)

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 net surveys, Nocona Reservoir, Texas, 1999, 2005, and 2008. Vertical lines represent length limit at time of collection.

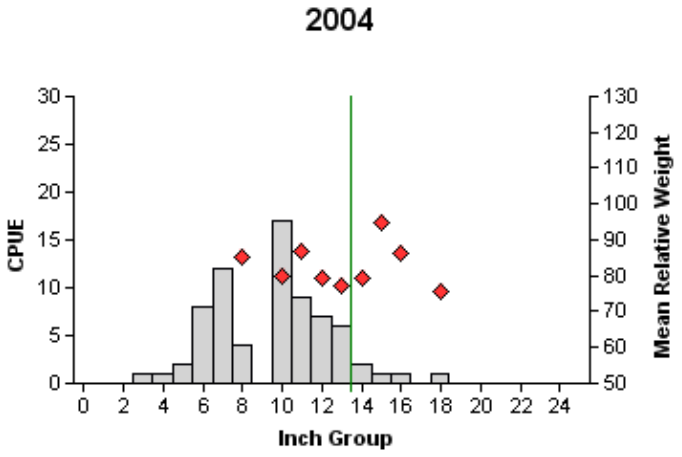
Largemouth Bass



Effort =	1.0
Total CPUE =	80.0 (14; 80)
Stock CPUE =	46.0 (19; 46)
PSD =	70 (7.6)



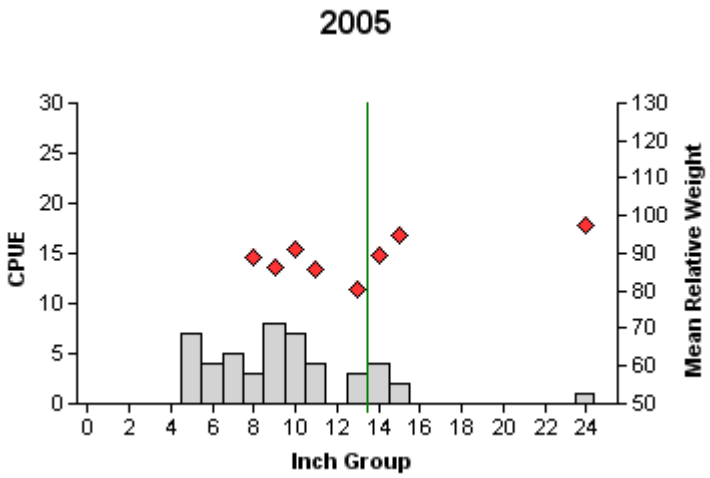
Effort =	1.0
Total CPUE =	70.0 (12; 70)
Stock CPUE =	37.0 (21; 37)
PSD =	35 (10.4)



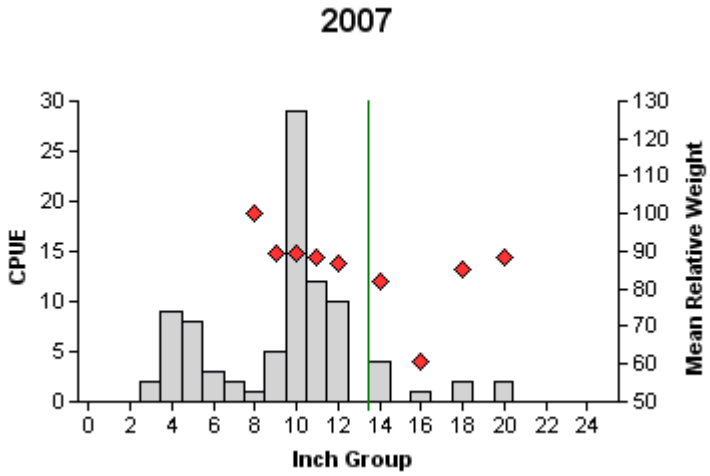
Effort =	1.0
Total CPUE =	72.0 (12; 72)
Stock CPUE =	48.0 (13; 48)
PSD =	38 (4.2)

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, Nocona Reservoir, Texas, 2004, 2005, and 2007. Vertical lines represent length limit at time of collection.

Largemouth Bass



Effort = 1.0
Total CPUE = 48.0 (16; 48)
Stock CPUE = 32.0 (21; 32)
PSD = 31 (0.08)



Effort = 1.0
Total CPUE = 90.0 (14; 90)
Stock CPUE = 66.0 (17; 66)
PSD = 29 (5.1)

Figure 8 continued.

