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

Lake Findley

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July 31, 2013

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SURVEY AND MANAGEMENT SUMMARY

Fish populations in Lake Findley were surveyed in 2012 using hoop netting, electrofishing, and trap netting. The spring gill netting was not conducted because the city of Alice forbid the use of TPWD boats with outboard motors greater than 15 horsepower on the reservoir. Historical data are presented with the 2012 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:** Lake Findley is a 247-acre reservoir located on Chilitipin Creek, in the San Fernando Creek Basin, one mile north of Alice. It receives water from Chilitipin Creek and from Lake Corpus Christi via pipeline, and is used for water supply and recreation. Shoreline access is adequate, whereas challenged and boat access was inadequate. There are no challenged specific facilities and no improved boat ramp. The boat ramp is located on the west side of the reservoir but can only accommodate small vessels. There is a 15 horsepower outboard maximum size limit on the reservoir (Code of Ordinances Section 62-147). The lake is shallow and turbid with substrate comprised of small rock, clay, sand, and silt. Littoral habitat at the time of sampling consisted of spatterdock, fallen timber, and rip rap.

- **Management History:** Important sport fish species include Largemouth Bass, Palmetto Bass, Blue and Channel Catfish, and Crappie. Palmetto Bass stockings continued in the spring 2009 and 2011. The 2009 management plan focused on stocking Palmetto Bass, publicizing the new Blue Catfish population, and conducting an electrofishing survey in 2010 to document status of Largemouth Bass and stock if necessary. Palmetto Bass were stocked in 2009 and 2011 at 7.5/acre and 12.2/acre, respectively. Both stockings were reported in the Alice Echo News. A spring electrofishing survey was conducted to look for Palmetto Bass with only one Palmetto Bass collected. Press releases regarding the Blue Catfish fishery were prepared and distributed to the Alice Echo News. Largemouth Bass were readily observed during the Palmetto Bass electrofishing survey.

- **Fish Community**

    - **Prey species:** Forage species included Threadfin and Gizzard shads and several sunfish species. Shad were the predominant forage in the reservoir. All forage species were of sufficient sizes to be prey for adult predator species.

    - **Catfishes:** Blue and Channel catfishes were historically present in the reservoir. Blue Catfish were first collected from Lake Findley in fall 2004.

    - **Palmetto Bass:** Palmetto Bass were stocked in 2009 and 2011. A single Palmetto Bass was collected in the spring 2010 electrofishing survey and was 12-inches in total length. Anecdotal reports suggest anglers were catching Palmetto Bass.

    - **Largemouth Bass:** Numerous Largemouth Bass were observed in the spring 2010, Palmetto Bass electrofishing survey but were not measured or weighed. One Largemouth Bass was collected during the fall 2012 electrofishing survey.

    - **Crappie:** Both Black and White Crappie were present in the reservoir, with Black Crappie being the predominant species.

- **Management strategies:** Continue to manage fish populations under current regulations. Remove Lake Findley from the 4-year rotation list of reservoirs because of its size (<500 acres) and the inability to use current fisheries sampling gear due to the horsepower restrictions.

INTRODUCTION

This document is a summary of fisheries data collected from Lake Findley in 2012. 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 2012 data for comparison.

Reservoir Description

Lake Findley is a 247-acre reservoir located on Chilitipin Creek, in the San Fernando Creek Basin, one mile north of Alice. It receives water from Chilitipin Creek and from Lake Corpus Christi via pipeline, and is used for water supply and recreation. The lake is shallow and turbid with substrate comprised of small rock, clay, sand, and silt. Water level fluctuates frequently in this reservoir (Figure 1). Littoral habitat at the time of sampling consisted of spatterdock, fallen timber, and rip rap. Native aquatic vegetation was planted as a mitigation project for a prior fish kill. Survival of the native aquatic vegetation has been highly variable due to water level fluctuations. Emergent (bulltongue and pickerel weed) and floating-leaf species (spatterdock) have established and spread beyond the planting sites. Submersed species (water stargrass) are present in the reservoir but sparsely scattered along the shoreline. A barrier was installed at the canal/reservoir interface to prevent fish from entering the canal during pumping periods as anoxic water conditions can occur. Since the installation of this barrier there have been no reported fish kills. Other descriptive characteristics for Lake Findley are in Table 1.

Angler Access

Shoreline access is excellent and there is one fishing pier. Boat access is poor, as there is one unimproved boat ramp located on the west side of the reservoir. The boat ramp can only accommodate small vessels due to the shallow water. Dredging the launch area would improve the conditions but boats with outboard motors greater than 15 horsepower are prohibited on the reservoir (Code of Ordinances Section 62-147).

Management History

Previous management strategies and actions: Management strategies and actions from the previous survey report (Findeisen and Binion 2009) include:

1. Stock Palmetto Bass at a rate of 10/acre every other year. Monitor Palmetto Bass stockings with gill nets and publicize TPWD efforts regarding the management of this sportfish
   Action: Palmetto Bass were stocked in 2009 at 7.5/acre and in 2011 at 12.2/acre. Gill nets are inefficient in this shallow reservoir, thus an electrofishing survey was conducted to monitor the success of the Palmetto Bass stockings. One Palmetto Bass was collected during the electrofishing survey. Anglers fishing Lake Findley reported lots of Palmetto Bass being caught by the dam. The Alice Echo News ran articles concerning each of the stockings and regulations for Palmetto Bass.

2. Blue Catfish were first documented in the reservoir in 2009 and were not a result of TPWD stockings. The population had become self-sustaining and provided anglers with another sportfish species to target.
   Action: Press releases were written and distributed to the Alice Echo News regarding the blue catfish angling opportunities. In addition to routine gill net surveys, a baited hoop-net survey was conducted to further monitor the Blue Catfish population, however, no Blue Catfish were collected.

3. Largemouth Bass relative abundance dropped to 0.0/hr in 2008. While the population was never robust, it historically provided anglers with fishing opportunities. An additional electrofishing survey was proposed for 2010 to determine if the 2008 survey represented the largemouth population. Stocking requests would be made based on these findings.
   Action: Numerous Largemouth Bass were observed during the Palmetto Bass electrofishing survey, providing evidence the 2008 survey was not representative of the largemouth bass population and stocking was not required.

