

PERFORMANCE REPORT

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FEDERAL AID PROJECT F-221-M-3

INLAND FISHERIES DIVISION MONITORING AND MANAGEMENT PROGRAM

2012 Fisheries Management Survey Report

Tradinghouse Creek Reservoir

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SURVEY AND MANAGEMENT SUMMARY

Fish populations in Tradinghouse Creek Reservoir were surveyed in 2012 using electrofishing and trap netting and in 2013 using gill netting. Anglers were surveyed from June 2010 through August 2010 with a creel survey. Historical data are presented with the 2012-2013 data for comparison. This report summarizes the results of the surveys and contains a management plan for the reservoir based on those findings.

- **Reservoir Description:** Tradinghouse Creek is a 2,012-acre reservoir located 15 miles east of Waco in McLennan County, Texas. The reservoir was constructed in 1968 by Texas Utilities Generating Company (TXU) to serve as a cooling-reservoir for electrical power generation, however the power plant has been recently dismantled. Bank and boat access on the reservoir are good, yet handicap facilities are absent. Habitat features consisted mainly of natural shoreline, emergent aquatic vegetation, and limited overhanging riparian brush and trees.
- **Management history:** Important sport fish include Largemouth Bass, White Bass, White and Black Crappie, and Channel Catfish. The management plan from the 2008 survey report included annual monitoring for Hydrilla, and a multi-strategy effort to determine if a Red Drum fishery still exists in the reservoir. This multi-strategy effort consisted of: verifying the status and future plans for the power plant, conducting supplemental gill netting to obtain additional data on Red Drum, obtaining average winter temperatures to determine if over-wintering is possible for Red Drum, collecting water samples for comparative purposes to determine any changes in important parameters such as chlorides, which effect Red Drum, and conducting a summer quarter creel in 2010 to document angler use of the reservoir including Red Drum, and continuing to stock Red Drum pending the results of these strategies.
- **Fish Community**
 - **Prey species:** Forage species included Gizzard Shad, Threadfin Shad, Bluegill, Redear and Longear Sunfish. All forage species were collected below their historical averages except Threadfin Shad, which were collected at record rates.
 - **Channel Catfish:** Channel Catfish were collected in good numbers and all were in good to excellent condition. No Blue or Flathead Catfish were sampled.
 - **White Bass:** White Bass were collected at rates similar to their historical average and body condition was good.
 - **Largemouth Bass:** The Largemouth Bass electrofishing catch rate was lower than the previous two surveys. Body condition was fair to average.
 - **Crappie:** White and Black Crappie are present in the reservoir in low density. More crappie were collected with gill netting than the target gear, trap netting.
- **Management Strategies:** Continue managing Tradinghouse Creek Reservoir with statewide regulations. Conduct standard monitoring with electrofisher and trap netting in 2016 and gill netting in 2017. Future management strategies should include continued annual monitoring of noxious vegetation and removal of the Red Drum regulation since they are no longer in the reservoir and will no longer be stocked.

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INTRODUCTION

This document is a summary of fisheries data collected from Tradinghouse Creek Reservoir in 2012-2013. 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 fishes was collected, this report deals primarily with major sport fishes and important prey species. Historical data are presented with the 2012-2013 data for comparison.

Reservoir Description

Tradinghouse Creek is a 2,012-acre reservoir located 15 miles east of Waco in McLennan County, Texas. The reservoir was constructed in 1968 by Texas Utilities Generating Company (TXU) to serve as a cooling-reservoir for electrical power generation; however the power plant has been idle for several years. Other water uses include recreation. The reservoir is eutrophic, with water transparencies typically ranging from 2 to 4 feet. Habitat at time of sampling consisted mainly of natural shoreline, emergent aquatic vegetation (e.g., bulrush *Scirpus sp.*, and cattail *Typha sp.*), submerged aquatic vegetation (e.g., pondweed *Potamogeton spp.*) and overhanging riparian brush and trees. There are currently trace amounts of Hydrilla (*Hydrilla verticillata*) and Giant reed (*Arundo spp.*) in the reservoir, which currently cover 3.8 and 0.6 acres respectively (Table 6). There are currently no sources for water level data for Tradinghouse Creek Reservoir. Other descriptive characteristics for Tradinghouse Creek Reservoir are in Table 1.

Angler Access

Bank and boat access on Tradinghouse Creek Reservoir is good. Boat access consists of four public ramps and one private ramp. All four boat ramps were unavailable during the recent 2011/2012 drought years, and access is currently limited. Shoreline access is excellent on the southern side of the reservoir, yet handicap facilities are absent. Additional boat ramp characteristics are in Table 2.

Management History

Previous management strategies and actions: Management strategies and actions from the previous survey report (Tibbs and Baird 2008) included:

1. Monitor the reservoir for Hydrilla annually through 2012.
Action: Hydrilla has been monitored annually with summer surveys since the last report. The collected data show only trace amounts of Hydrilla remain.
2. Verify the status and future plans for the power plant.
Action: Numerous conversations were had with representatives from TXU, and it was determined that the power plant would be shut down permanently, unless purchased by another utility company. The power plant remains in TXU's possession, and is not operating.
3. Conduct supplemental gill netting to try and collect Red Drum.
Action: Supplemental gill netting (15 nn) was conducted in fall 2009, and no Red Drum were collected.
4. Obtain average winter temperatures to determine if Red Drum over-wintering is possible.
Action: Two temperature probes were placed in the reservoir during winter 2009/2010, and average daily temperatures were collected. Water temperatures during this time period came close to the known lethal temperatures for Red Drum (39 degrees F), and dropped below temperatures where Red Drum actively stop feeding for more than 40 days.
5. Collect water samples to determine possible differences in dissolved solids in the reservoir.
Action: Water samples collected and tested in summer 2010 differed markedly from those collected in 2002/2003; total dissolved solids and chloride numbers were far lower

than in earlier analysis.

6. Perform a spring quarter creel in 2010 to document angler use of the reservoir including anglers seeking Red Drum.

Action: The summer 2010 quarter creel was performed as scheduled. Red Drum anglers were creeled, but none had caught or observed a Red Drum in nearly two years.

Harvest regulation history: Sportfishes in Tradinghouse Reservoir have always been managed with statewide regulations, with the exception of the Red Drum regulation: a 20-inch minimum length limit, and 3 fish per day bag limit. This regulation is obsolete because Red Drum no longer exist in the reservoir. Current regulations are found in Table 3.

Stocking history: The most recent stockings in Tradinghouse Creek Reservoir were Red Drum fingerlings numbering 376,104 fingerlings in 2009 and 203,661 fingerlings in 2010. The complete stocking history is in Table 4.

Vegetation/habitat management history: Hydrilla first appeared in Tradinghouse Creek Reservoir in 1996, and had quickly spread to 182 acres of coverage by 1999. In April of 2000, 450 triploid grass carp (approximately 2.5 fish/vegetated acre) were stocked into the reservoir to address the hydrilla issue. The county purchased these fish, but TXU sponsored the permit application and arranged the stocking. It was further recommended that mechanical harvesting at access points be implemented if lake access was impeded. Chemical treatment was not recommended. At the end of the summer of 2000, hydrilla coverage was at *trace* levels (probably due to a rise in lake elevation and turbidity caused by heavy rains in June of that year), making mechanical harvesting unnecessary. An additional 250 grass carp were stocked into the reservoir in May 2001 to aid in future control of hydrilla. Noxious vegetation surveys have been conducted on an annual basis ever since to monitor the status of hydrilla in the reservoir.

