PERFORMANCE REPORT

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FEDERAL AID PROJECT F-30-R-34

STATEWIDE FRESHWATER FISHERIES MONITORING AND MANAGEMENT PROGRAM

2008 Survey Report

Lake Holbrook

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TABLE OF CONTENTS

SURVEY AND MANAGEMENT SUMMARY

Fish populations in Lake Holbrook were surveyed in 2008 using electrofishing and trap netting, and in 2009 using gill netting. Aquatic vegetation and habitat surveys were conducted on Lake Holbrook during July 2008. Additional assessments were conducted annually from fall 2006 through spring 2009 in order to monitor native plant species which were established in 2006. This report summarizes the results of the surveys and contains a management plan for the reservoir based on those findings.

- **Reservoir description:** Lake Holbrook is a 650-acre impoundment located in Wood County, Texas, on Lankford Creek, a tributary of the Sabine River. The reservoir was constructed by Wood County in 1962 for flood control and recreation. The reservoir contains few aquatic plants. Structural habitat consists primarily of boat docks and standing timber, the latter of which is present in the northern portion of the lake. The few aquatic plants present in the reservoir are emergent vegetation confined to the shoreline.

- **Management history:** Largemouth bass and crappie species are the most important sport fishes present. The management plan from the 2004 survey report recommended monitoring the Florida largemouth bass (FLMB) allele frequency using fin-tissue samples from age-0 largemouth bass collected during fall electrofishing. Florida largemouth bass were stocked most recently in 2008. Beginning in 2006, efforts were made to improve the diversity and extent of native emergent vegetation in the lake. Further, district personnel collaborated with the local homeowner's association in a project to enhance existing habitat in the lake by installing several brush reefs and providing a map of the reefs for use by anglers.

- **Fish community**
  - **Prey species:** Historically, clupeids (shad spp.) have been moderately abundant in Lake Holbrook. The predominant prey species include bluegill, redear sunfish, and other, less-abundant sunfish species. Electrofishing catch of gizzard shad was low, but was represented by a wide size range of individuals. Few threadfin shad were collected. Electrofishing catch of bluegill was high, but few bluegill measured longer than 6 inches. Redear sunfish were also moderately abundant, with many longer than 6 inches present.

  - **Catfishes:** Channel catfish relative abundance was low. Body condition of channel catfish was typically adequate, but absence of sub-stock-sized individuals indicates a lack of recruitment.

  - **Largemouth bass:** Largemouth bass were relatively abundant. Size structure was poor, with few individuals legal-sized (14 inches) or longer. Largemouth bass tended to be of moderate body condition, indicating adequate prey availability.

  - **Crappies:** Both white and black crappies were present in the reservoir, with white crappie being more abundant. Although relative abundance was low, both crappie species showed good size distribution and body condition.

Management strategies: Conduct additional vegetation assessments on an annual basis to monitor the introduced native emergent species and redistribute plants within the reservoir as appropriate. Continue working with the local homeowner's association to enhance fish habitat in the lake. Continue with standard fisheries monitoring using electrofishing and gill netting surveys in 2012-2013.

INTRODUCTION

This document is a summary of fisheries data collected from Lake Holbrook from June 2008 through May 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 and 2009 data for comparison.

Reservoir Description

Lake Holbrook is a 650-acre impoundment constructed in 1962 on Lankford Creek, a tributary of the Sabine River. The reservoir is located in Wood County approximately 24 miles northwest of Tyler, Texas, and is operated and controlled by Wood County. Primary water uses include flood control and recreation. Habitat at time of sampling consisted of natural shoreline, submerged timber, and native emergent vegetation. Boat docks and sunken brush piles also provided useable habitat for fish. Boat access consists of two public boat ramps. Bank fishing access is limited to areas near public boat ramps in the county park and along short road right-of-ways. Other descriptive characteristics for Lake Holbrook are in Table 1.

