PERFORMANCE REPORT

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FEDERAL AID PROJECT F-30-R-34

STATEWIDE FRESHWATER FISHERIES MONITORING AND MANAGEMENT PROGRAM

2008 Survey Report

Tradinghouse Creek Reservoir

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SURVEY AND MANAGEMENT SUMMARY

Fish populations in Tradinghouse Creek Reservoir were surveyed in 2008 using electrofishing and in 2009 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:** Tradinghouse Creek Reservoir is located in an agricultural area, 15 miles east of Waco in McLennan County, Texas. Average reservoir depth is 19 feet with a maximum depth of 42 feet. The reservoir is eutrophic, with water transparencies typically ranging from 2 to 4 feet. The 2,012-acre reservoir was constructed in 1968 by Texas Utilities Generating Company (TXU) to serve as a cooling-reservoir for electrical power generation. Other water uses include recreation.
- **Management history:** Important sport fish include largemouth bass, red drum, white bass, white and black crappie, and channel catfish. The management plan from the 2004 survey report included strategies to improve crappie angling, monitor hydrilla coverage, maintain red drum numbers, and plans to work with TXU and McLennan County to construct bathrooms and handicapped-accessible facilities.

- **Fish Community**
  - **Prey species:** Forage species such as threadfin shad, gizzard shad, bluegill, longear, and redear sunfish were all caught in good numbers indicating abundant forage in the reservoir.

  - **Channel catfish:** Channel catfish were collected in record numbers and most were in good condition. Recruitment of smaller individuals was much higher than previous surveys.

  - **White bass:** White bass were present in the reservoir in large numbers, providing a significant fishery.

  - **Largemouth bass:** The largemouth bass electrofishing catch rate was lower than the previous two surveys, but still indicative of a quality population.

  - **Crappies:** White and black crappie are present in the reservoir in small numbers, but trap netting was not conducted in 2008.

- **Management Strategies:** Continue managing Tradinghouse Creek Reservoir with statewide regulations. Continue redfish stockings unless reservoir conditions become unfavorable. Conduct general monitoring with electrofisher and trap nets in 2012 and gill nets in 2013.

INTRODUCTION

This document is a summary of fisheries data collected from Tradinghouse Creek Reservoir in 2008-2009. The purpose of the document is to provide fisheries information and make management recommendations to protect and improve the sport fishery. While information on other species of fishes was collected, this report deals primarily with major sport fishes and important prey species. Historical data are presented with the 2008-2009 data for comparison.

Reservoir Description

Tradinghouse Creek Reservoir is located in an agricultural area, 15 miles east of Waco in McLennan County, Texas. Average reservoir depth is 19 feet with a maximum depth of 42 feet. The reservoir is eutrophic, with water transparencies typically ranging from 2 to 4 feet. The 2,012-acre reservoir was constructed in 1968 by Texas Utilities Generating Company (TXU) to serve as a cooling-reservoir for electrical power generation. Other water uses include recreation. Constant cooling capacity has in the past been maintained in the reservoir by auxiliary water from the Brazos River during low water levels or periods of high water temperature. Fish habitat at the time of sampling consisted mainly of aquatic vegetation (e.g., bulrush *Scirpus* sp. and cattail *Typha* sp.) and rock riprap. There are currently no handicap facilities on the reservoir. Bank access is good and boat access points were renovated extensively in spring 2001. Further information about Tradinghouse Creek Reservoir and its facilities can be obtained by visiting the Texas Parks and Wildlife Web site at www.tpwd.state.tx.us and navigating within the fishing link.

Management History

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

1. Improve crappie population.
   Action: Obtained crappie broodfish in 2005, but they died at the hatchery due to poor water quality. Subsequently, it was decided to suspend crappie production in all TPWD hatcheries, leaving management stockings as the only stocking option; no management stockings of crappie have been conducted to date.
2. Monitor hydrilla coverage in the reservoir.
   Action: Hydrilla was monitored once per year according to Texas Parks and Wildlife procedures.
3. Maintain the redfish population
   Action: The current owner of the power plant is reportedly shutting the plant down indefinitely after running it sparingly since 2004. However, annual stockings of red drum were recommended through 2009, and no red drum kills were reported. Anglers continue to report good catches of red drum.

Harvest regulation history: Sportfishes in Tradinghouse Reservoir are currently managed with statewide regulations (Table 2).

Stocking history: The complete stocking history is in Table 3.

Vegetation/habitat history: Hydrilla was found in trace amounts during summer 2000, 2001, and 2002, but none was reported during 2003 and 2004. Hydrilla was documented again in 2005, with a total coverage of just over 113 acres, and 44 acres were present in 2006. High water in 2007 prevented any hydrilla growth, but 10.2 acres were found in 2008. Hydrilla appears to be a relatively minor nuisance in the reservoir and no other noxious species currently exist in the reservoir. However, annual vegetation surveys should continue. A habitat survey during May 2009 documented that natural shoreline was the predominant habitat in the reservoir (Table 4).

METHODS

Fishes were collected by electrofishing (1.0 hours at 12 5-min stations), and gill 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 nets, as the number of fish 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 2008). Additional sampling for day vs. night electrofishing comparisons as well as additional age and growth information for largemouth bass was completed as described in Appendix D.

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 otoliths from up to 10 fish per centimeter group for largemouth bass, white crappie, and white bass according to the Fishery Assessment Procedures (TPWD, Inland Fisheries Division, unpublished manual revised 2008). Source for water level data was the United States Geological Survey (USGS) website.

RESULTS AND DISCUSSION

Habitat: A littoral zone habitat survey was completed in May, 2009. Habitat consisted of natural shoreline and native emergent vegetation such as cattail (Table 4). Water level information was not available for Tradinghouse Creek Reservoir, as the remaining power plant staff no longer monitors it.

Prey species: The electrofishing catch rates of threadfin and gizzard shad were 52.0/h and 134.0/h. respectively. The index of vulnerability (IOV) for gizzard shad was excellent, and 84% of gizzard shad were available to existing predators as forage (Figure 1). Bluegill catch rates were very high at 927.0/h (Figure 2). Few larger bluegill were available to anglers as the majority were 2”-5” in length. Longear sunfish were collected at a rate of 80/h (Figure 3), providing an additional forage fish in the reservoir. Redear sunfish were collected at a rate of 193/h (Figure 4), but few exceeded 7”. The catch rates of all sunfish species were higher than the previous two surveys.

Catfishes: The channel catfish catch rate was 15.6/nn in 2009. Recruitment and population size structure was excellent (PSD = 32) and body condition was good (range 80 to 125; Figure 5).

White bass: The gill net catch rate of white bass was 10.6/nn in 2009. Catch rates indicated that white bass continue to maintain a significant presence in the reservoir (Figure 6). The RSD-10 was 83. Body condition of smaller fish was poor, but relative weights of larger fish averaged about 90.

Largemouth bass: The electrofishing catch rate of largemouth bass was 169.0/h in 2008. Size structure was good, with a PSD of 38 (Figure 7). Body condition in 2008 varied considerably across size classes, and ranged from 85 to 120. Growth was adequate, with fish averaging 14.3” at age-2 (Figure 8, Table 5). Florida influence remained high (71%), similar to previous samples from 1997 through 2004 (72.2% average, range 68.3 to 74.2). All bass collected for genetic purposes were intergrades (Table 6).