Harvest regulation history: Sport fish in Lake Findley are currently managed with statewide harvest regulations (Table 2).

Stocking history: Palmetto Bass were stocked in 2009 and 2011. A complete stocking history is in Table 3.

Vegetation/habitat management history: Aquatic vegetation prior to 1998 was limited to one dense, mixed stand of bulrush and cattail and also a variety of spikerushes along the shoreline. Beginning in the summer 1998 TPWD oversaw the implementation of a native vegetation establishment project at Lake Findley. This served as the city of Alice's mitigation project for a fish kill in 1996. The project, completed in the summer 2000, attempted to establish emergent, floating-leaf, and submersed native aquatic vegetation to enhance fish habitat. Approximately 1,000 plants were planted by the end of the mitigation project. By 2002, species such as water stargrass, pickerel weed, bulltongue, white water lily, and spatterdock had established and were beginning to colonize other areas of the reservoir. The low water level in 2003 was detrimental to the water stargrass stands. Remaining established species have continued to flourish.

Water transfer: Lake Findley is primarily used for municipal water supply for the city of Alice, recreation, and to a lesser extent, flood control. Lake Findley receives water from Chilitipin Creek and two pipelines from Lake Corpus Christi.

METHODS

Fishes were collected by electrofishing (1.0 hour at 12 5-minute stations), trap netting (7 net nights at 7 stations), and hoop netting (5 sets 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 hoop nets as the number of fish caught in one net set overnight (fish/nn). A shoreline habitat survey was conducted in 2008, and an access and aquatic vegetation survey were conducted in August 2012. 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).

Sampling statistics (CPUE for various length categories) and structural indices [Proportional Size Distribution (PSD), terminology modified by Guy et al. 2007, Relative Stock Density (RSD)] and condition indices [relative weight (W_r)] were calculated for target fishes according to Anderson and Neumann (1996). The 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 = 100 X SE of the estimate/estimate) was calculated for all CPUE statistics.

Source for water level data was the city of Alice.

RESULTS AND DISCUSSION

Habitat: Shoreline habitat consisted of natural shoreline (sand/mud bank), eroded bank in Chiltipin Creek, and rip rap along the dam. Aquatic vegetation consisted of spatterdock, water primrose, water stargrass, bulrush, cattail, and pickerel weed. Excluding bulrush and cattail, the other species were the results of the native vegetation mitigation project and totaled 3.2 acres. Native vegetation surface coverage was similar to the previous survey. Additional information concerning habitat is presented in Tables 5 and 6 and Figure 2.

Prey species: The 2012 electrofishing CPUE for Gizzard Shad was 148.0/h (Figure 3). Gizzard Shad catch rates increased from 25.0/h in 2004 and 95.0/h in 2008. The Index of Vulnerability (IOV) for Gizzard Shad was 98, similar to previous years, indicating that nearly all of the Gizzard Shad collected were less than 8 inches and vulnerable to predation. The 2008 Threadfin Shad electrofishing CPUE was 142.0/h substantially lower than the 1,511.0/h collected in 2008. Shad populations, combined, appeared to be adequate for existing predators.

The 2012 electrofishing catch rate for Bluegill was 44.0/h, similar to the catch rate in 2008 but less than the 135.0/h in 2004 (Figure 4). All Bluegill collected were less that 5-inches in length and available to existing predators.

Blue Catfish: Blue Catfish were not collected with any of the sampling gears since the spring 2009 gill net survey (Figure 5). The spring 2013 gill net survey was not conducted because TPWD survey boats were prohibited on the reservoir for having outboard motors that exceeded the 15 horsepower limit.

Channel Catfish: The spring 2013 gill net survey was not conducted because TPWD survey boats were prohibited on the reservoir for having outboard motors that exceeded the 15 horsepower limit (Figure 6). A baited, hoop net survey was conducted in Summer 2012 and one Channel Catfish was captured.

Palmetto Bass: The spring 2013 gill net survey was not conducted because TPWD survey boats were prohibited on the reservoir for having outboard motors that exceeded the 15 horsepower limit (Figure 7). A Palmetto Bass-only electrofishing survey was conducted in the spring 2010 to monitor stocking survival and recruitment. The electrofishing survey was conducted in lieu of a gill net survey because gill nets can be ineffective in this shallow reservoir and it was thought the Palmetto Bass may not have recruited to sizes large enough to be captured by gill nets. One Palmetto Bass was captured during the electrofishing survey and was a little over 12-inches in length.

Largemouth Bass: One Largemouth Bass was collected in the fall 2012 electrofishing survey (Figure 8). Numerous Largemouth Bass were observed (no length or weight data was collected) during the spring 2010 Palmetto Bass-only electrofishing survey. Plans to conduct an electrofishing survey in the spring 2013 to compare to the fall surveys were cancelled because TPWD survey boats were prohibited on the reservoir.

White Crappie: The 2012 trap net CPUE for White Crappie was 0.3/nn, lower than previous years 2004 (23.8/nn) and 2008 (2.6/nn) (Figure 9). Trap net catch rates of White Crappie have decreased over time for reasons currently unknown.

Black Crappie: The 2012 trap CPUE rate for Black Crappie was 2.1/nn, similar to 2004 (2.2/nn) (Figure 10). No Black Crappie were collected during the 2008 trap net survey (Figure 10). Body condition, of the few fish greater than Stock-size, was good with W_r values near 100 for most inch classes.

ISSUE 1 Boats are limited to a maximum of 15 horsepower outboard motors under Section 62-147 of the city of Alice's Code of Ordinances. In February 2013, Inland Fisheries staff were informed (by city of Alice officials) that TPWD boats equipped with outboard motors exceeding 15 hp were also prohibited on the reservoir, thus, prohibiting fisheries surveys/monitoring with current equipment. Inland Fisheries staff were unsuccessful in contacting the City Manager to further discuss the horsepower restriction. Additionally, this reservoir is less than the 500 acre minimum for general rotation reservoirs as suggested in the Inland Fisheries Division guidelines.