Water Transfer: No interbasin transfers are known to exist.

METHODS

Fishes were collected by electrofishing (1.0 hour at 12 5-min stations), trap netting (5 net nights at 5 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 trap and 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 2011).

A roving creel survey was conducted during the summer quarter, 2010. Angler interviews were conducted on 5 weekend days and 4 weekdays to assess angler use of the Red Drum fishery and general fish catch/harvest statistics in accordance with the Fishery Assessment Procedures (TPWD, Inland Fisheries Division, unpublished manual revised 2011).

Sampling statistics (CPUE for various length categories), structural indices [Proportional Size Distribution (PSD), terminology modified by Guy et al. 2007], and condition indices [relative weight (W_r)] were calculated for target fishes according to Anderson and Neumann (1996). Index of vulnerability (IOV) was calculated for Gizzard Shad (DiCenzo et al. 1996). Standard error (SE) was calculated for structural indices and IOV. Relative standard error ($RSE = X \text{ SE of the estimate/estimate}$) was calculated for all CPUE and creel statistics. No age and growth analysis was conducted in 2012-2013.

Genetic analysis of Largemouth Bass was conducted according to the Fishery Assessment Procedures (TPWD, Inland Fisheries Division, unpublished manual revised 2011). Micro-satellite DNA analysis was

used to determine genetic composition of individual fish from 2005 through 2012 and by electrophoresis for previous years.

There is currently no source for water level data for Tradinghouse Creek Reservoir.

RESULTS AND DISCUSSION

Habitat: A habitat survey was last conducted in 2008 (Tibbs and Baird 2009).

Creel: Directed fishing effort by anglers was highest for Largemouth Bass (42.3%), followed by anglers fishing for Channel Catfish (17.0%) and crappie (15.5%) (Table 7). Total fishing effort and direct expenditures for the summer quarter at Tradinghouse Creek Reservoir totaled 12,570 hours and \$57,265 (Table 8).

Prey species: Threadfin and Gizzard Shad were collected by electrofisher at 144.0/h and 107.0/h respectively in 2012. The Threadfin Shad catch rate was the highest on record while the Gizzard Shad catch rate was well below the historical average. The index of vulnerability (IOV) for Gizzard Shad was poor as only 48% of Gizzard Shad were available to existing predators as forage. Other important forage species collected were Bluegill (73.0/h), Redear Sunfish (27.0/h) and Longear Sunfish (8.0/h). Panfish seldom reach preferred size classes in Tradinghouse Creek Reservoir. (Figures 1 and 2; Appendices A and B).

Catfishes: Channel Catfish were collected with gill nets at 9.0/nn in 2013; this catch rate equates to 45 collected individuals, and is among the highest catch rates on record. Proportional size distribution values have remained good over the past two surveys indicating more balanced recruitment, growth, and mortality compared to samples collected while the plant operated. Most Channel Catfish sampled were legal size, and good numbers approached the preferred size category of 24 inches. Body condition was excellent, and improved with increasing length (Figure 3; Appendices A and B). An estimated 194 Channel Catfish were harvested from June 2010 through August 2010. Observed harvest showed good angler compliance, and harvested fish ranged in length from 13 to 21 inches (Table 9; Figure 4).

No Blue or Flathead catfish were observed during 2013 sampling.

White Bass: White Bass were collected with gill nets at 3.2/nn in 2013; this catch rate equated to 16 collected individuals, and was near the historical average for the species. The PSD for White Bass has remained above 90 for the past three surveys. The population is skewed towards larger individuals with poor recruitment, possibly due to the absence of feeder tributaries and suitable spawning habitat in the reservoir. Body condition was good (Figure 5; Appendices A and B). No White Bass were observed during the June 2010 through August 2010 creel (Table 10; Figure 6).

Largemouth Bass: Largemouth Bass were collected by electrofisher at 140.0/h in 2012; this catch rate equates to 140 collected individuals, and was below the historical average. Proportional size distribution was good, illustrating a balanced population. The proportion of individuals 14-inches and larger was 10, indicating low numbers of harvestable bass for anglers. Body condition was variable across size classes, but generally poor compared to previous surveys; this is possibly due to relatively low prey availability. Largemouth Bass genetics were last analyzed in 2008 and showed good Florida influence (71%) (Figure 7; Table 11; Appendices A and B). An estimated 918 Largemouth Bass were harvested by anglers from June 2010 through August 2010. Observed harvest showed good angler compliance, and harvested fish ranged from 14 to 18 inches (Table 12; Figure 8).

Crappie: White Crappie were collected from trap nets at 0.8/nn in 2012; this catch rate equates to 4 collected individuals, and was similar to the historical average. White and Black Crappie were also

collected from 2013 spring gill nets at 1.6/nn and 1.8/nn respectfully. The PSD has been variable over the past three surveys, and is currently 100, indicating a population skewed towards larger individuals, and poor recruitment. Body condition was excellent for all size classes sampled (Figure 9; Appendices A and B). An estimated 4,654 crappie were harvested by anglers from June 2010 through August 2010. Observed harvest showed good angler compliance, and harvested fish ranged from 10 to 15 inches (Table 13; Figure 10).

Fisheries management plan for Tradinghouse Creek Reservoir

Prepared – July 2013.

ISSUE 1: Hydrilla and giant cane are present in small amounts in the reservoir.

MANAGEMENT STRATEGIES

1. Continue monitoring the reservoir for noxious vegetation annually through 2017.
2. Work with the county to control this species with appropriate means.

ISSUE 2: The power plant has been permanently closed down, and will not be operational again unless sold to another electric company. A multi-faceted approach to examine the fate of Red Drum in the reservoir determined a complete loss of the Red Drum fishery. The reservoir cannot support Red Drum in its current state.

MANAGEMENT STRATEGIES

1. Permanently discontinue Red Drum stockings unless there is a change in the power plant's status.
2. Update the fish species information for the reservoir on the TPWD website.
3. Submit a regulation change proposal to remove Red Drum regulations listed for the reservoir.

ISSUE 3: Tradinghouse Creek has experienced chronic low water levels since 2010 and boating access was impeded by low water levels in 2012 (Table 2).

MANAGEMENT STRATEGY

1. Discuss extension of existing boat ramps, construction of new ramps, and options to increase shoreline access with the controlling authority, including funding options like the Boating Access Grant to increase accessibility. Unfortunately, existing boat ramp locations show little promise for improved accessibility due to large areas of shallow water in their vicinity.

ISSUE 4: Many invasive species threaten aquatic habitats and organisms in Texas and can adversely affect the state ecologically, environmentally, and economically. For example, zebra mussels (*Dreissena polymorpha*) can multiply rapidly and attach themselves to any available hard structure, restricting water flow in pipes, fouling swimming beaches and plugging engine cooling systems. Giant Salvinia (*Salvinia molesta*) and other invasive vegetation species can form dense mats, interfering with recreational activities like fishing, boating, skiing and swimming. The financial costs of controlling and/or eradicating these types of invasive species are significant. Additionally, the potential for invasive species to spread to other river drainages and reservoirs via watercraft and other means is a serious threat to all public waters of the state.