White crappie: Trap netting was not conducted in Tradinghouse Creek Reservoir in 2008 due to historically low catch of crappie. White and black crappie are present in the reservoir, and occasionally anglers report good catches, but woody habitat is very limited.

Fisheries management plan for Tradinghouse Creek Reservoir
Prepared – July 2009.

ISSUE 1: Hydrilla is present in small amounts in the reservoir.

MANAGEMENT STRATEGIES

1. Continue monitoring the reservoir for noxious vegetation annually through 2013.

ISSUE 2: The power plant is reportedly being closed down permanently. This will eliminate any thermal inputs to the reservoir during the winter, possibly impacting the existing red drum fishery. However, during recent years, the plant has run only intermittently during periods of peak demand, generally in the summer. We receive lots of reports of anglers catching red drum, however, we were not successful collecting any in our standardized surveys in 2008/2009.

MANAGEMENT STRATEGIES

1. Verify the status and future plans for the power plant with the current owners.
2. Conduct non-standard gill netting fall, 2009 and/or spring, 2010 to obtain additional data on red drum.
3. Deploy several temperature dataloggers in the reservoir to 1) obtain average winter temperatures, 2) verify that overwintering is possible, and 3) to identify possible refuge areas for this species.
4. Collect water samples in fall, 2009 and summer, 2010 and compare water chemistry to samples collected in 2002 and 2003 to look for changes in important parameters such as chlorides.
5. Creel pole-and-line anglers during the spring quarter, 2010, to document angler use of the reservoir. Record contact information for all red drum anglers to obtain additional data if needed.
6. Continue stocking red drum pending results of the five previous strategies.

SAMPLING SCHEDULE JUSTIFICATION:

The proposed sampling schedule includes electrofisher and trap net sampling in 2012 and gill net sampling in 2013 (Table 7). Additional sampling includes gill netting and creel during 2009/2010.

LITERATURE CITED

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Table 1. Characteristics of Tradinghouse Creek Reservoir, Texas.

Characteristic	Description
Year Constructed	1965
Controlling authority	U.S. Army Corps of Engineers
County	McLennan
Reservoir type	Tributary of the Brazos River
Shoreline Development Index (SDI)	5.0
Conductivity	325 umhos/cm

Table 2. Harvest regulations for Tradinghouse Creek Reservoir.

Species	Bag Limit	Minimum-Maximum Length (inches)
Catfish: channel and blue catfish, their hybrids and subspecies	25 (in any combination)	12 - No Limit
Catfish, flathead	5	18 - No Limit
Bass, white	25	10 - No Limit
Bass: largemouth	5	14 - No Limit
Bass: spotted	5 (in any combination)	No Limit - No Limit
Crappie: white and black crappie, their hybrids and subspecies	25 (in any combination)	10 - No Limit

Table 3. Stocking history of Tradinghouse Creek, 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**	**Numbe**	**Life Stage**	**Mean TL (in)**
Black crappie x White crappie	1995	101,84	FRY	0.9
	1996	201,13	FRY	0.9
	Total	302,98		
Blue catfish	1986	21,12	FGL	2.0
	Total	21,12		
Channel catfish	1968	10,60	AFGL	7.9
	Total	10,60		
Florida Largemouth bass	1985	59,29	FGL	2.0
	1985	98,33	FRY	1.0
	1986	100,56	FRY	1.0
	Total	258,19		
Largemouth bass	1969	100,00	UNK	UNK
	Total	100,00		
Peacock bass	1982	1,60		UNK
	Total	1,60		
Red drum	1975	53,16	UNK	UNK
	1981	200,00	UNK	UNK
	1983	198,50	UNK	UNK
	1984	153,78	FRY	1.0
	1985	408,53	FRY	1.0
	1986	67	ADL	15.0
	1986	245,80	FRY	1.0
	1987	768,81	FRY	1.0
	1989	8,00	FGL	1.2
	1990	6	ADL	11.0
	1990	9,50	FGL	1.1
	1991	224,00	FGL	1.7
	1991	114,06	FRY	1.0
	1991	75,13	UNK	UNK
	1992	9	ADL	13.1
	1992	77,01	FGL	1.8
	1992	125,46	FRY	1.0
	1993	206,43	FGL	1.2

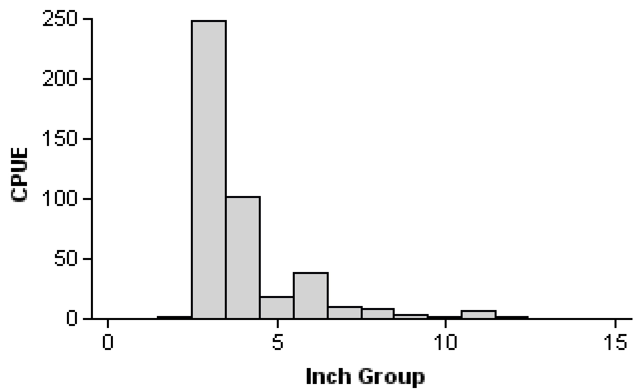
Species	Year	Numbe	Life Stage	Mean TL (in)
Red drum	1994	184,00	FGL	1.4
	1995	217,18	FRY	1.0
	1996	197,39	FGL	1.3
	1997	202,37	FGL	1.1
	1999	268,64	FGL	1.1
	2000	251,81	FGL	1.1
	2001	290,90	FGL	1.1
	2002	4,15	ADL	11.3
	2002	175,96	FGL	1.3
	2003	344,65	FGL	1.3
	2004	370,01	FGL	1.5
	2005	345,23	FGL	1.5
	2006	75	ADL	10.0
	2006	145,84	FGL	1.5
	2007	391,14	FGL	1.4
	2008	358,08	FGL	1.3
	Total	6,617,20		
Striped bass	1980	240,70	UNK	UNK
	Total	240,70		
White crappie	1992	2,22	FGL	1.4
	1992	10,49	FRY	0.7
	Total	12,71		

Table 4. Survey of littoral zone and physical habitat types, Tradinghouse Creek Reservoir, Texas, 2009. Linear shoreline distance (miles) and percent of linear shoreline distance was recorded for each habitat type found. Surface area (acres) and percent of reservoir area was determined for each type of aquatic vegetation found.