Management History

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

1. Monitor the largemouth bass population and enhance population genetics through the stocking of FLMB, if justifiable.

   Action: Lake Holbrook was sampled using electrofishing in fall 2006 and 2008. Florida largemouth bass fingerlings were stocked in 2007 and 2008. Although no genetic analysis of age-0 LMB was conducted in 2006, stocking of FLMB was justified due to the lake level returning to conservation pool following a two-year drought. Newly flooded terrestrial vegetation in early 2007 provided excellent habitat for young and juvenile LMB. Furthermore, actions taken to improve emergent vegetation and creation of brush reefs provided additional habitat for LMB.

2. Re-establish native aquatic plant communities, which in turn provide habitat for littoral sport fishes, resulting in improved survival and recruitment of those important species.

   Action: In 2006 and 2007, district staff gathered small quantities of two emergent aquatic vegetation species (waterwillow and pickerelweed) from Lake Coleman in Sulphur Springs. These species were selected based on their availability, resiliency, and usefulness as cover for young fish. Additionally, the source for these plants did not contain problematic exotic species, such as hydrilla or waterhyacinth, reducing the chance of accidental introduction of a nuisance species. In 2008, district staff expanded distribution of emergent vegetation in the lake by moving waterwillow and pickerelweed, which had successfully established itself in Lake Holbrook. Several brush reefs installed in 2007 and 2008 provided additional habitat for sport fishes. These brush reefs were placed by lake homeowners and district staff in locations where they would most likely congregate fish for anglers to target.

3. Improve angler access facilities and promote angling and utilization of the fisheries resources at Lake Holbrook.

   Action: Improvements to the southeast public boat ramp area were made by the controlling authority, Wood County. Periodically, the problematic cattails in the vicinity of the boat ramp were mechanically removed by brush cutting equipment. Improvements were also made to the boat dock. A map of the brush reefs introduced in 2007 and 2008

was produced and provided to anglers via the TPWD website. The map succeeded in assisting anglers who utilize the fisheries resources at Lake Holbrook.

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

Stocking history: Florida largemouth bass (FLMB) were initially introduced in 1978 and stocked again in 1980. Blue catfish were introduced in 1982, but failed to produce a self-sustaining population. Channel catfish were introduced in 1992, and have developed into a limited fishery. Black crappie, exhibiting the "black-stripe" trait, were purchased by the Lake Holbrook Homeowner's Association and stocked by TPWD staff in 2003 as part of a research project. The presence of the "black-stripe" variation was later determined to pre-date the stocking and the research project was terminated. The complete stocking history is in Table 3.

Vegetation/habitat history: Historically, Lake Holbrook contained substantial amounts of native submerged vegetation. Following a drawdown in 1980 to repair and expand the dam, the submerged vegetation disappeared and has remained scarce since that time. Structural habitat in the reservoir has been limited to scattered areas of standing timber, boat docks, and brush piles introduced by stakeholders.

METHODS

Fishes were collected by electrofishing in fall 2006 and 2008 (1 hour at 12, 5-min stations), by trap netting in fall 2008 (5 nets at 5 stations) and gill netting in spring 2009 (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 nets and gill nets, as the number of fish caught per net night (fish/nn). All survey sites were randomly selected and all surveys were conducted according to the Fishery Assessment Procedures (Texas Parks and Wildlife Department (TPWD), Inland Fisheries Division, unpublished manual revised 2005). Aquatic vegetation and littoral habitat surveys were performed according to the Fishery Assessment Procedures (TPWD, Inland Fisheries Division, unpublished manual revised 2008). Shoreline distances and areas of vegetation were estimated using ArcView GIS software.

Sampling statistics (CPUE for various length categories), structural indices [Proportional Stock Density (PSD), Relative Stock Density (RSD)], and 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). Relative standard error (RSE = 100 X SE of the estimate/estimate) was calculated for all CPUE statistics and SE was calculated for structural indices and IOV. Ages were determined for largemouth bass using otoliths from 13 specimens with lengths ranging from 13.3 to 15.9 inches. Age-0 largemouth bass were scheduled to be collected by electrofishing in fall 2008 and subjected to genetic analysis using DNA microsatellite analysis in accordance with Fishery Assessment Procedures (TPWD, Inland Fisheries Division, unpublished manual revised 2008). However, due to the FLMB stockings during spring 2007 and 2008, collection of age-0 largemouth bass has been postponed until supplemental electrofishing in fall 2010.