MANAGEMENT STRATEGIES

1. Remove Lake Findley from the 4-year rotation list of reservoirs because of its size (<500 acres) and the inability to use current fisheries sampling gear due to the horsepower restrictions.

SAMPLING SCHEDULE JUSTIFICATION:
Future sampling on this reservoir will be dependent upon exemption from the horsepower restriction and designed to address specific objectives.

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Guy, C. S., R. M. Neumann, D. W. Willis, and R. O. Anderson. 2007. Proportional size distribution: A further refinement of population size structure index terminology. Fisheries 32: 348.

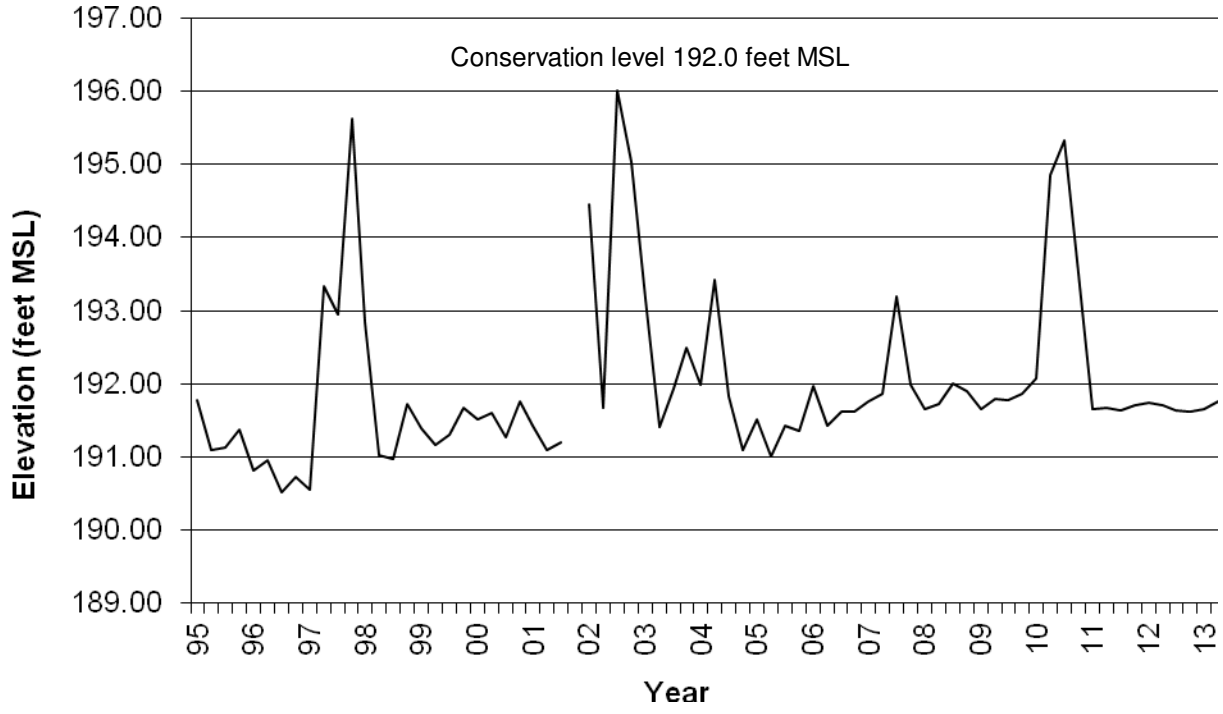


Figure 1. Quarterly water level elevations in feet above mean sea level (MSL) recorded for Lake Findley, Texas, January 1995 through June 2014. Note water level elevation data from August 2004 through December 2004 not available.

Table 1. Characteristics of Lake Findley, Texas.

Characteristic	Description
Year constructed	1965
Controlling authority	City of Alice
County	Jim Wells
Reservoir type	Reservoir/City Park
Shoreline Development Index	1.7
Conductivity	1227 µS/cm

Table 2. Boat ramp characteristics for Lake Findley, Texas, June 2012. Reservoir elevation at the time of survey was 192 feet above mean sea level.

Boat ramp	Latitude Longitude (dd)	Public	Parking capacity (N)	Elevation at end of boat ramp (ft)	Condition
West Side	27.788469 -98.070161	Y	8	190	Unimproved and shallow; small boats only

Table 3. Harvest regulations for Lake Findley, 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, Palmetto	5	18-inch minimum
Bass, Largemouth	5	14-inch minimum
Crappie: White and Black Crappie, their hybrids and subspecies	25 (in any combination)	10-inch minimum

Table 4. Stocking history of Lake Findley , Texas. FRY = fry; FGL = fingerling.

Year	Number	Size
Channel Catfish		
1968	1,500	FGL
1971	2,000	FGL
1991	7,005	FGL
1995	64,312	FRY
1997	7,744	FGL
1998	7,195	FGL
1999	7,235	FGL
2000	7,200	FGL
2001	7,217	FGL
Species total	111,462	
Palmetto Bass		
1997	4,647	FGL
1998	4,536	FGL
2009	1,840	FGL
2011	3,008	FGL
Species total	14,031	
Largemouth Bass		
1966	24,640	FGL
1968	6,000	FGL
Species total	30,650	
Florida Largemouth Bass		
1996	70,079	FGL
Species total	70,079	
Black Crappie		
1966	4,000	FGL
Species total	4,000	

Table 5. Survey of structural habitat types, Lake Findley, Texas, 2008. Shoreline habitat type units are in miles.

Habitat type	Estimate	% of total
Bulkhead	<0.1 miles	0.4
Natural shoreline	10.2 miles	97.1
Rip-rap	0.3 miles	2.5

Table 6. Survey of aquatic vegetation, Delta Lake, Texas, 1998-2012. Surface area (acres) is listed with the percent of total surface area in parentheses.