	Shoreline Distance		Surface Area	
Shoreline habitat type	Miles	Percent of total	Acres	Percent of surface area
Gravel shoreline (rocks < 4”)	1.88	9.72		
Rocky shoreline (rocks > 4”)	2.29	11.85		
Rock bluff	0.00	0.00		
Natural shoreline	14.94	77.24		
Giant cane	0.56	2.90		
Native emergents			21.39	1.23

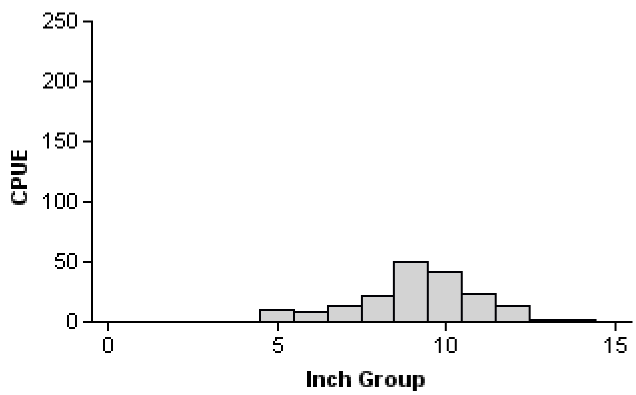
Gizzard Shad

2000

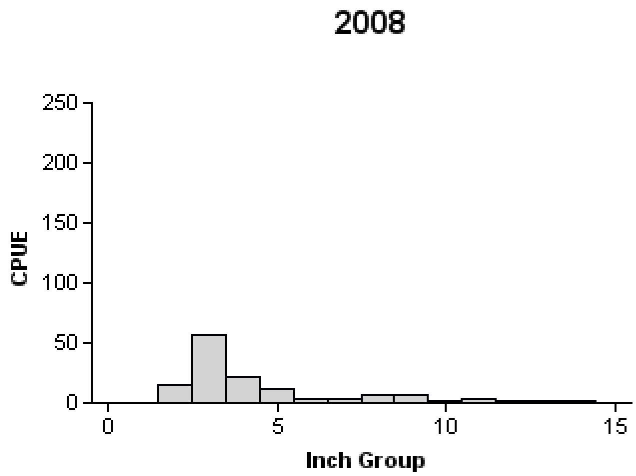


Effort : 1.(
Total CPUE : 441.0 (53; 441
Stock CPUE : 32.0 (23; 32
IOV : 95.01 (3.4

2004



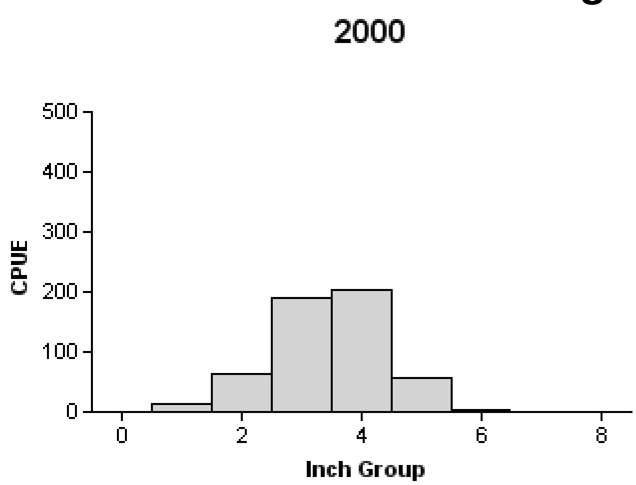
Effort : 1.(
Total CPUE : 183.0 (22; 183
Stock CPUE : 164.0 (21; 164
IOV : 17.49 (10.2



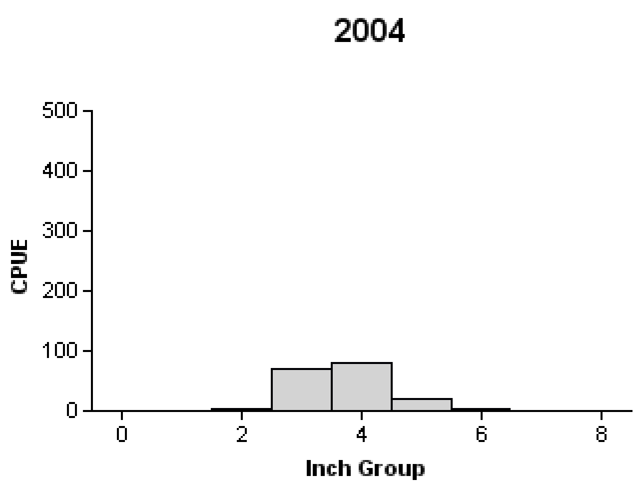
Effort : 1.(
Total CPUE : 134.0 (28; 134
Stock CPUE : 25.0 (20; 25
IOV : 84.33 (5.4

Figure 1. Number of gizzard shad caught per hour (CPUE) and population indices (RSE and N for CPUE and SE for IOV are in parentheses) for fall electrofishing surveys, Tradinghouse Creek Reservoir, Texas, 2000, 2004, and 2008.

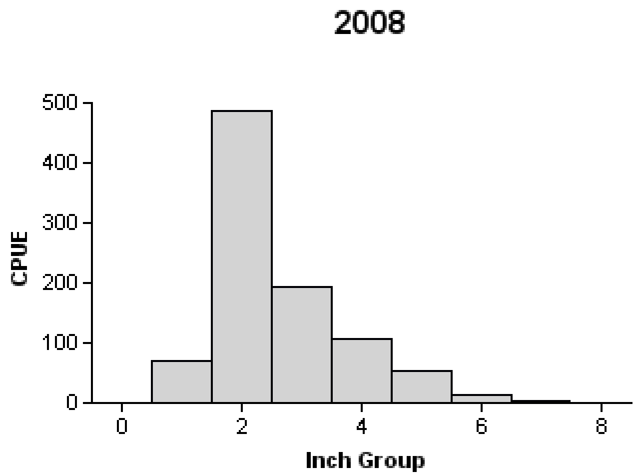
Bluegill



Effort : 1.(
Total CPUE : 528.0 (20; 528
Stock CPUE : 452.0 (18; 452
PSD : 1 (0.4
RSD-8 : 0 (0



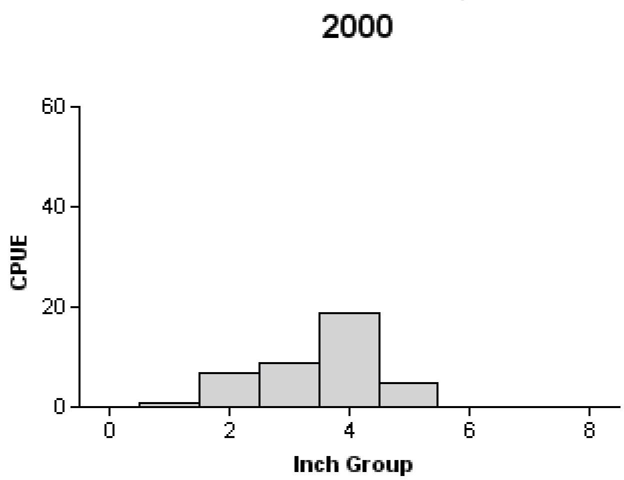
Effort : 1.(
Total CPUE : 176.0 (20; 176
Stock CPUE : 172.0 (20; 172
PSD : 1 (1.2
RSD-8 : 0 (0



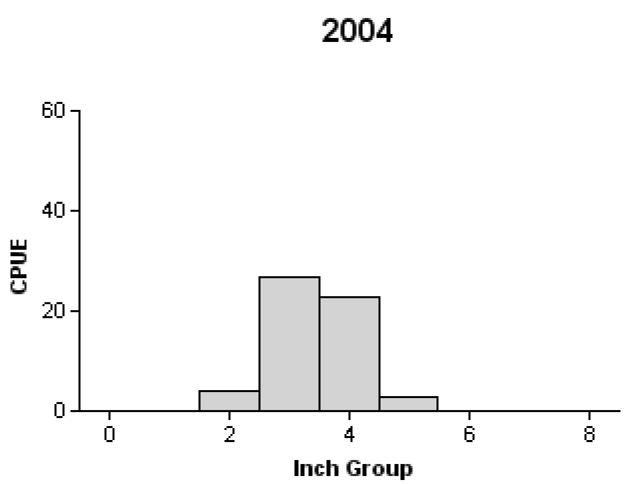
Effort : 1.(
Total CPUE : 927.0 (21; 927
Stock CPUE : 370.0 (24; 370
PSD : 4 (1.2
RSD-8 : 0 (0

Figure 2. 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, Tradinghouse Creek Reservoir, Texas, 2000, 2004, and 2008.