RESULTS AND DISCUSSION

Vegetation/habitat: Structural habitat consisted primarily of inundated timber, brush reefs, and boat docks. Low coverage and diversity of aquatic vegetation were found in the lake (Table 4). Only 1.9% (12.7 acres) of the lake surface area was occupied by aquatic vegetation. Native emergent (10.2 acres) and native submerged (2.0 acres) were the dominant plant forms (Table 4). Native aquatic vegetation (waterwillow and pickerelweed), introduced by management staff in 2006, were also found in trace amounts (Table 4).

Prey species: Centrarchids (sunfishes) dominate the prey base in Lake Holbrook. Electrofishing catch rates of bluegill, longear sunfish, and redear sunfish were 389.0/h, 45.0/h, and 52.0/h, respectively. Total CPUE of gizzard shad was low (31.0/h), with fish too large to make any meaningful contribution to the prey base (Figure 1). Moderate numbers of threadfin shad were also collected. Total CPUE of bluegill in 2008 was higher than 2004, but similar to 2000. The majority of bluegill collected were of suitable size for predators (Figure 2). Redear sunfish provide an additional prey species and offer recreational opportunities (Figure 3), with many fish over 6 inches present. The lack of submerged aquatic vegetation in the lake and the prominence of bluegill in the prey base seem counterintuitive. Apparently, bluegill and other centrarchids are utilizing available habitat such as shallow emergent vegetation and submerged brush piles.

Channel catfish: Historically low catches of catfish likely result from lack of adequate habitat, high water clarity, and consequent predation by largemouth bass. The gill netting catch rate of channel catfish was 1.8/nn in 2009, lower than in 2005 (3.2/nn), but similar to 2001 (1.2/nn) (Figure 4).

Largemouth bass: The electrofishing catch rate of largemouth bass was 84.0/h in 2008, higher than in 2004 (57.0/h) but similar to 2006 (90.0/h) (Figure 5). Over 51% of the fish collected in 2008 were stock size (8 inches) or larger, and approximately 14% of these fish were legal size. The population was historically dominated by fish less than 14 inches in length. Body condition in fall 2008 was favorable (W_r ranged from 86 to 107) for all size classes of fish, indicating an ample supply of prey species. Electrofishing survey in fall 2006 provided fish with moderately high relative weights and moderate abundance (Figure 4). Growth of largemouth bass in Lake Holbrook was moderate. Average age at 14 inches (13.3 to 15.9 inches) was 2.7 years (N=13; range=2–5 years).

Crappies: The 2008 trap net catch rate of white crappie was 1.8/nn, higher than in 2005 (1.1/nn), but lower than in 2004 (2.4/nn) (Figure 7). All white crappie collected in recent surveys have measured stock-sized (5 inches) or larger. Black crappie were also present in the reservoir, but were collected at a lower rate than white crappie. The trap net catch rate of black crappie was 0.4/nn in 2008, similar to low catches in 2005 (0.9/nn) and 2004 (0.6/nn) (Figure 8). Insufficient numbers of white and black crappie were collected to conduct age analysis. The trap net catches have historically been low, suggesting a low-density population, an inefficient sampling method or both.

Fisheries management plan for Lake Holbrook, Texas

Prepared – July 2009

ISSUE 1: The genetic impacts of Florida largemouth bass stockings in 2007 and 2008 should be evaluated. Largemouth bass are a popular sport fish in the lake, generating high interest among local anglers.

MANAGEMENT STRATEGIES

1. Monitor largemouth bass abundance, condition, and population size structure, by conducting electrofishing surveys every other year beginning in 2010.
2. Continue to monitor Florida largemouth bass allele frequency through collection of fin samples from age-0 largemouth bass every four years.
3. Communicate information relevant to the largemouth bass fishery to anglers, bass club members, and the lake homeowner's association.

ISSUE 2 There is a lack of structural fish habitat in Lake Holbrook. Efforts were made in 2007 and 2008 to establish brush reefs, providing habitat for largemouth bass, crappie and sunfishes. Additionally, brush reefs congregated fish, assisting anglers in locating and catching fish. The brush-reef project was a collaborative effort between TPWD Inland Fisheries staff and the Lake Holbrook Homeowner's Association. Although several brush reefs were established, the need still exists to enhance structural habitat in the reservoir.