Vegetation	1998	2008	2012
Native emergent	0.29 (<0.1)	1.9 (0.8)	1.7 (0.7)
Bulrush	0.29 (<0.1)	0.3 (0.1)	1.0 (0.4)
Cattail		0.7 (0.3)	
Pickerel weed		0.9 (0.4)	0.7 (0.3)
Native floating –leaved		1.9 (0.8)	2.3 (0.9)
Spatterdock		1.9 (0.8)	1.3 (0.5)
Water primrose		<0.1 (<0.1)	1.0 (0.4)
Native submergent		0.2 (0.1)	0.2 (0.1)
American pondweed			<0.1 (<0.1)
Water stargrass		0.2 (0.1)	0.2 (0.1)

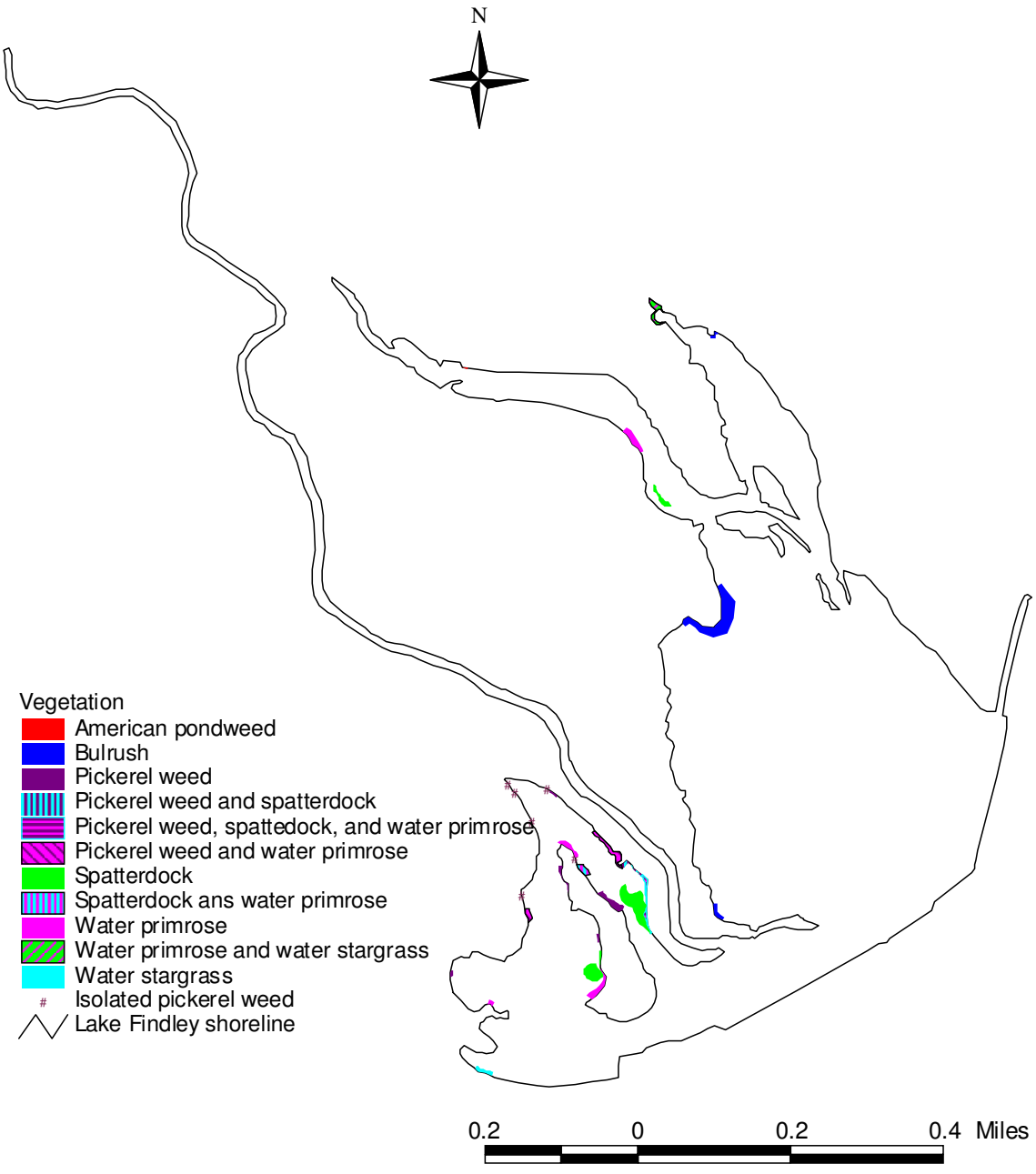
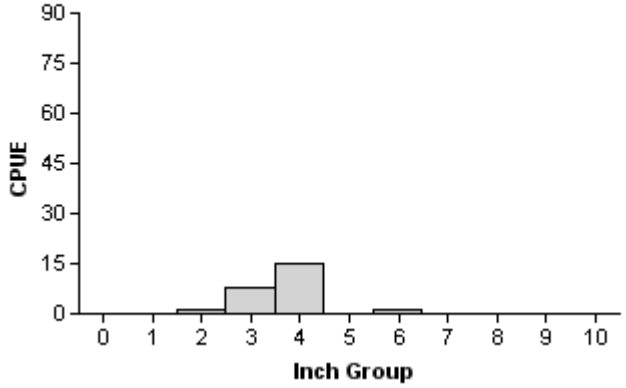


Figure 2. Aquatic vegetation map for Lake Findley, Texas, 2012.

Gizzard Shad

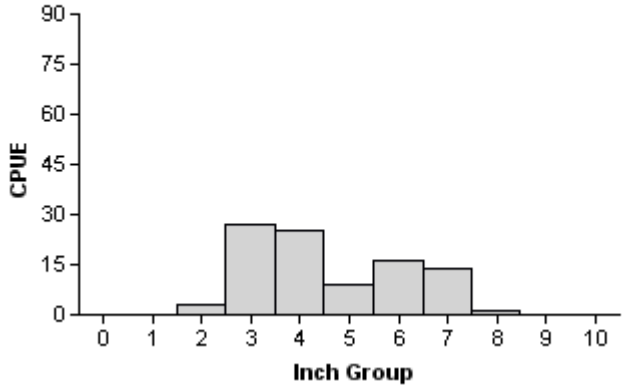
2004

Effort = 1.0
Total CPUE = 25.0 (32; 25)
IOV = 100 (0)



2008

Effort = 1.0
Total CPUE = 95.0 (48; 95)
IOV = 99 (1)