Longear sunfish



Effort : 1.(
Total CPUE : 41.0 (56; 41
Stock CPUE : 41.0 (56; 41
PSD : 100 (0
RSD-8 : 0 (0

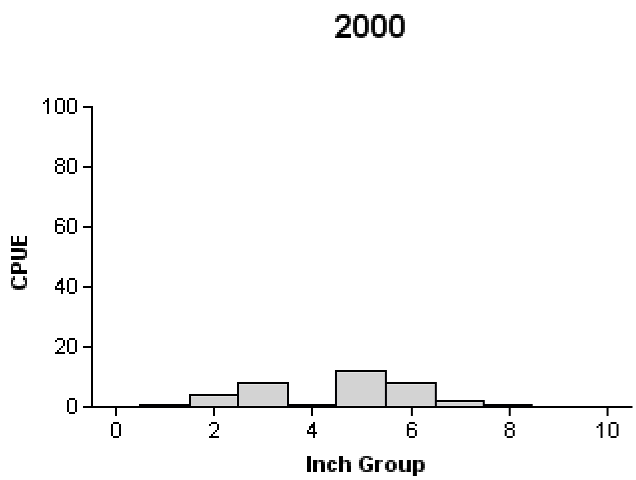


Effort : 1.(
Total CPUE : 57.0 (40; 57
Stock CPUE : 57.0 (40; 57
PSD : 100 (0.0
RSD-8 : 0 (0

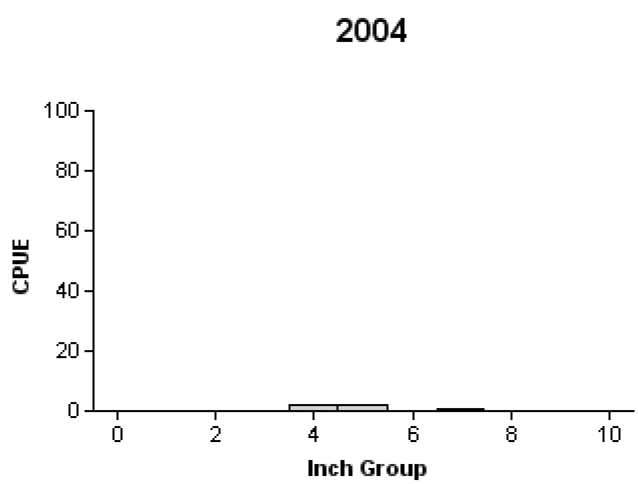
Effort : 1.(
Total CPUE : 80.0 (25; 80
Stock CPUE : 80.0 (25; 80
PSD : 100 (0
RSD-8 : 0 (0

Figure 3. Number of longear caught per hour (CPUE) and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, Tradinghouse Creek Reservoir, Texas, 2000, 2004, and 2008.

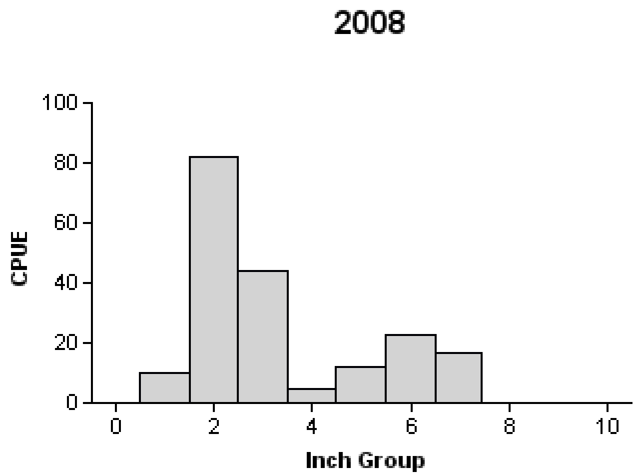
Redear sunfish



Effort : 1.(
Total CPUE : 37.0 (30; 37
Stock CPUE : 24.0 (26; 24
PSD : 12 (6.9
RSD-8 : 4 (4.1



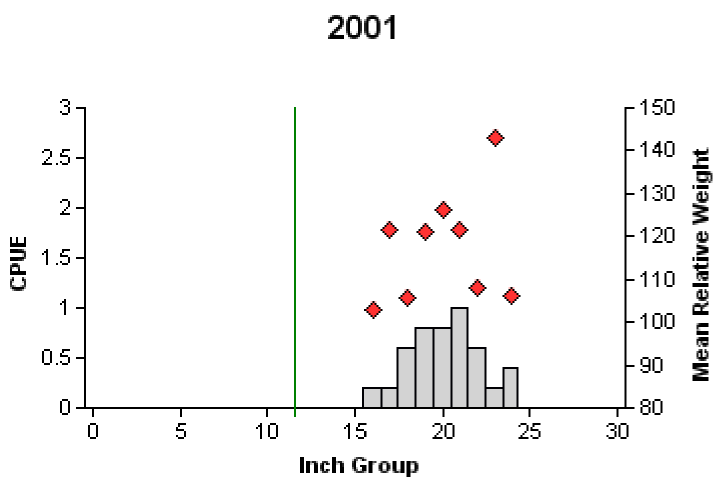
Effort : 1.(
Total CPUE : 5.0 (81; 5
Stock CPUE : 5.0 (81; 5
PSD : 20 (23.6
RSD-8 : 0 (0



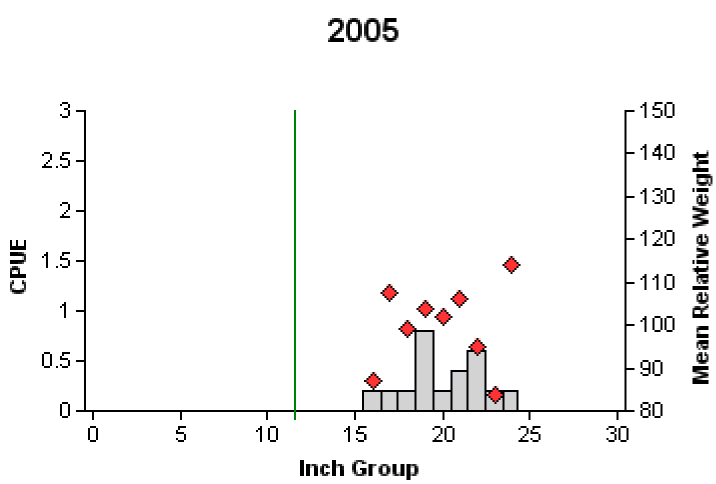
Effort : 1.(
Total CPUE : 193.0 (12; 193
Stock CPUE : 57.0 (23; 57
PSD : 30 (7
RSD-8 : 0 (0

Figure 4. Number of redear caught per hour (CPUE) and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, Tradinghouse Creek Reservoir, Texas, 2000, 2004, and 2008.