MANAGEMENT STRATEGIES

1. Cooperate with the controlling authority to post appropriate signage at access points around the reservoir.
2. Educate the public about invasive species through the use of media and the internet when appropriate.
3. Make a speaking point about invasive species when presenting to constituent and user groups. Keep track of (i.e., map) existing and future inter-basin water transfers to facilitate potential invasive species responses.

SAMPLING SCHEDULE JUSTIFICATION:

Proposed sampling schedule includes standard electrofisher, trap net, and gill net sampling in 2016-17, annual monitoring of noxious vegetation, and an access survey prior to the 2016 report (Table 7).

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- DiCenzo, V. J., M. J. Maceina, and M. R. Stimert. 1996. Relations between reservoir trophic state and Gizzard Shad population characteristics in Alabama reservoirs. North American Journal of Fisheries Management 16:888-895.
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- Fishery Assessment Procedures. 2011. TPWD, Inland Fisheries Division, unpublished manual revised 2011.
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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. Boat ramp characteristics for Tradinghouse Creek Reservoir, Texas, August, 2012. Latitude and longitude are in decimal degrees..

Boat ramp	Latitude	Longitude	Public?	Parking capacity	Condition
Number one	31.5499;	-96.9637	Y	10	Poor, limited access
Number two	31.5509;	-96.9619	Y	16	Poor, limited access
Number three	31.5554;	-96.9415	Y	8	Poor, limited access
Number four	31.5746;	-96.9335	Y	12	Poor, limited access

Table 3. Harvest regulations for Tradinghouse Creek Reservoir, Texas.

Species	Bag limit	Length limit
Catfish: Channel and Blue Catfish, their hybrids and subspecies	25 (in any combination)	12-inch minimum
Catfish, Flathead	5	18-inch minimum
Bass, White	25	10-inch minimum
Bass, Largemouth	5 ^a	14-inch minimum
Bass, Spotted	5 ^a	None
Red Drum	3	20-inch minimum
Crappie: White and Black Crappie, their hybrids and subspecies	25 ^b (in any combination)	10-inch minimum

^a Daily bag for Largemouth Bass, Spotted Bass, and Guadalupe Bass = 5 fish in any combination.

^b Daily bag for White Crappie and Black Crappie = 25 fish in any combination.

Table 4. 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	Number	Life Stage	Mean TL (in)
Black Crappie x White Crappie	1995	101,848	FRY	0.9
	1996	201,132	FRY	0.9
	Total	302,980		
Blue Catfish	1986	21,122	FGL	2.0
	Total	21,122		
Channel Catfish	1968	10,600	AFGL	7.9
	Total	10,600		
Florida Largemouth Bass	1985	59,294	FGL	2.0
	1985	98,338	FRY	1.0
	1986	100,566	FRY	1.0
	Total	258,198		
Largemouth Bass	1969	100,000	UNK	UNK
	Total	100,000		
Peacock Bass	1982	1,600		UNK
	Total	1,600		
Red Drum	1975	53,161	UNK	UNK
	1981	200,000	UNK	UNK
	1983	198,500	UNK	UNK
	1984	153,783	FRY	1.0
	1985	408,532	FRY	1.0
	1986	671	ADL	15.0
	1986	245,800	FRY	1.0
	1987	768,810	FRY	1.0
	1989	8,000	FGL	1.2
	1990	69	ADL	11.0
	1990	9,500	FGL	1.1
	1991	224,000	FGL	1.7
	1991	114,066	FRY	1.0
	1991	75,136	UNK	UNK
	1992	90	ADL	13.1
	1992	77,010	FGL	1.8
1992	125,466	FRY	1.0	
1993	206,434	FGL	1.2	
1994	184,000	FGL	1.4	
1995	217,188	FRY	1.0	

Species	Year	Number	Life Stage	Mean TL (in)
	1996	197,399	FGL	1.3
	1997	202,378	FGL	1.1
	1999	268,643	FGL	1.1
	2000	251,815	FGL	1.1
	2001	290,905	FGL	1.1
	2002	4,158	ADL	11.3
	2002	175,964	FGL	1.3
	2003	344,657	FGL	1.3
	2004	370,011	FGL	1.5
	2005	345,238	FGL	1.5
	2006	750	ADL	10.0
	2006	145,847	FGL	1.5
	2007	391,145	FGL	1.4
	2008	358,080	FGL	1.3
	2009	376,104	FGL	1.4
	2010	203,661	FGL	1.3
	Total	7,196,971		
Striped Bass	1980	240,700	UNK	UNK
	Total	240,700		
White Crappie	1992	2,224	FGL	1.4
	1992	10,494	FRY	0.7
	Total	12,718		

Table 5. Survey of structural habitat types, Tradinghouse Creek Reservoir, Texas, 2009. Shoreline habitat type units are in miles.

Habitat type	Estimate (miles)	% of total
Gravel shoreline (rocks < 4")	1.88	9.7
Gravel shoreline (rocks > 4")	2.29	11.8
Natural	14.94	77.2

Table 6. Survey of aquatic vegetation, Tradinghouse Creek Reservoir, Texas, 2009 - 2012. Surface area (acres) is listed with percent of total reservoir surface area in parentheses. In 2011, the reservoir water level was too low to allow access.

Vegetation	2009	2010	2011	2012
Native emergent	5.4 (0.3)	--	--	--
Giant reed	0.6 (.03)	0.6 (.03)	--	0.6 (.03)
Hydrilla	10.2 (0.5)	5.7 (0.3)	--	3.8 (0.2)

Table 7. Percent directed angler effort by species for Tradinghouse Creek Reservoir, Texas, 2010. Survey period was from 1 June through 30 August.

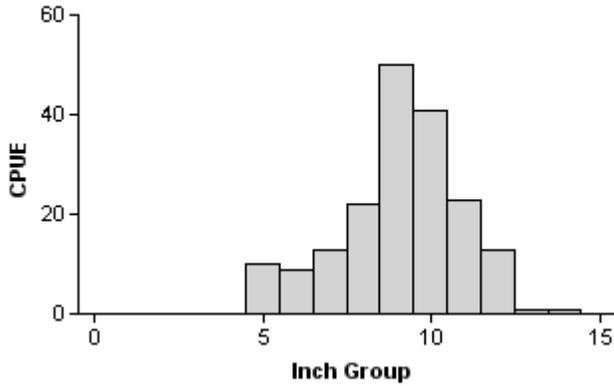
Species	2010
Channel Catfish	17.0
White Bass	0.0
Largemouth Bass	42.3
Crappie	15.5
Red Drum	2.2

Table 8. Total fishing effort (h) for all species and total directed expenditures at Tradinghouse Creek Reservoir, Texas, 2010. Survey period was from 1 June through 30 August. Relative standard error is in parentheses.