2012

Effort = 1.0
Total CPUE = 148.0 (23: 148)
IOV = 98 (1.4)

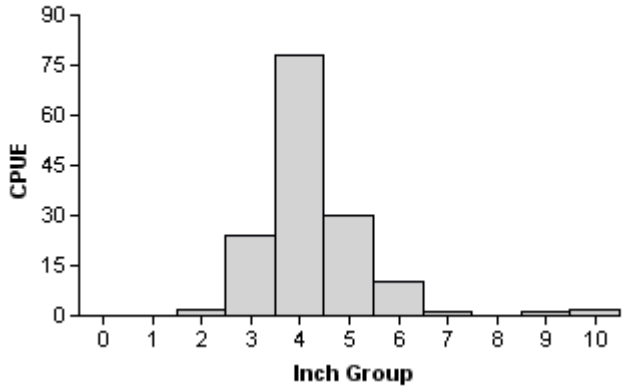
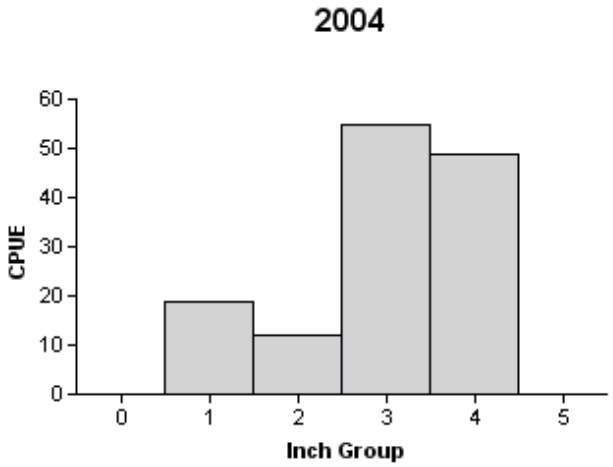
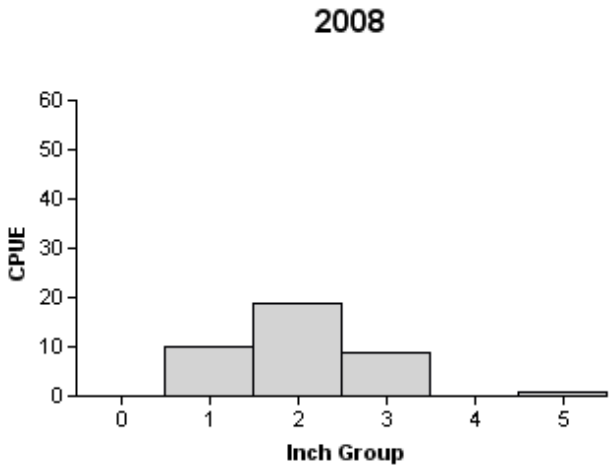


Figure 3. Comparison of the number of Gizzard Shad caught per hour (CPUE, bars) and population indices (RSE and N for CPUE and SE for IOV are in parentheses) for fall electrofishing surveys, Lake Findley, Texas, 2004, 2008, and 2012.

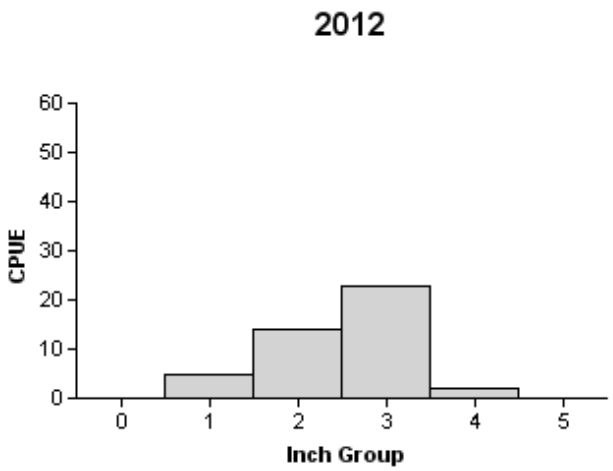
Bluegill



Effort = 1.0
Total CPUE = 135.0 (27; 135)
PSD = 0 (53)



Effort = 1.0
Total CPUE = 39.0 (71; 39)
PSD = 0 (303)



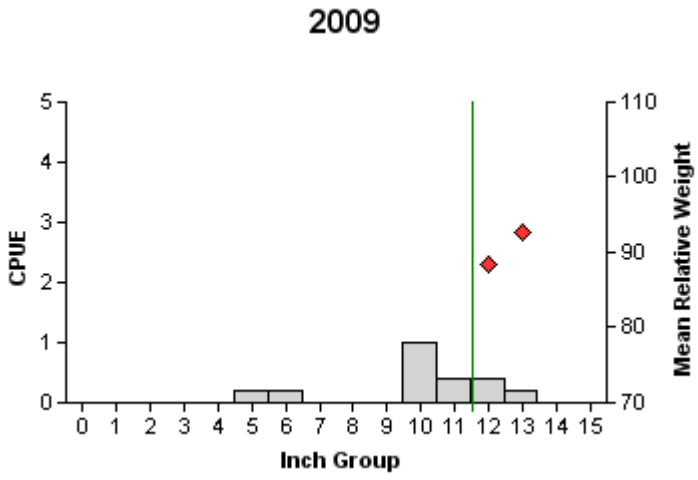
Effort = 1.0
Total CPUE = 44.0 (25; 44)
PSD = 0 (69)

Figure 4. Comparison of the number of Bluegill caught per hour (CPUE, bars) and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, Lake Findley, Texas, 2004, 2008, and 2012.

Blue Catfish

Effort =	5.0
Total CPUE =	0.0
Stock CPUE =	
PSD =	

No Blue Catfish were captured in gill nets in 2005.