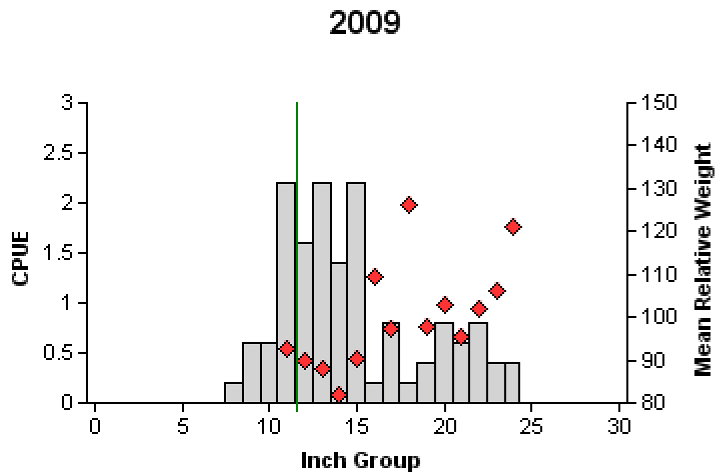
Channel Catfish



Effort : 5.(
Total CPUE : 4.8 (34; 24
Stock CPUE : 4.8 (34; 24
CPUE-12 : 4.8 (34; 24
PSD : 100 (0
RSD-12 : 100 (0
RSD-24 : 8 (6.9



Effort : 5.(
Total CPUE : 3.0 (28; 15
Stock CPUE : 3.0 (28; 15
CPUE-12 : 3.0 (28; 15
PSD : 100 (0.0
RSD-12 : 100 (0
RSD-24 : 7 (7



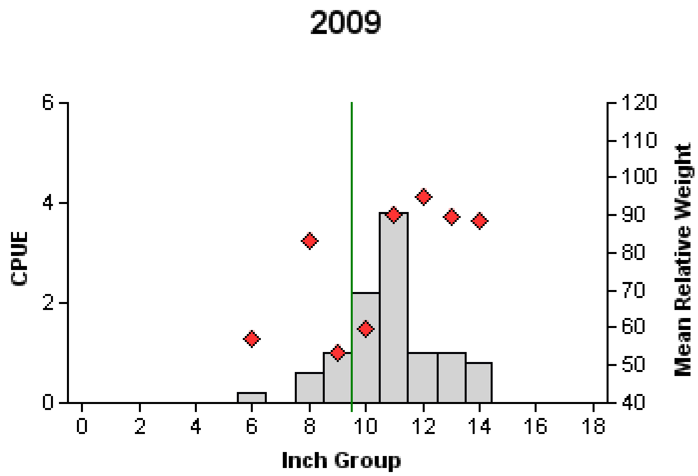
Effort : 5.(
Total CPUE : 15.6 (36; 78
Stock CPUE : 14.2 (33; 71
CPUE-12 : 12.0 (26; 60
PSD : 32 (17
RSD-12 : 85 (7.7
RSD-24 : 3 (2.2

Figure 5. Number of channel catfish caught per net night (CPUE) and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring gill net surveys, Tradinghouse Creek Reservoir, Texas, 2001, 2005, and 2009.

White Bass

Effort : 5.(
Total CPUE : 1.0 (45; 5
Stock CPUE : 1.0 (45; 5
PSD : 100 (0
RSD-10 : 100 (0

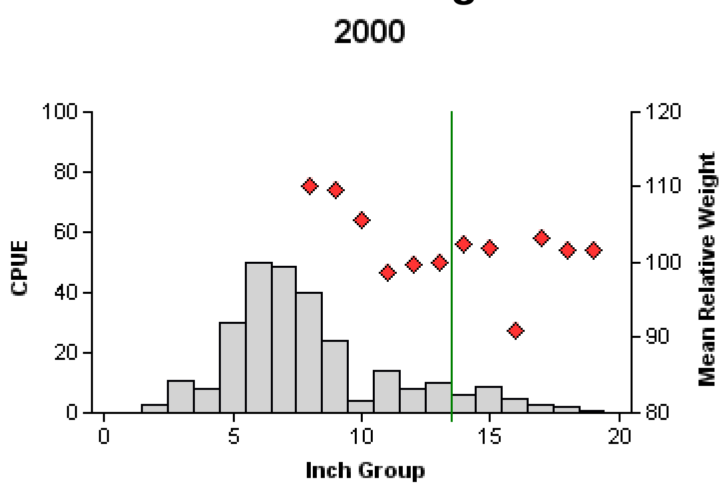
Effort : 5.(
Total CPUE : 9.8 (40; 49
Stock CPUE : 9.8 (40; 49
PSD : 100 (0.0
RSD-10 : 100 (0



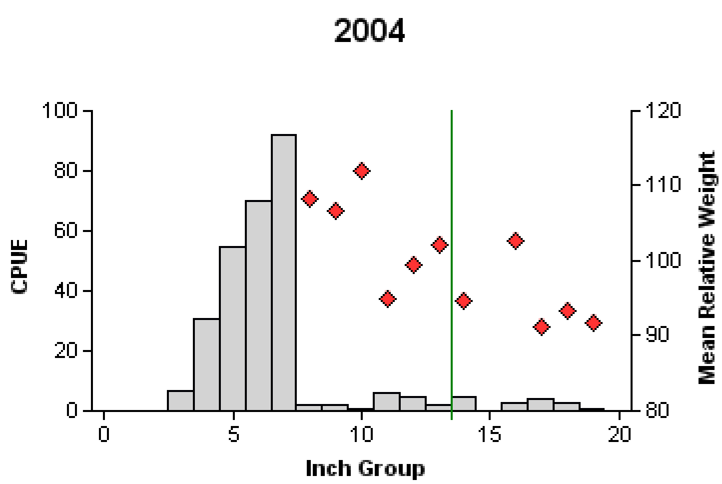
Effort :	5.(
Total CPUE :	10.6 (25; 53
Stock CPUE :	10.6 (25; 53
PSD :	92 (2
RSD-10 :	83 (10.3

Figure 6. Number of white bass caught per net night (CPUE) and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring gill net surveys, Tradinghouse Creek Reservoir, Texas, 2001, 2005, and 2009.