Table 5. Results of genetic analysis of largemouth bass collected by fall electrofishing, Nocona Reservoir, Texas, 1988, 1996, 1999, 2003, and 2007. FLMB = Florida largemouth bass, NLMB = Northern largemouth bass, Hybrids = cross between a FLMB and a NLMB.

		Genotype				
Year	Sample size	FLMB	Hybrids	NLMB	% FLMB alleles	% pure FLMB
1988	33	4	21	8	34.0	12.0
1996	29	4	21	4	54.3	13.8
1999	34	9	24	1	63.2	26.4
2003	30	6	24	0	63.3	20.0
2007	30	2	22	6	39.6	6.7

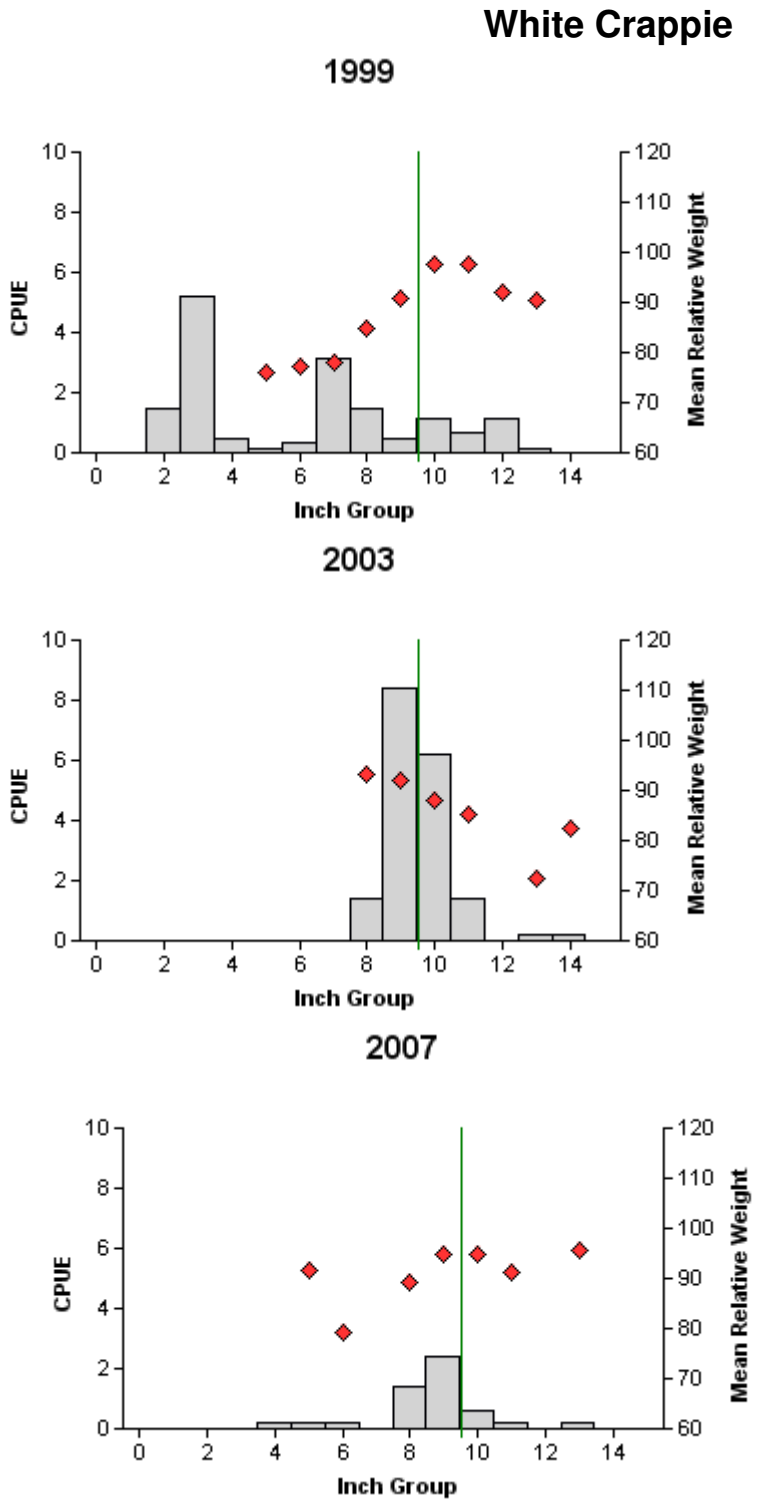


Figure 9. Number of white crappie caught per net night (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall trap netting surveys, Nocona Reservoir, Texas, 1999, 2003, and 2007. Vertical lines represent length limit at time of collection.