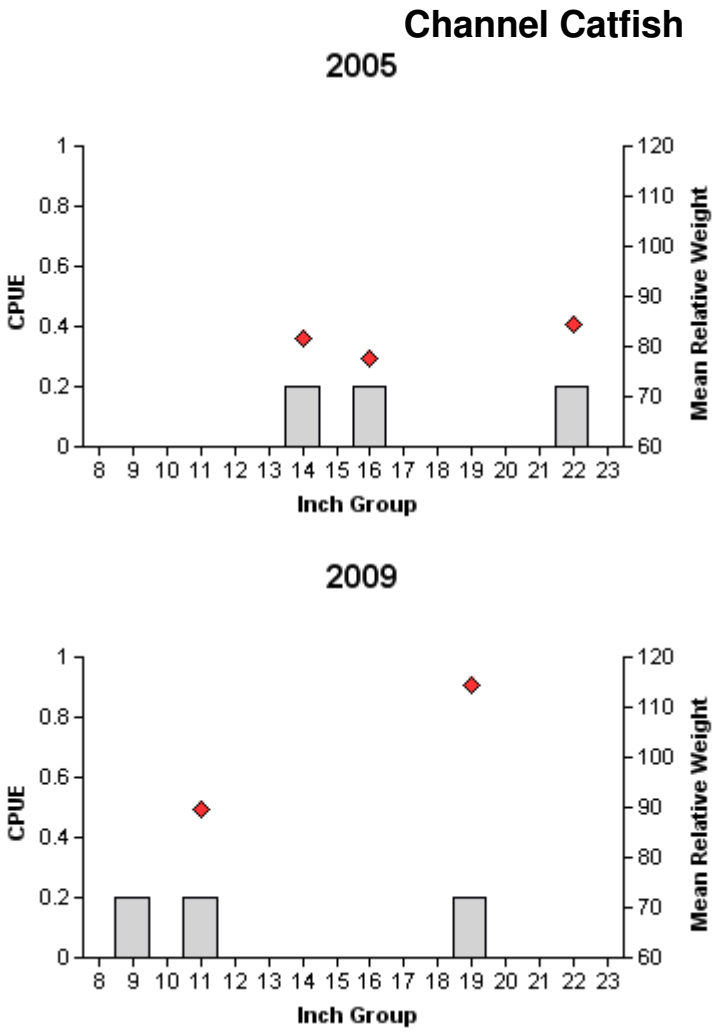


Effort =	5.0
Total CPUE =	2.4 (90; 12)
Stock CPUE =	0.6 (67; 3)
PSD =	0 (412)

Effort =	0.0
Total CPUE =	
Stock CPUE =	
PSD =	

TPWD boats were not permitted on Lake Findley due to horsepower restrictions.

Figure 5. Comparison of the number of Blue Catfish caught per net night (CPUE, bars), mean relative weight (diamonds), and populations indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring gill net surveys, Lake Findley, Texas, 2005 and 2009. Vertical lines denote 12-inch minimum length limit.



Effort =	5.0
Total CPUE =	0.6 (67; 3)
Stock CPUE =	0.6 (67; 3)
PSD =	67 (18)

Effort =	5.0
Total CPUE =	0.6 (67; 3)
Stock CPUE =	0.4 (61; 2)
PSD =	50 (40)

Effort =	0.0
Total CPUE =	
Stock CPUE =	
PSD =	

TPWD boats were not permitted on Lake Findley due to horsepower restrictions.

Figure 6. Comparison of the number of Channel Catfish caught per net night (CPUE, bars), mean relative weight (diamonds), and populations indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring gill net surveys, Lake Findley, Texas, 2005 and 2009.

Palmetto Bass

Effort = 5.0
Total CPUE = 0.0

No Palmetto Bass were captured in gill nets in 2005

Effort = 5.0
Total CPUE = 0.0

No Palmetto Bass were captured in gill nets in 2009.

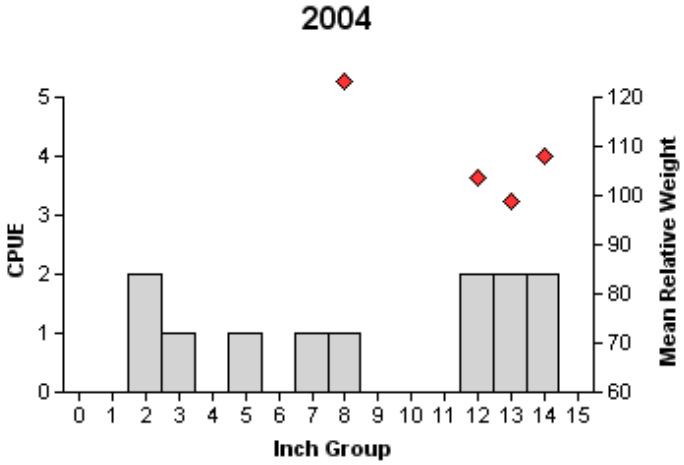
.

Effort = 0.0
Total CPUE =

TPWD boats were not permitted on Lake Findley due to horsepower restrictions.

Figure 7. Comparison of the number of Palmetto Bass caught per net night (CPUE, bars), mean relative weight (diamonds), and populations indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring gill net surveys, Lake Findley, Texas 2005 and 2009.

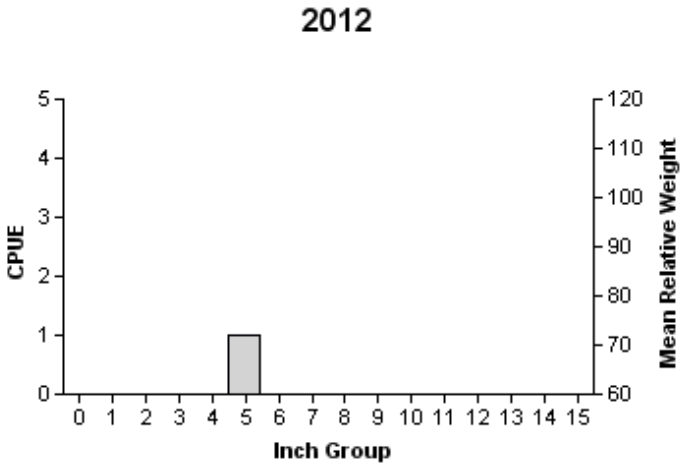
Largemouth Bass



Effort =	1.0
Total CPUE =	12.0 (39; 12)
Stock CPUE =	7.0 (33; 7)
PSD =	86 (12)

Effort =	1.0
Total CPUE =	0.0

No Largemouth Bass were captured by electrofishing in 2008.