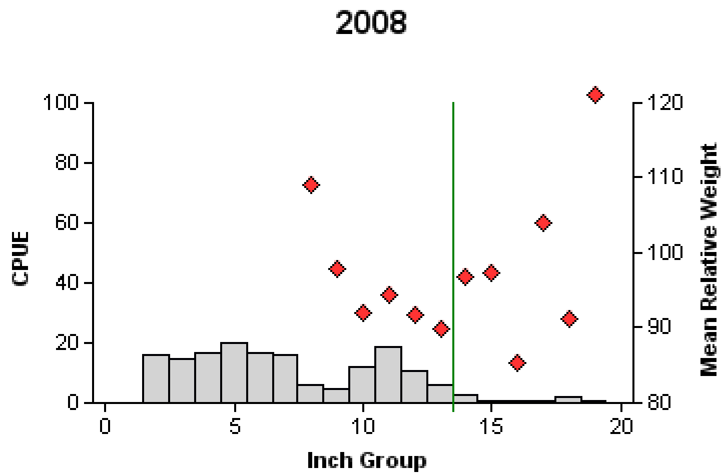
Largemouth Bass



Effort :	1.(
Total CPUE :	277.0 (29; 277
Stock CPUE :	126.0 (24; 126
CPUE-14 :	26.0 (35;26
PSD :	35 (10.7
RSD-14 :	21 (6.7



Effort :	1.(
Total CPUE :	289.0 (41; 289
Stock CPUE :	34.0 (24; 34
CPUE-14 :	16.0 (25;16
PSD :	68 (6.9
RSD-14 :	47 (8.4



Effort :	1.(
Total CPUE :	169.0 (13; 169
Stock CPUE :	68.0 (24; 68
CPUE-14 :	
PSD :	9.0 (37; 9
RSD-14 :	38 (5.7
	13 (4.3

Figure 7. Number of largemouth bass caught per hour (CPUE) and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, Tradinghouse Creek Reservoir, Texas, 2000, 2004, and 2008.

.

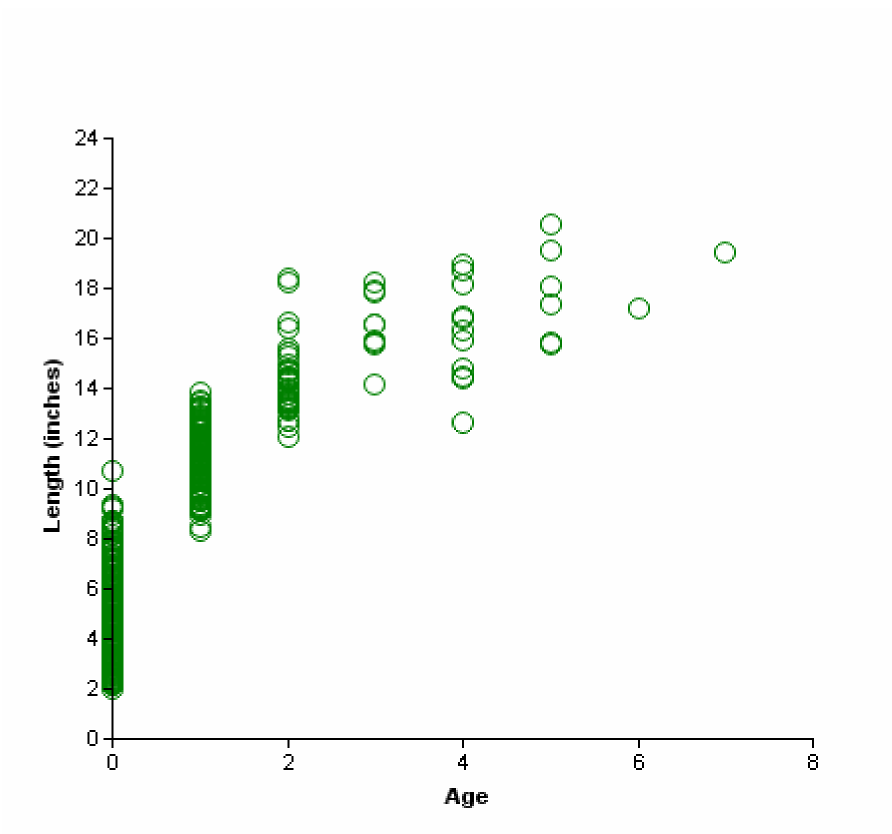


Figure 8. Length at age for largemouth bass collected by electrofishing at Tradinghouse Creek Reservoir, Texas, Fall, 2008.

Table 5. Average length at capture for largemouth bass (sexes combined) ages 0 – 7 collected in electrofishing surveys, Tradinghouse Creek Reservoir, fall 2008. Lengths are followed by the sample size. Note that the age-0 data may not be representative of the actual size distribution because of gear bias against smaller fish.

	Growth	
Age	Total Length	N
0	5.3	162
1	11.2	103
2	14.3	37
3	16.5	9
4	16.2	11
5	17.8	6
6	17.2	1
7	19.4	1

Table 6. Results of genetic analysis of largemouth bass collected during fall electrofishing, Tradinghouse Creek Reservoir, Texas, 2008. N = Northern and F = Florida.

		Genotype			
Year	Sample size	FLMB	NLMB	%FLMB alleles	% pure FLMB
2008	30	0.00	0.00	0.71	0.00

Table 7. Proposed sampling schedule for Tradinghouse Creek Reservoir, Texas. Gill netting surveys are conducted in the spring, while electrofishing and trap netting surveys are conducted in the fall. Standard survey denoted by S and additional survey denoted by A.

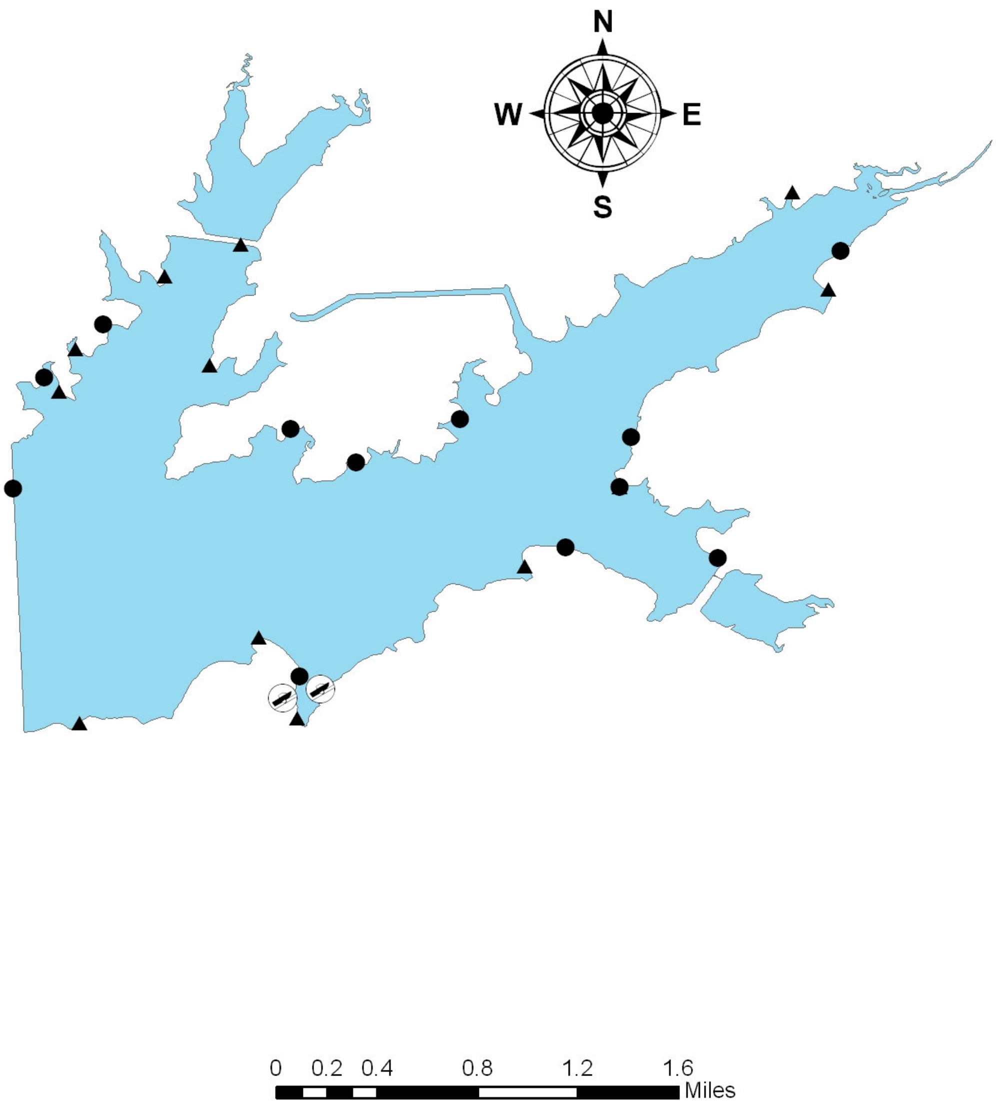
Survey Year	Electrofisher	Trap Net	Gill Net	Creel Survey	Report
Fall 2009-Spring 2010			A	A	
Fall 2010-Spring 2011					
Fall 2011-Spring 2012					
Fall 2012-Spring 2013	S	S	S		S