MANAGEMENT STRATEGIES

1. Continue to coordinate habitat enhancement projects with the Lake Homeowner's Association.
2. Experiment with materials other than hardwood brush and pine branches, which may settle and decay rapidly, limiting their utility as long-term habitat for fishes. Bamboo reefs have demonstrated potential as long-term structures. They will be introduced into the reservoir and evaluated for efficacy.
3. Begin to make visual observations of persistence of bamboo reefs over time using SCUBA equipment. Utilization of bamboo reefs by sport fish species will be quantified to assess the structures' effectiveness at congregating fish compared to reefs composed of other natural materials and artificial structures.

ISSUE 3 Aquatic vegetation is limited to emergent vegetation, primarily cattails. In 2006, 2007 and 2008, efforts were made to establish pickerelweed and waterwillow. We were successful in establishing both species, but spread of established colonies has been limited. Additional species should be established to diversify aquatic vegetation.

MANAGEMENT STRATEGIES

1. Continue to plan and execute pickerelweed and waterwillow redistribution throughout Lake Holbrook. Both species have established several nursery areas that can be harvested and used to colonize new areas of the reservoir.
2. Secure new sources of native aquatic vegetation to increase plant diversity in Lake Holbrook. Efforts will be made to minimize the risk of introducing exotic and/or undesirable plant species.

SAMPLING SCHEDULE JUSTIFICATION:

The proposed sampling schedule includes additional electrofishing in 2010, and mandatory monitoring in 2012-2013 (Table 6). Gill net surveys will be conducted every four years to monitor channel catfish recruitment, condition, and relative abundance. Annual vegetation assessments will be conducted to monitor the growth and distribution of introduced native aquatic vegetation.

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DiCenzo, V. J., M. J. Maceina, and M. R. Stimpert. 1996. Relations between reservoir trophic state and gizzard shad population characteristics in Alabama reservoirs. North American Journal of Fisheries Management 16:888-895.

Jubar, A., and K. Storey. 2005. Statewide freshwater fisheries monitoring and management program survey report for Lake Holbrook, 2004. Texas Parks and Wildlife Department, Federal Aid in Sport Fish Restoration, Performance Report, Project F-30-R-30, Job A, 23 pages.

Table 1. Characteristics of Lake Holbrook, Texas.

Characteristic	Description
Year constructed	1962
Controlling authority	Wood County
Surface area	650 acres
Counties	Wood
Reservoir type	Off-Stream type
Mean depth	8.0 ft.
Maximum depth	30.0 ft.
Shoreline development index (SDI)	4.96
Conductivity	155 µmho / cm
Secchi disc range	4 – 6 ft.

Table 2. Harvest regulations for Lake Holbrook.

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: largemouth	5	14 - No limit
Crappie: white and black crappie, their hybrids and subspecies	25 (in any combination)	10 - No limit

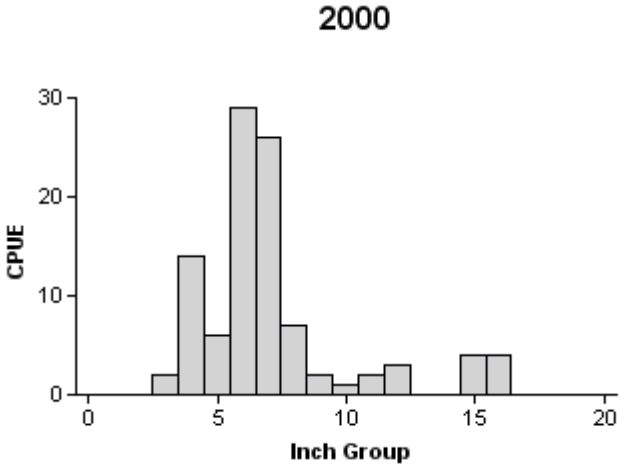
Table 3. Stocking history of Lake Holbrook, Texas. Size categories are: FRY =<1 inch; FGL = 1-3 inches; AFGL = 8 inches, and ADL = adults.