Creel statistic	2010
Total fishing effort	12,570 (28)
Total directed expenditures	\$57,265 (44)

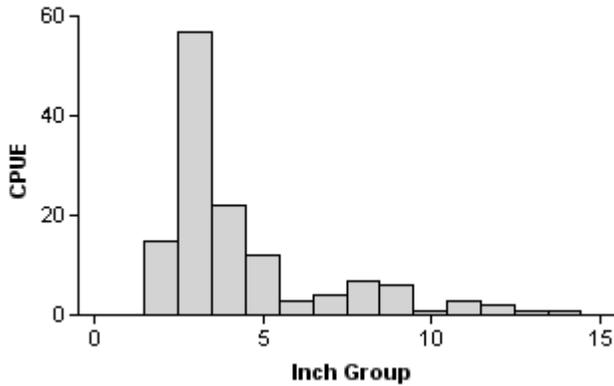
Gizzard Shad

2004



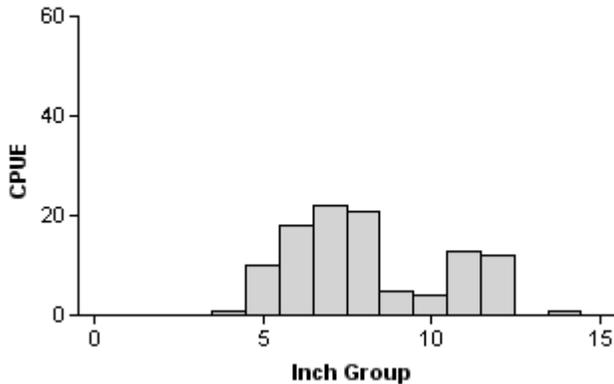
Effort = 1.0
 Total CPUE = 183.0 (22; 183)
 Stock CPUE = 164.0 (21; 164)
 IOV = 17 (10.2)

2008



Effort = 1.0
 Total CPUE = 134.0 (28; 134)
 Stock CPUE = 25.0 (20; 25)
 IOV = 84 (5.4)

2012

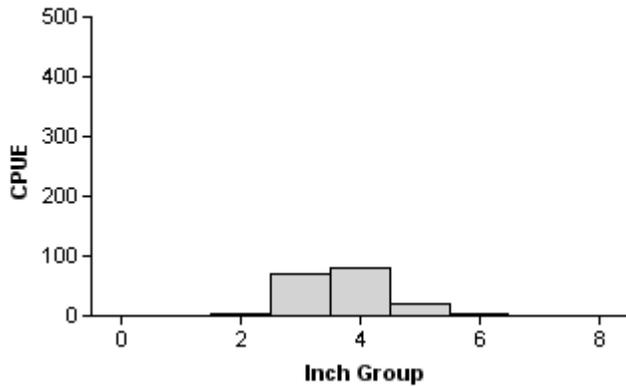


Effort = 1.0
 Total CPUE = 107.0 (18; 107)
 Stock CPUE = 78.0 (20; 78)
 IOV = 48 (9.7)

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, 2004, 2008, and 2012.

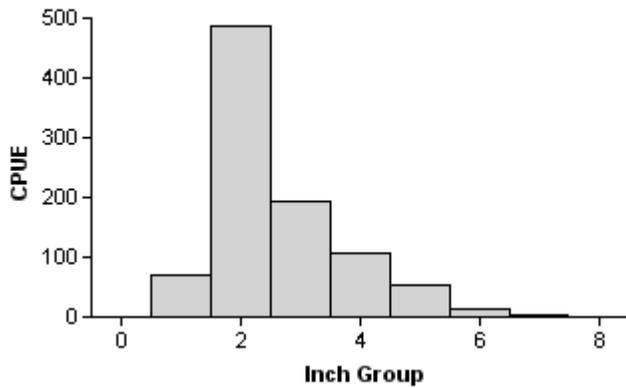
Bluegill

2004



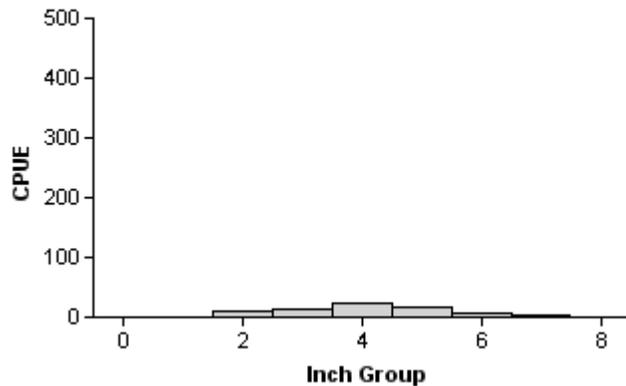
Effort = 1.0
 Total CPUE = 176.0 (20; 176)
 Stock CPUE = 172.0 (20; 172)
 PSD = 1 (1.2)

2008



Effort = 1.0
 Total CPUE = 927.0 (21; 927)
 Stock CPUE = 370.0 (24; 370)
 PSD = 4 (1.2)

2012

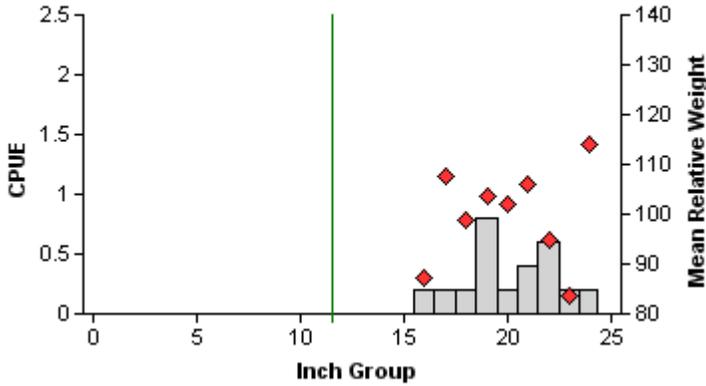


Effort = 1.0
 Total CPUE = 73.0 (25; 73)
 Stock CPUE = 62.0 (31; 62)
 PSD = 16 (7.7)

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, 2004, 2008, and 2012.

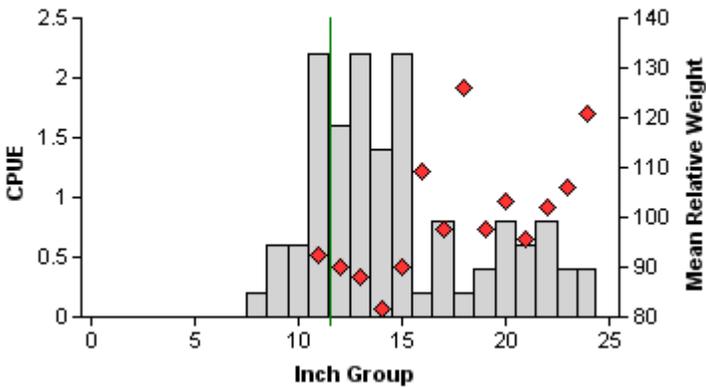
Channel Catfish

2005



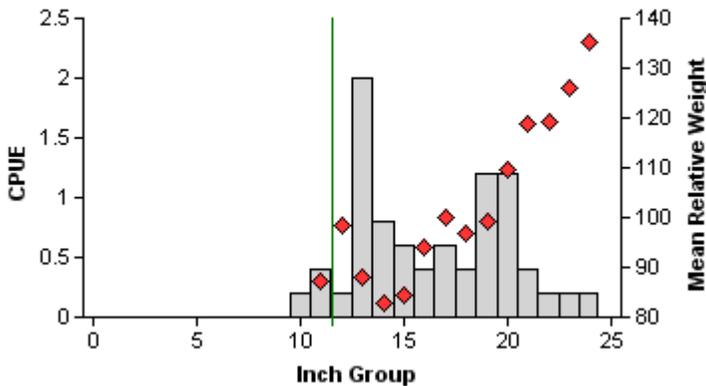
Effort = 5.0
 Total CPUE = 3.0 (28; 15)
 Stock CPUE = 3.0 (28; 15)
 PSD = 100 (0)
 PSD-12 = 100 (0)