Effort =	1.0
Total CPUE =	1.0 (100; 1)
Stock CPUE =	0.0 (0; 0)
PSD =	0 (0)

Figure 8. Comparison of the 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, Lake Findley, Texas, 2004, 2008, and 2012.

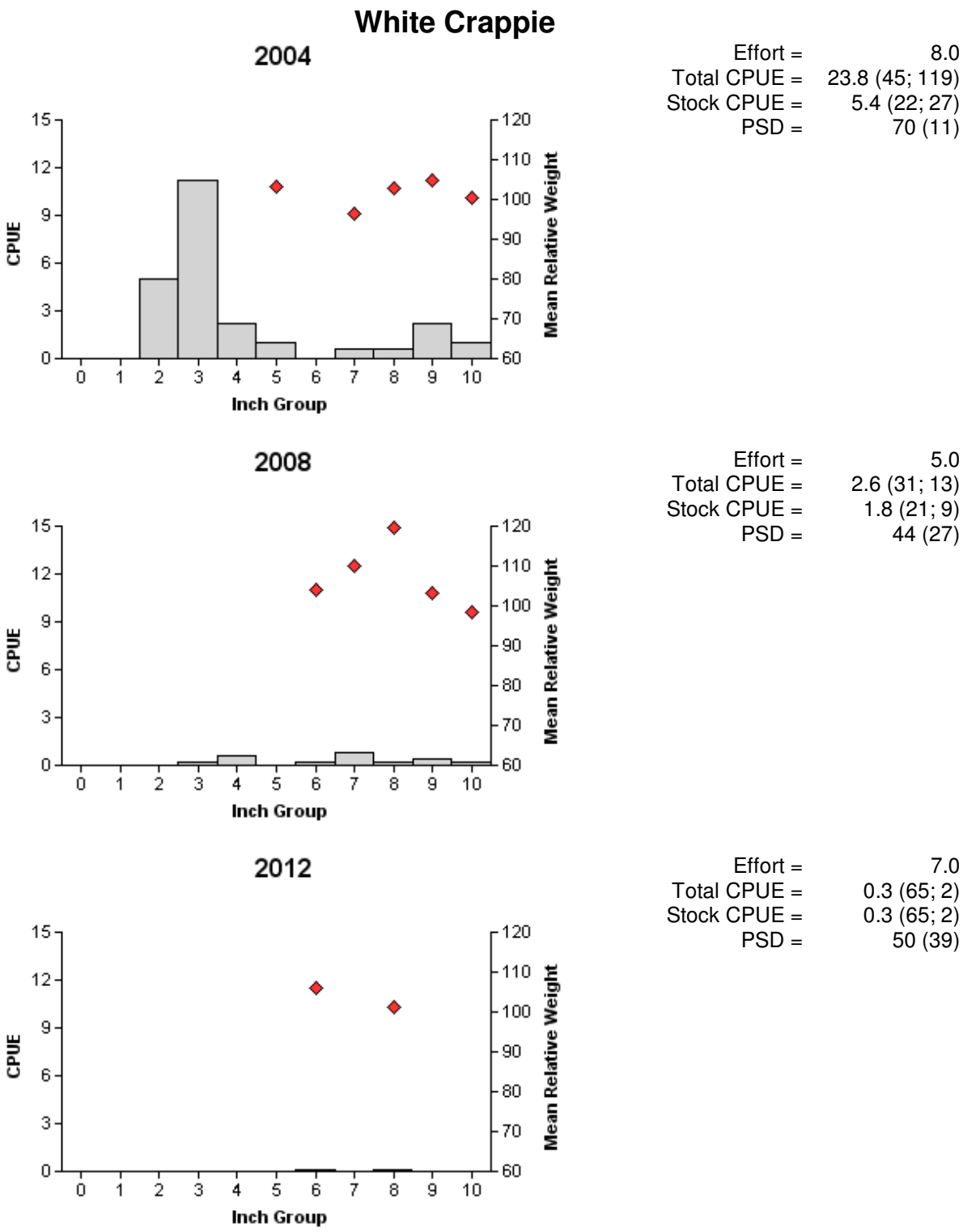
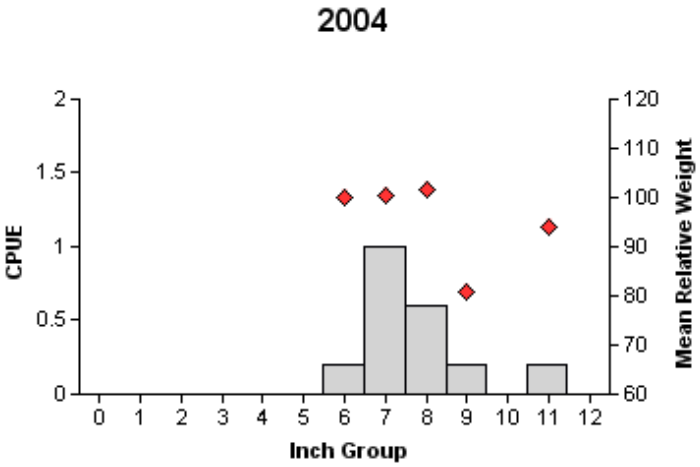


Figure 9. Comparison of the number of White Crappie caught per net night (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall trap net surveys, Lake Findley, Texas, 2004, 2008 and 2012.

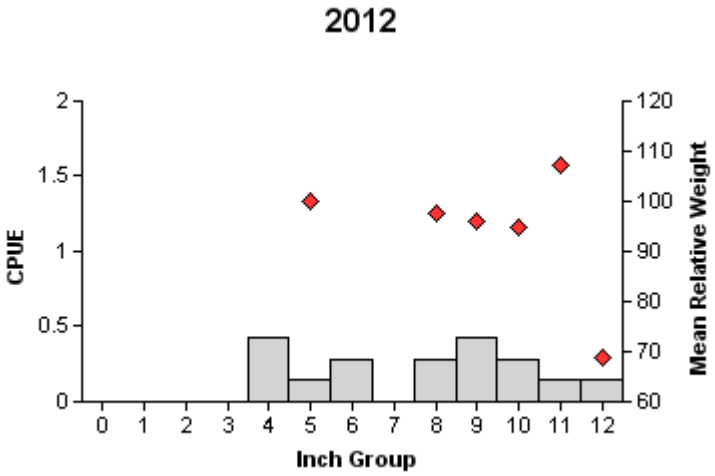
Black Crappie



Effort =	8.0
Total CPUE =	2.2 (49; 11)
Stock CPUE =	2.2 (49; 11)
PSD =	45 (9)

Effort =	5.0
Total CPUE =	0.0
Stock CPUE =	
PSD =	

No Black Crappie were captured in trap nets in 2008.