Species	Year	Number	Size
Threadfin shad	2004	5,500	ADL
	Total	5,500	
Blue catfish	1982	54,154	FGL
	Total	54,154	
Channel catfish	1992	10,526	AFGL
	Total	10,526	
Florida largemouth bass	1978	1,085	AFGL
	1980	39,845	FGL
	1983	52,902	FGL
	1999	106,197	FGL
	2000	105,080	FGL
	2005	211	ADL
	2007	67,769	FGL
	2008	65,058	FGL
	Total	438,147	
Black crappie	2003	10,800	FGL
	Total	10,800	

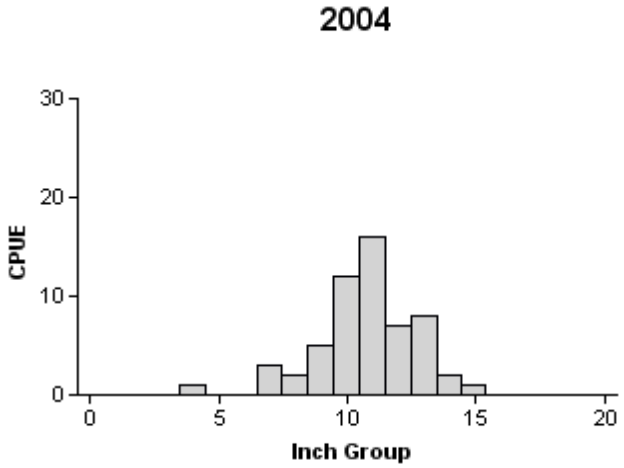
Table 4. Survey of littoral zone and physical habitat types, Lake Holbrook, Texas, July 2008. A linear shoreline distance (miles) was recorded for each habitat type found. The sum of shoreline distances exceeds the lake perimeter because of overlap of habitat types.

Shoreline habitat type / Aquatic vegetation species	Shoreline Distance		Surface Area	
	Miles	Percent of total	Acres	Percent of reservoir surface area
Boat docks	3.6	30.5		
Bulkhead	0.4	3.4		
Natural shoreline	10.7	89.8		
Standing timber	3.2	26.6		
Rock shore	0.8	6.8		
Native emergent *(cattail, maidencane, giant cutgrass)*	8.7	73.3	10.2	
Pickerelweed			0.1	
Waterwillow			0.4	
Native submerged *(muskgrass)*			2.0	
Alligatorweed			<0.1	
Total			12.7	1.9

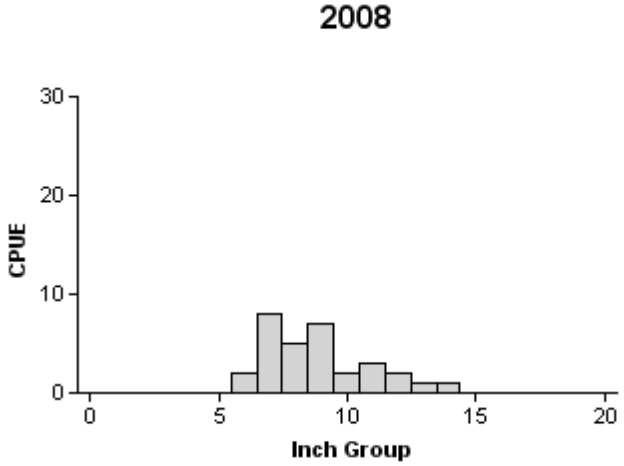
Gizzard shad



Effort =	1.0
Total CPUE =	100.0 (28; 100)
Stock CPUE =	49.0 (28; 49)
PSD =	27 (7.1)
IOV =	77.0 (3.5)



Effort =	1.0
Total CPUE =	57.0 (31; 57)
Stock CPUE =	56.0 (32; 56)
PSD =	61 (7.6)
IOV =	7.0 (4.6)



Effort =	1.0
Total CPUE =	31.0 (28; 31)
Stock CPUE =	29.0 (26; 29)
PSD =	24 (11.4)
IOV =	32.3 (6.6)

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, Lake Holbrook, Texas, 2000, 2004 and 2008.