2009



Effort = 5.0
 Total CPUE = 15.6 (36; 78)
 Stock CPUE = 14.2 (33; 71)
 PSD = 32 (17)
 PSD-12 = 85 (7.7)

2013



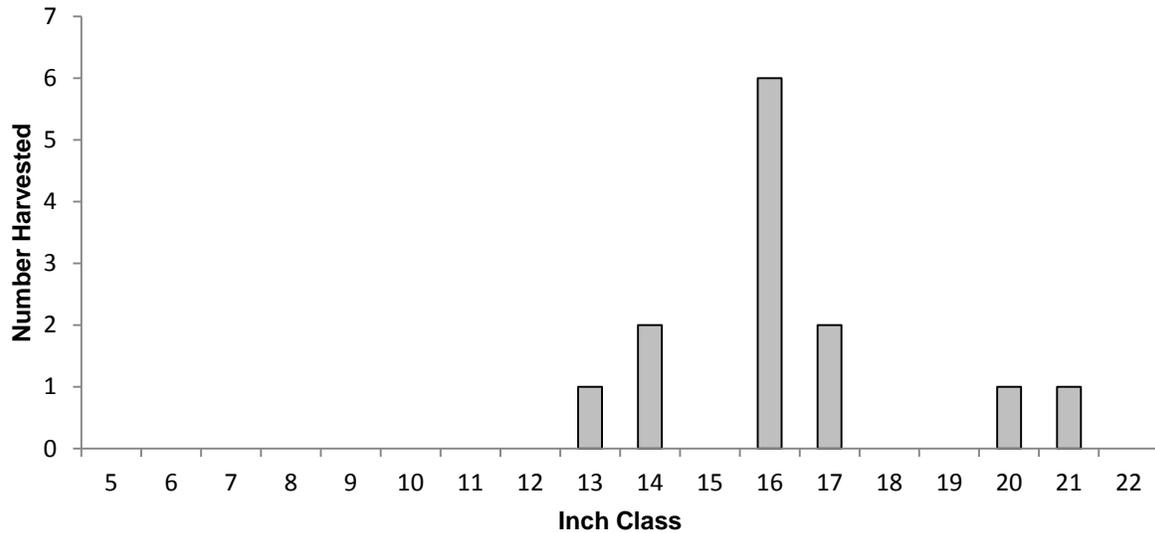
Effort = 5.0
 Total CPUE = 9.0 (19; 45)
 Stock CPUE = 8.8 (18; 44)
 PSD = 55 (7.4)
 PSD-12 = 95 (2.3)

Figure 3. 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, 2005, 2009, and 2013.

Channel Catfish

Table 9. Creel survey statistics for Channel Catfish at Tradinghouse Creek Reservoir from June 2010 through August 2010. Total catch per hour is for anglers targeting Channel Catfish and total harvest is the estimated number of Channel Catfish harvested by all anglers. Relative standard errors (RSE) are in parentheses.

Creel survey statistic	2010
Directed effort (h)	2,138 (37)
Directed effort/acre	1.06 (37)
Total catch per hour	0.27 (59)
Total harvest	194 (171)
Harvest/acre	0.10 (171)
Percent legal released	0.0

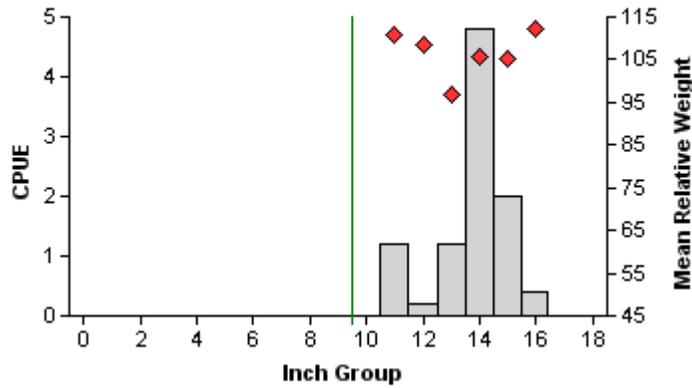


□ 2010 N = 13; TH = 194

Figure 4. Length frequency of harvested Channel Catfish observed during creel surveys at Tradinghouse Creek Reservoir, Texas, June 2010 through August 2010, all anglers combined. N is the number of harvested Channel Catfish observed during creel surveys, and TH is the total estimated harvest for the creel period.

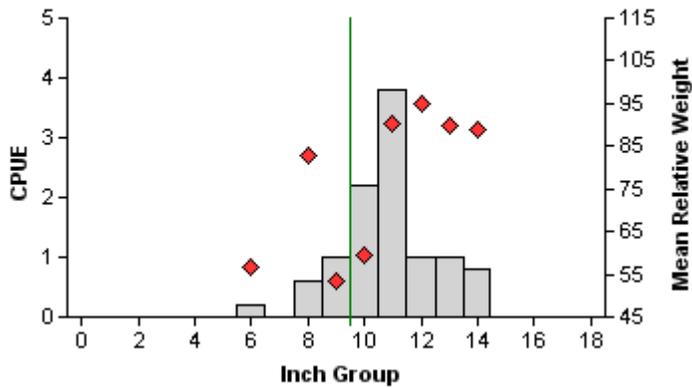
White Bass

2005



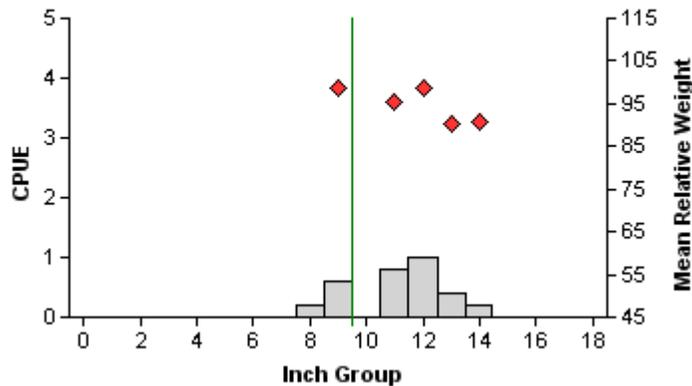
Effort = 5.0
 Total CPUE = 9.8 (40; 49)
 Stock CPUE = 9.8 (40; 49)
 PSD = 100 (0)
 PSD-10 = 100 (0)

2009



Effort = 5.0
 Total CPUE = 10.6 (25; 53)
 Stock CPUE = 10.6 (25; 53)
 PSD = 92 (2)
 PSD-10 = 83 (10.3)

2013



Effort = 5.0
 Total CPUE = 3.2 (36; 16)
 Stock CPUE = 3.2 (36; 16)
 PSD = 94 (6.3)
 PSD-10 = 75 (10.8)

Figure 5. 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, 2005, 2009, and 2013.

White Bass

Table 10. Creel survey statistics for White Bass at Tradinghouse Creek Reservoir from June 2010 through August 2010. Total catch per hour is for anglers targeting White Bass and total harvest is the estimated number of White Bass harvested by all anglers. Relative standard errors (RSE) are in parentheses.