Table 6. Proposed sampling schedule for Nocona Reservoir, Texas. Electrofishing and trap netting surveys are conducted in the fall, while gill netting surveys are conducted during the following spring. Standard survey denoted by S and additional survey denoted by A.

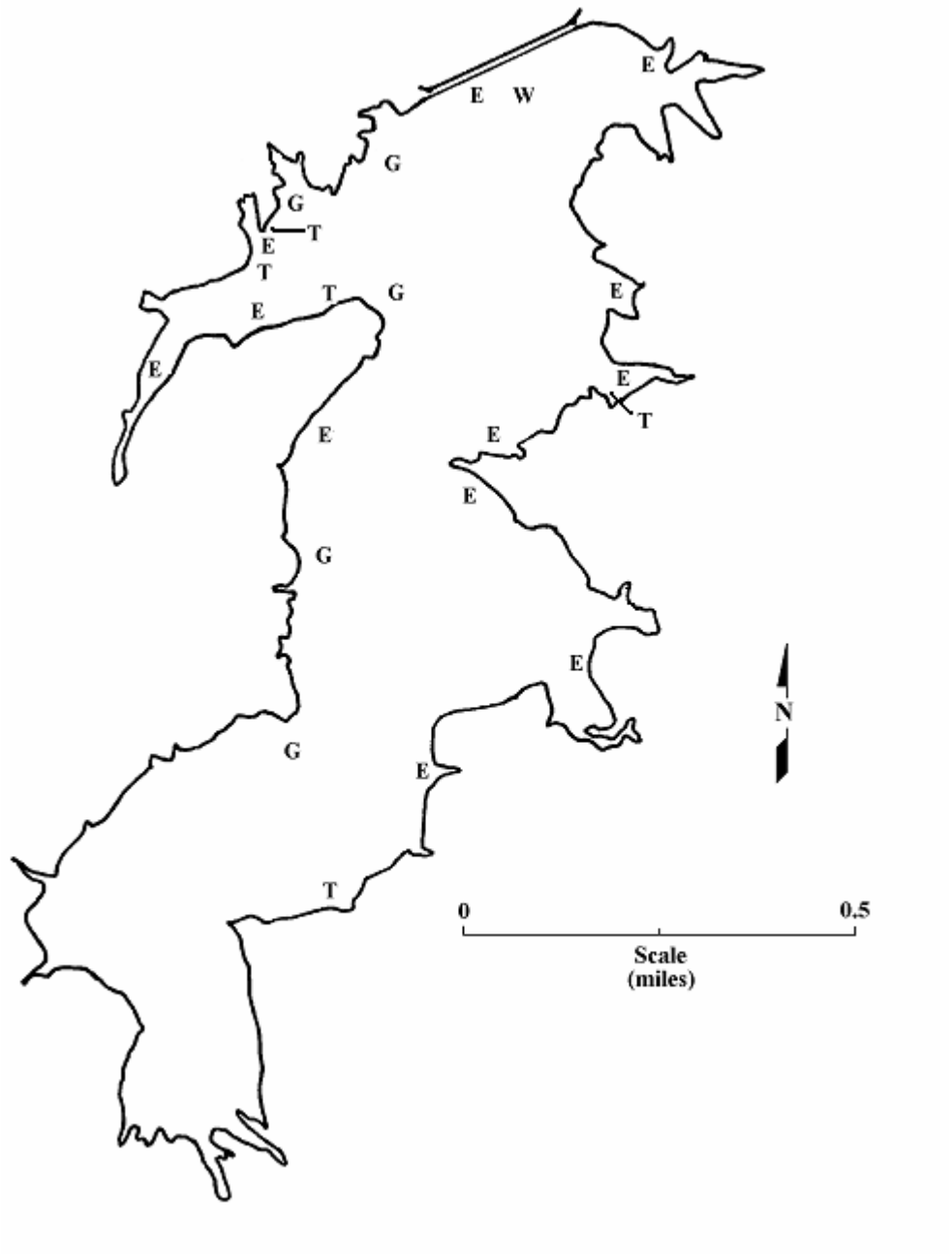
Survey Year	Electrofisher	Trap Net	Gill Net	Creel Survey	Report
Fall 2008-Spring 2009	A	A		A	
Fall 2009-Spring 2010		A			
Fall 2010-Spring 2011					
Fall 2011-Spring 2012	S	S	S		S