Effort =	7.0
Total CPUE =	2.1 (24; 15)
Stock CPUE =	1.7 (25; 12)
PSD =	75 (17)

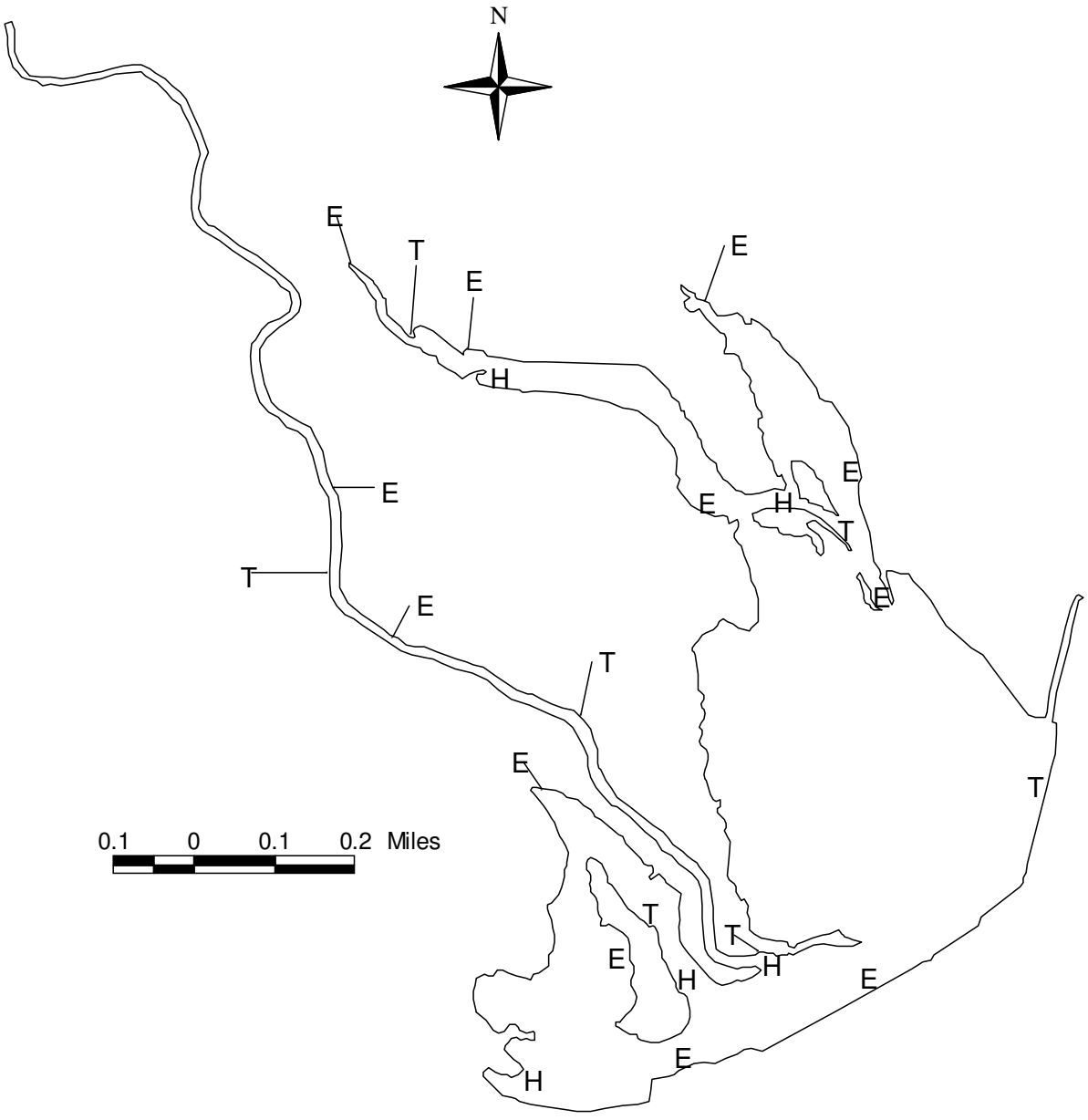
Figure 10. Comparison of the number of Black Crappie caught per net night (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall trap net surveys, Lake Findley, Texas, 2004, 2008, and 2012.

APPENDIX A

Number (N) and catch rate (CPUE) of all species collected from all gear types from Lake Findley, Texas, 2012. Sampling effort was 1.0 hour for electrofishing, 10 net nights for hoop netting, and 7 net nights for gill netting.

	Electrofishing		Hoop Netting		Trap netting	
Species	N	CPUE	N	CPUE	N	CPUE
Spotted Gar			1	0.1	22	3.1
Longnose Gar					5	0.7
Alligator Gar			1	0.1		
Gizzard Shad	148	148.0			64	9.1
Threadfin Shad	142	142.0			20	2.9
Common Carp					2	0.3
Bullhead Minnow	18	18.0				
Smallmouth Buffalo					13	1.9
Channel Catfish			1	0.1		
Warmouth	20	20.0				
Bluegill	44	44.0			6	0.9
Redear Sunfish	8	8.0				
Largemouth Bass	1	1.0				
White Crappie	4	4.0	1	0.1	2	0.3
Black Crappie	2	2.0			15	2.1
Freshwater Drum	1	1.0			1	0.1
Rio Grande Cichlid	9	9.0				

APPENDIX B



Location of sampling sites, Lake Findley, Texas, 2012. Trap net, hoop net, and electrofishing stations are indicated by T, H, and E, respectively.