Creel survey statistic	2010
Directed effort (h)	188 (99)
Directed effort/acre	0.09 (99)
Total catch per hour	0.0 (0)
Total harvest	0 (0)
Harvest/acre	0.00 (0)
Percent legal released	0.0

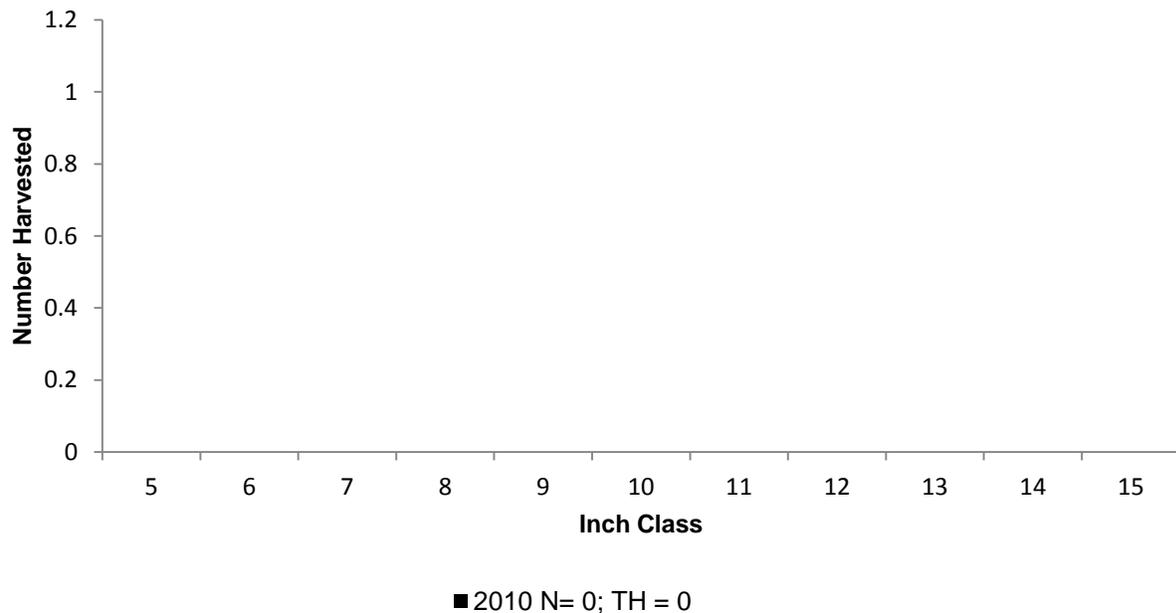
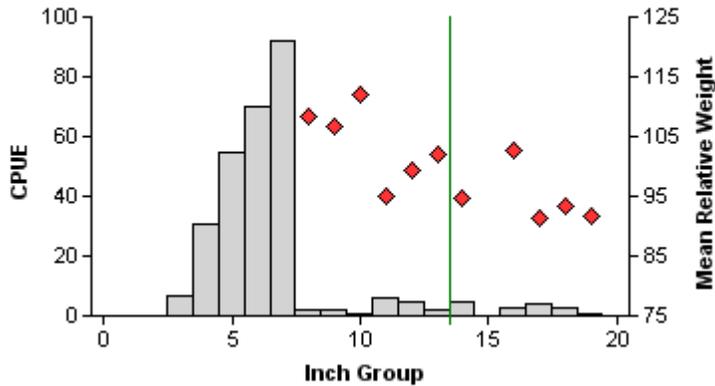


Figure 6. Length frequency of harvested White Bass observed during creel surveys at Tradinghouse Creek Reservoir, Texas, June 2010 through August 2010, all anglers combined. N is the number of harvested White Bass observed during creel surveys, and TH is the total estimated harvest for the creel period.

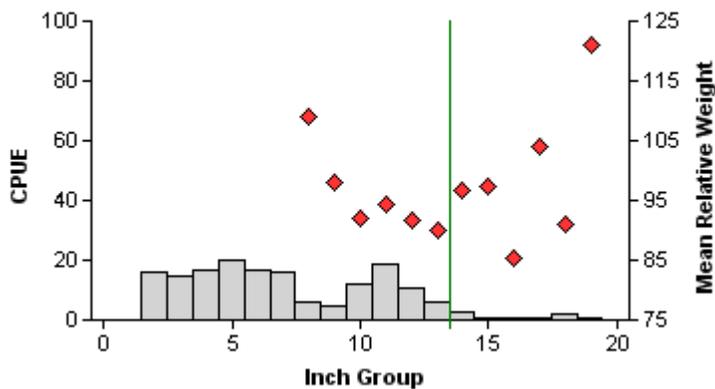
Largemouth Bass

2004



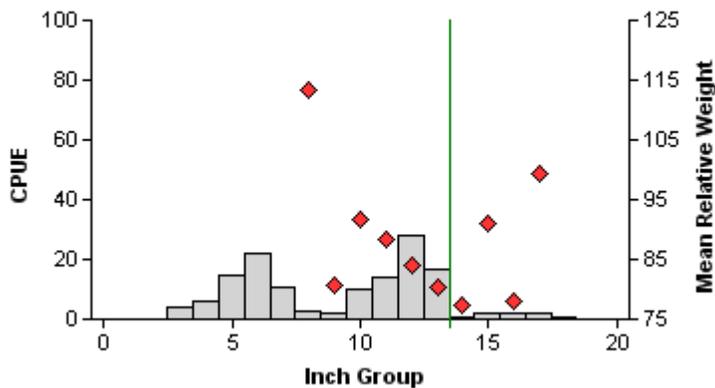
Effort = 1.0
 Total CPUE = 289.0 (41; 289)
 Stock CPUE = 34.0 (24; 34)
 PSD = 68 (6.9)
 PSD-14 = 47 (8.4)

2008



Effort = 1.0
 Total CPUE = 169.0 (13; 169)
 Stock CPUE = 68.0 (24; 68)
 PSD = 38 (5.7)
 PSD-14 = 13 (4.3)

2012



Effort = 1.0
 Total CPUE = 140.0 (16; 140)
 Stock CPUE = 82.0 (20; 82)
 PSD = 65 (6.1)
 PSD-14 = 10 (3.1)

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, 2004, 2008, and 2012. Minimum length limit represented by vertical line.

Largemouth Bass

Table 11. Creel survey statistics for Largemouth Bass at Tradinghouse Creek Reservoir from June 2010 through August 2010. Total catch per hour is for anglers targeting Largemouth Bass and total harvest is the estimated number of Largemouth Bass harvested by all anglers. Relative standard errors (RSE) are in parentheses.