APPENDIX A

Number (N) and catch rate (CPUE) of all target species collected from all gear types from Tradinghouse Creek Reservoir, Texas, 2007-2008. Crappie sampling was optional and not performed.

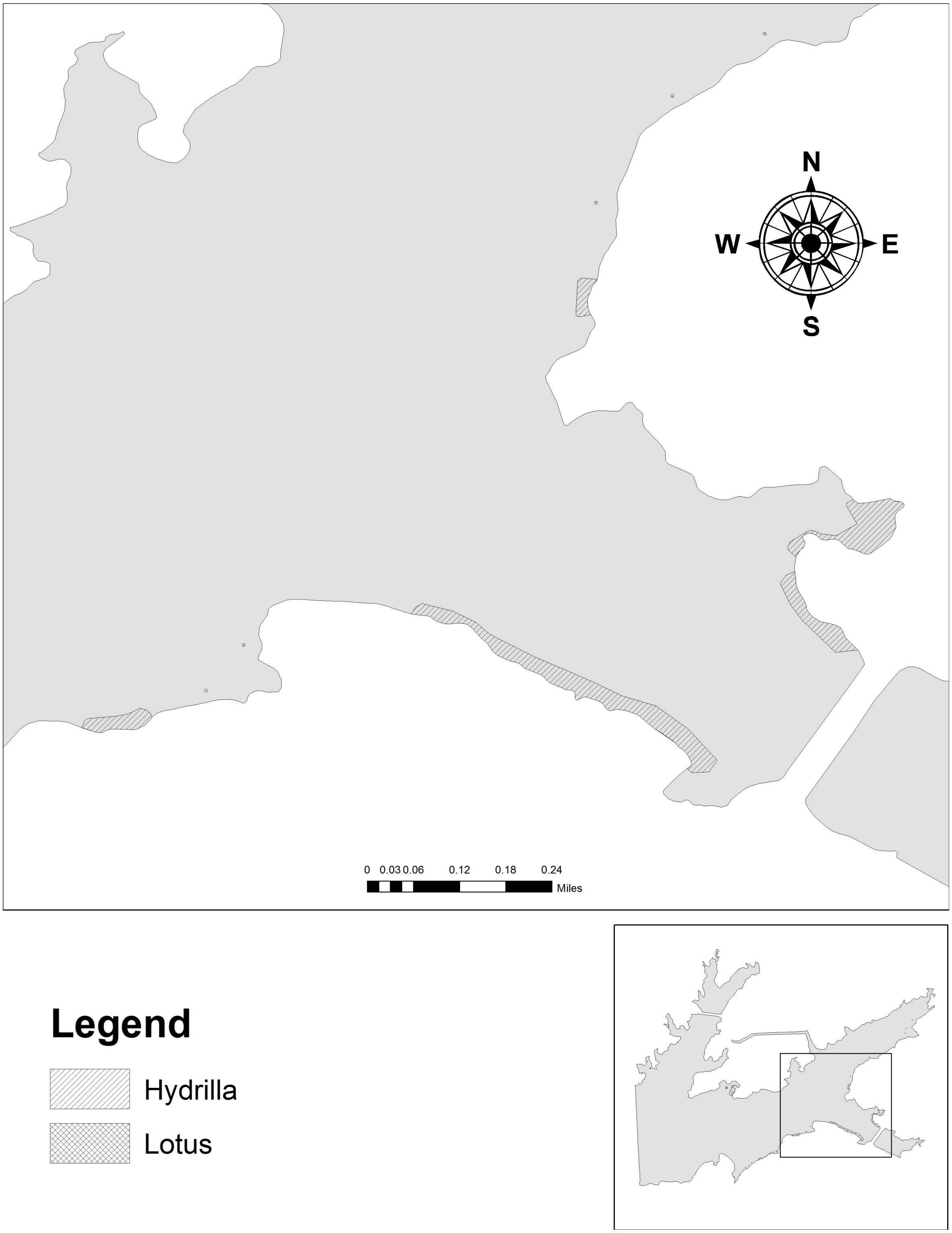
Species	Gill Netting		Trap Netting		Electrofishing	
	N	CPUE	N	CPUE	N	CPUE
Gizzard shad					134	134.0
Threadfin shad					52	52.0
Channel catfish	78	15.6				
White bass	53	10.6				
Green sunfish					3	3. 0
Warmouth					3	3.0
Bluegill					927	927.0
Longear sunfish					80	80.0
Redear sunfish					193	193.0
Largemouth bass					169	169.0

APPENDIX B



Location of electrofishing (circles) and gill netting (triangles) sites, Tradinghouse Creek Reservoir, Texas, 2008 and 2009. Water level was near full pool at time of sampling.

APPENDIX C



Hydrilla observed during summer vegetation surveys on Tradinghouse Creek Reservoir, Texas, 2008.

APPENDIX D: Results from FAST modeling

Introduction

Recruitment, growth, exploitation, total mortality, and maximum size are all important population statistics to have when managing a reservoir. We calculated these statistics from data collected during management surveys in 2008 for largemouth bass using Fishery Analysis and Simulation Tools (FAST; Slipke and Maceina, 2000).

Methods

Largemouth bass otoliths were collected using a stratified random approach in which ten fish per centimeter group were selected for age-and-growth analysis. The remaining fish were assigned ages using a length-age key. Collection and processing of otoliths was conducted according to the Texas Parks and Wildlife Department Inland Fisheries Assessment Procedures (unpublished, revised manual 2008).