Appendix A

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

	Gill Netting		Trap Netting		Electrofishing	
Species	N	CPUE	N	CPUE	N	CPUE
Gizzard shad					76	76.0
Threadfin shad					656	656.0
Blue catfish	4	0.8				
Channel catfish	12	2.4				
Flathead catfish	1	0.2				
White bass	3	0.6				
Palmetto bass	2	0.4				
Green sunfish					10	10.0
Warmouth					2	2.0
Bluegill					229	229.0
Longear sunfish					70	70.0
Redear sunfish					9	9.0
Largemouth bass					90	90.0
White crappie			27	5.4		
Freshwater drum						

APPENDIX B



Location of sampling sites, Nocona Reservoir, Texas, 2007-2008. Trap netting, gill netting, electrofishing, and water stations are indicated by T, G, E, and W respectively. Water level was 1foot below conservation for trap netting and at conservation level during electrofishing and gill netting.

APPENDIX C

Water sample parameters for Nocona Reservoir, Texas, July 23, 2007. Sample station located at dam site.

Depth (m)	Temp. (°C)	D.O. (ppm)	Chlorides (ppm)	Conductivity (µmhos/cm)	Alkalinity (ppm)	Total dissolved solids(ppm)	pH
S	30.6	7.9	90	660	80	429	8.7
1.0	30.5	7.8					
2.0	30.5	7.8					
3.0	30.5	7.8	105	662	77	430	8.8
4.0	29.2	4.6					
5.0	28.4	1.1	95	656	68	426	8.1
6.0	27.8	0.0					
7.0	26.6	0.0					
8.0	25.1	0.0					
9.0	24.1	0.0					
10.0	23.7	0.0					
11.0	22.7	0.0					
12.0	22.2	0.0	120	772	96	502	7.8

APPENDIX D

Catch rates (CPUE) of targeted species by gear type for Nocona Reservoir, Texas, 1991, 1993, 1996, 1999, 2003, 2004, 2005, 2007, and 2008.

		Year								
Gear	Species	1991[a]	1993[a]	1996[b]	1999[b]	2003[b]	2004[b,c]	2005[b,d]	2007[b,e]	2008[b]
Gill Net	Blue catfish	2.8	5.4	6.8	4.4		1.4	1.8		0.8
(fish/net night)	Channel catfish	3.0	3.6	1.8	1.0		5.0	2.0		2.4
	Flathead catfish	0.2	0.0	0.4	0.0		0.2	0.0		0.2
	White bass	10.0	4.2	1.4	1.8		1.4	2.0		0.6
	Palmetto bass	0.0	0.0	2.6	13.2		0.0	2.6		0.4
Electrofisher	Gizzard shad	167.0	279.3	120.7	362.0	177.0		80.0	76.0	
(fish/hour)	Threadfin shad	0.0	0.0	0.0	0.0	138.0		22.0	656.0	
	Green sunfish	5.0	2.7	10.0	3.0	5.0			10.0	
	Warmouth	6.0	5.3	4.7	2.0	0.0			2.0	
	Bluegill sunfish	142.0	152.7	36.0	41.0	100.0			229.0	
	Longear sunfish	20.0	9.3	4.0	7.0	30.0			70.0	
	Redear sunfish	5.0	10.0	4.0	3.0	6.0			9.0	
	Largemouth bass	89.0	130.7	129.3	80.0	70.0	72.0	48.0	90.0	
Trap Net	White crappie	10.9	26.0	28.4	16.0	17.8			5.4	
(fish/net night)										

[a] All sampling stations for all gear were subjectively selected.
[b] All sampling stations for all gear were randomly selected.
[c] Bass only electrofishing survey.
[d] Bass and shad only electrofishing survey.
[e] Electrofishing survey was conducted using a 7.5 Smith-Root GPP (Gas Powered Pulsator). Electrofishing surveys prior to 2007 were conducted using a Smith-Root 5.0 GPP.