Creel survey statistic	2010
Directed effort (h)	5,319 (34)
Directed effort/acre	2.64 (34)
Total catch per hour	1.09 (24)
Total harvest	918 (71)
Harvest/acre	0.46 (71)
Percent legal released	37.5

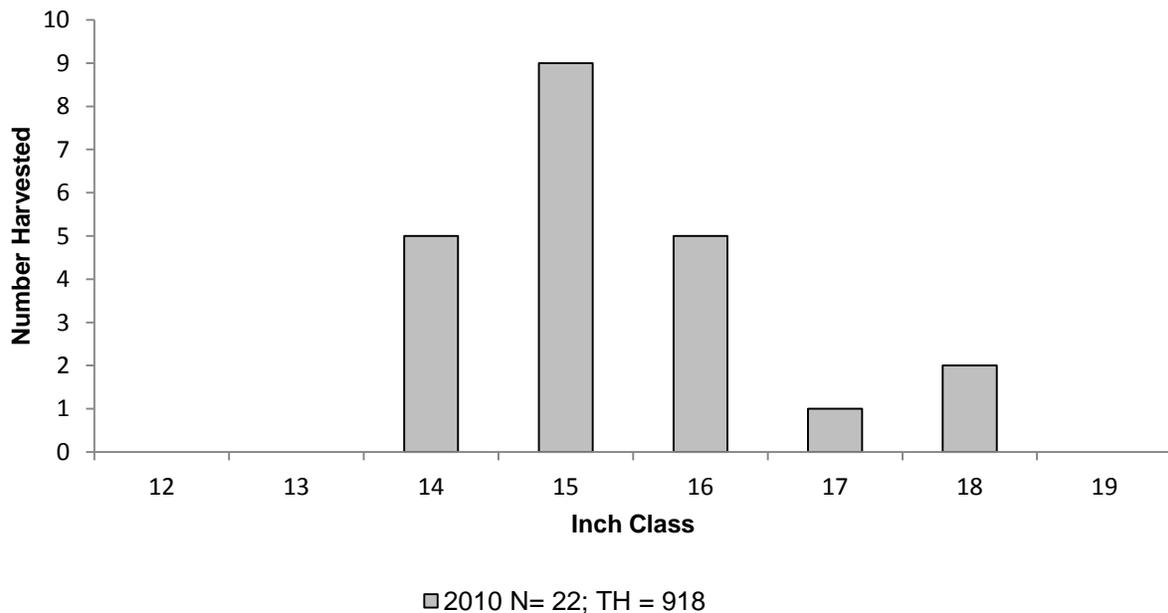


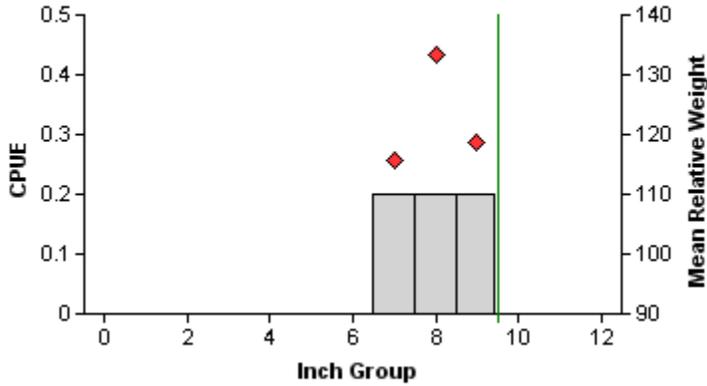
Figure 8. Length frequency of harvested Largemouth Bass observed during creel surveys at Tradinghouse Creek Reservoir, Texas, June 2010 through August 2010, all anglers combined. N is the number of harvested Largemouth Bass observed during creel surveys, and TH is the total estimated harvest for the creel period

Table 12. Results of genetic analysis of Largemouth Bass collected by fall electrofishing, Tradinghouse Creek Reservoir, Texas. FLMB = Florida Largemouth Bass, NLMB = Northern Largemouth Bass, Intergrade = hybrid between a FLMB and a NLMB. Genetic composition was determined by electrophoresis prior to 2005 and with micro-satellite DNA analysis since 2005.

Year	Sample size	Number of fish			% FLMB alleles	% FLMB
		FLMB	Intergrade	NLMB		
2000	30	8	21	1	68	26.7
2002	30	8	22	0	74	26.7
2003	30	8	22	0	73	26.7
2004	30	14	13	3	72	46.7
2008	30	0	30	0	71	0.0

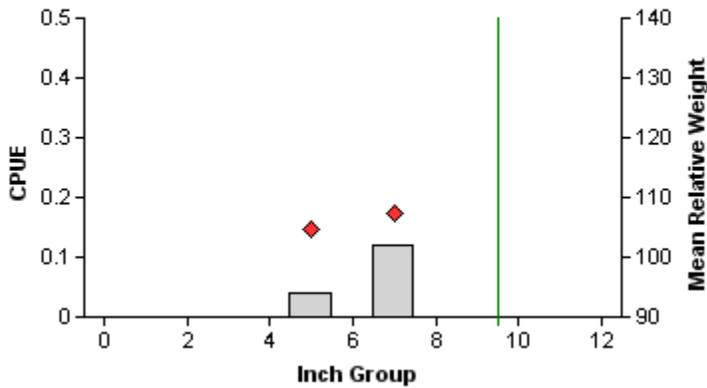
White Crappie

2003



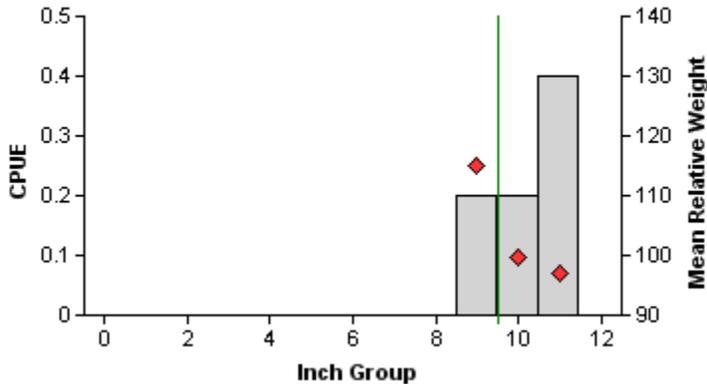
Effort = 5.0
 Total CPUE = 0.6 (58; 3)
 Stock CPUE = 0.6 (58; 3)
 PSD = 67 (19.3)

2004



Effort = 25.0
 Total CPUE = 0.2 (47; 4)
 Stock CPUE = 0.2 (47; 4)
 PSD = 0 (68.5)

2012



Effort = 5.0
 Total CPUE = 0.8 (61; 4)
 Stock CPUE = 0.8 (61; 4)
 PSD = 100 (0)

Figure 9. Number of White Crappie caught per net night (CPUE) and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall trap net surveys, Tradinghouse Creek Reservoir, Texas, 2003, 2004, and 2012. Crappie were not sampled in 2008. Minimum length limit

represented by vertical line.

White Crappie

Table 13. Creel survey statistics for Crappie at Tradinghouse Creek Reservoir from June 2010 through August 2010. Total catch per hour is for anglers targeting Crappie and total harvest is the estimated number of Crappie harvested by all anglers. Relative standard errors (RSE) are in parentheses

Creel survey statistic	2010
Directed effort (h)	1,951 (40)
Directed effort/acre	0.97 (40)
Total catch per hour	4.51 (32)
Total harvest	4,654 (64)
Harvest/acre	2.31 (64)
Percent legal released	0.0