Total annual mortality, theoretical maximum age, L-infinity (theoretical maximum length), and residuals (year class strength) were calculated using FAST. Unweighted catch-curve regression was used to examine annual mortality, theoretical maximum age, and year class strength. The Von Bertalanffy growth function was used to determine L-infinity. Only data from age-0 through age-3 were used for largemouth bass to calculate total annual mortality, theoretical maximum age, and year class strength, because of possible gear bias for older fish described in the Texas Parks and Wildlife Department Inland Fisheries Assessment Procedures (unpublished, revised manual 2008). Theoretical maximum length was calculated using length data from all ages, as length-at-age is less affected by gear bias than other variables. Not including all data results in a very different and much lower estimate of theoretical maximum length. Fish were not segregated by sex during the analyses.

Estimates of exploitation were unknown, but thought to be low, similar to other reservoirs in the district. For example, in 2007, Waco reservoir had the highest largemouth bass exploitation rate recorded to date in our district. It was only 1.49/acre and it exhibited a total annual largemouth bass mortality of 71.1%.

Results and Discussion

The results are shown in the accompanying table. The largemouth bass population exhibits high total mortality, likely low exploitation, a maximum predicted length of 18.5", and consistent recruitment. It is likely that the majority of the observed mortality is natural, so attempts to restructure the population with harvest restrictions will likely be ineffective. High Florida introgression, coupled with consistent recruitment indicates that stocking additional Florida largemouth bass is unlikely to provide any benefit to the fishery.

Largemouth bass population parameters in Tradinghouse Creek Reservoir, 2008. Estimates were obtained using the Fast Modeling Program.

Species	N aged	Total Mortality	Exploitation rate	Maximum size (L-infinity)	Maximum age	Residuals
Largemouth bass	330	65.9%	unknown	18.5"	5.3	-0.287 to 0.347

Appendix E: Results from night vs. day electrofishing

Introduction

The current standardized electrofishing procedures require that sampling be conducted at night no earlier than 30 minutes after sunset (Texas Parks and Wildlife Department Inland Fisheries Assessment Procedures, revised manual 2008). The reasons traditionally cited for this include increased fish activity in shallow water at night, decreased avoidance of the electrofishing boat, and the ability to sample larger fish. We tested whether these assumptions affected catch rates of largemouth bass in Tradinghouse Creek Reservoir during fall 2008 electrofishing.

Methods

A total of 24 five-minute stations were randomly selected throughout the lake for the day vs. night electrofishing comparison, 12 for each treatment. Night samples were collected on 10/8/08. Day samples were collected on 10/7/08. During night electrofishing, all target species were collected. During day electrofishing, only largemouth and spotted bass were collected. Conductivity was 404 umhos. Water clarity typically ranges from 50 to 90 cm, as measured by a secchi disk.

Results and Discussion

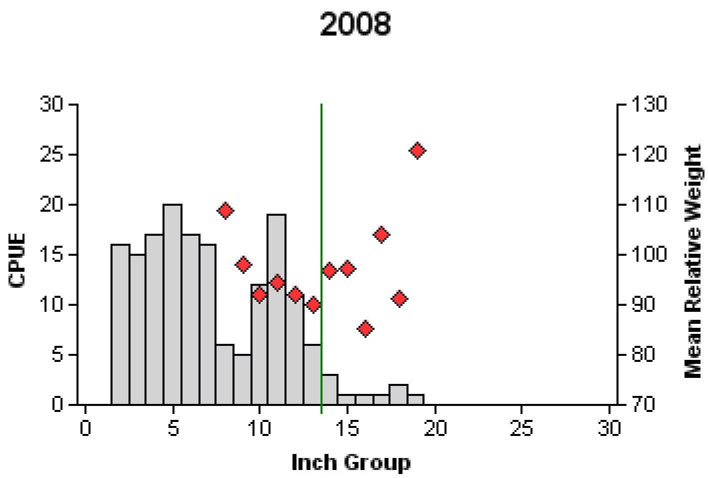
The results are shown in the next page. The first figure is the standard night electrofishing with the associated population indices for largemouth bass. The second figure is the accompanying day electrofishing for largemouth.

The day and night graphs look similar, although the catch rate during the day is 63% of the night electrofishing rate. Catch of fish larger than 12” appears very similar across sizes for day and night samples. The CPUE-14 for the day sample was 11.0/h vs. 9.0/h for the night sample. The maximum size of bass collected for the day sample was also similar to that of the night sample (20” vs 19”). However, the PSD and RSD-P of the day sample were higher than that of the night sample (60 vs. 38 and 18 vs. 9, respectively). This was due to reduced catches of bass less than 12” in length during the day. Length-at-age information collected during daytime electrofishing should be as representative as that which was collected during nighttime electrofishing.

These findings are very similar to what was observed on Lake Waco in 2007. This is not surprising as the two reservoirs have similar fertility and water clarity, and are separated by less than 15 miles.

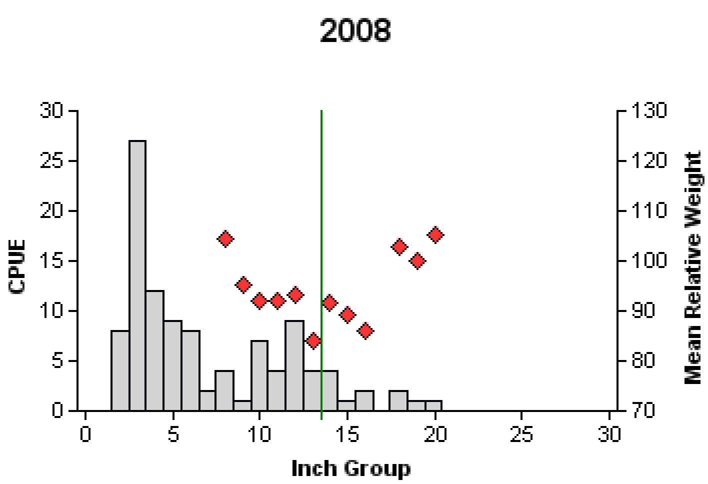
We believe that strong consideration should be given to modifying the current electrofishing procedures to allow for day electrofishing in reservoirs with reduced water clarity or in reservoirs where a similar comparison to this has been completed with satisfactory results. Compelling reasons for this change include increased safety, as well as greater ease of fish collection for age and growth analysis. If such a change were implemented, consideration should be given to collecting CPUE data for Tradinghouse Creek Reservoir during the day, with any additional length-at-age information also collected during the day.

Night Electrofishing – Largemouth bass



Effort :	1.(
Total CPUE :	169.0 (13; 169
Stock CPUE :	68.0 (24; 68
CPUE-14 :	9.0 (37; 9
PSD :	38 (5.7
RSD-P :	9 (3.2

Day Electrofishing – Largemouth bass



Effort :	1.(
Total CPUE :	106.0 (13; 106
Stock CPUE :	40.0 (20; 40
CPUE-14 :	11.0 (28; 11
PSD :	60 (6.1
RSD-P :	18 (6.3