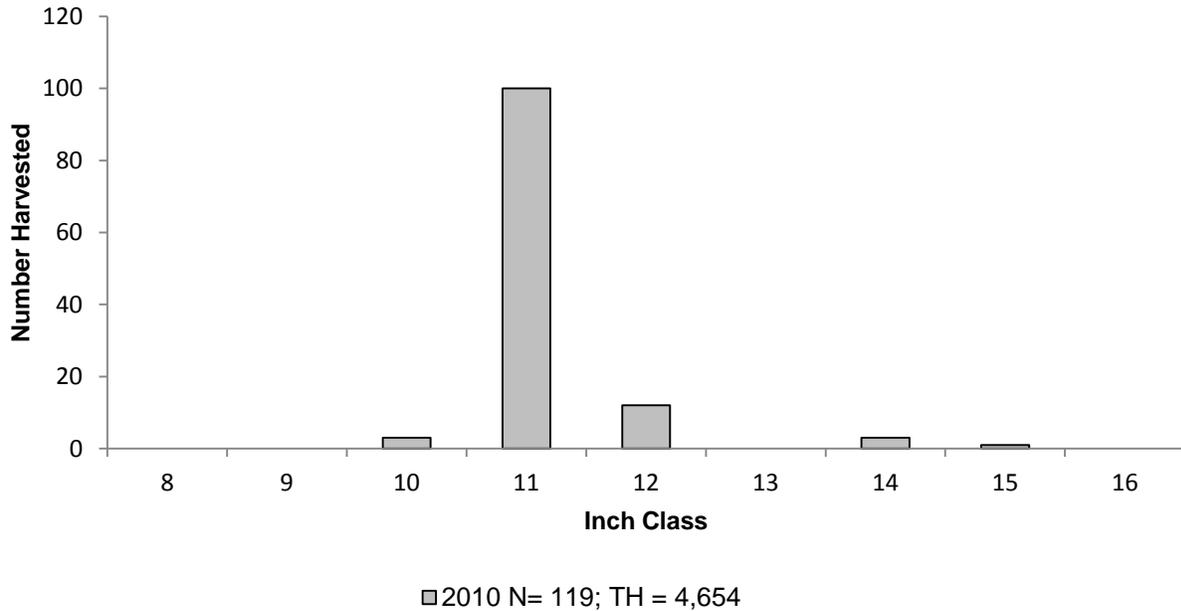


Figure 10. Length frequency of harvested Crappie observed during creel surveys at Tradinghouse Creek Reservoir, Texas, June 2010 through August 2010, all anglers combined. N is the number of harvested Crappie observed during creel surveys, and TH is the total estimated harvest for the creel period.

Table 14. 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	Electrofishing Fall (Spring)	Trap net	Gill net	Habitat			Creel survey	Report
				Structural	Vegetation	Access		
2013-2014					A			
2014-2015					A			
2015-2016					A			
2016-2017	S	S	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, 2012-2013. Sampling effort was 5 net nights for gill netting, 5 net nights for trap netting, and 1 hour for electrofishing.

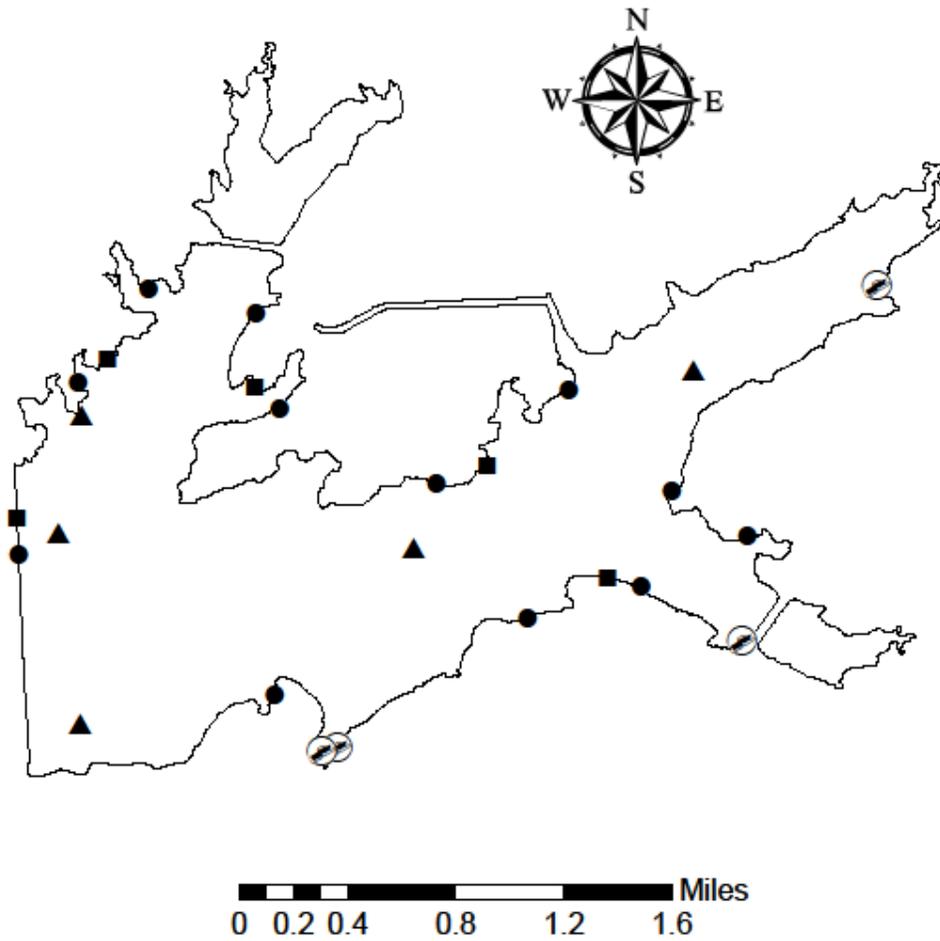
Species	Gill Netting		Trap Netting		Electrofishing	
	N	CPUE	N	CPUE	N	CPUE
Gizzard Shad					107	107.0
Threadfin Shad					144	144.0
Channel Catfish	45	9.0				
White Bass	16	3.2				
Bluegill					73	73.0
Longear Sunfish					8	8.0
Redear Sunfish					27	27.0
Spotted Bass					2	2.0
Largemouth Bass					140	140.0
White Crappie	8	1.6	4	0.8		
Black Crappie	9	1.8				

APPENDIX B

Historical catch rates (CPUE) of targeted species by gear type for standard surveys on Tradinghouse Creek Reservoir, Texas, 1997 to present. All stations were randomly selected. Electrofishing stations were shocked with a 5.0 Smith-Root GPP (Gas Powered Pulsator) until 2010, when a 7.5 Smith-Root GPP began being used. Species averages are in bold.

Gear	Species	1997	1999	2000	2001	2002	2003	2004	2005	2008	2009	2012	2013	Avg.
Electrofisher	Largemouth Bass	181		227		117	177	289		169		140		185.7
	Spotted Bass	0		0		0	0	0		0		2		0.3
	Gizzard Shad	121		441		80	441	183		134		107		215.3
	Threadfin Shad	101		3		5	8	7		52		144		45.7
	Bluegill Sunfish	91		528		421	292	176		927		73		358.3
	Redear Sunfish	10		37		20	39	5		193		27		47.3
	Longear Sunfish	21		41		65	60	57		80		8		47.4
	Green Sunfish	1		0		4	0	0		3		0		1.1
	Warmouth	1		0		0	0	0		3		0		0.6
Gill nets	Channel Catfish	9.6	7.2	3	4.8		7		3		15.6		9	7.4
	White Bass	1.2	0	0.9	1		2.2		9.8		10.6		3.2	3.6
Trap nets	White Crappie	0.6		1.8	0		0.6	0.2				0.8		0.7
	Black Crappie	0		9.8	2		0	0.1				0		2.0

APPENDIX C



Location of electrofishing (circles), trap netting (squares), and gill netting (triangles) sites, Tradinghouse Creek Reservoir, Texas, 2012 and 2013. Boat ramps are also marked.