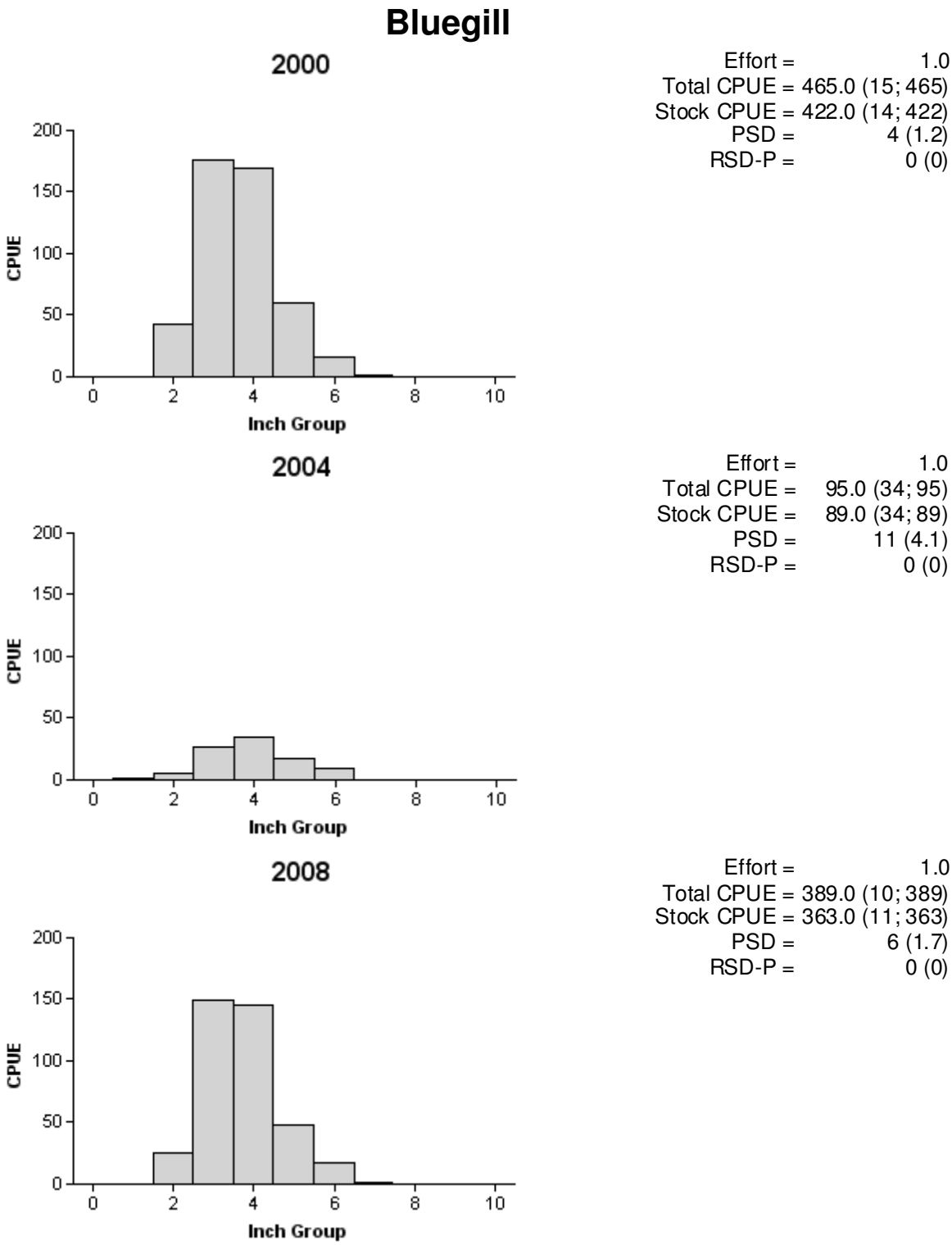


Figure 2. Number of bluegill caught per hour (CPUE, bars) and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, Lake Holbrook, Texas, 2000, 2004, and 2008.

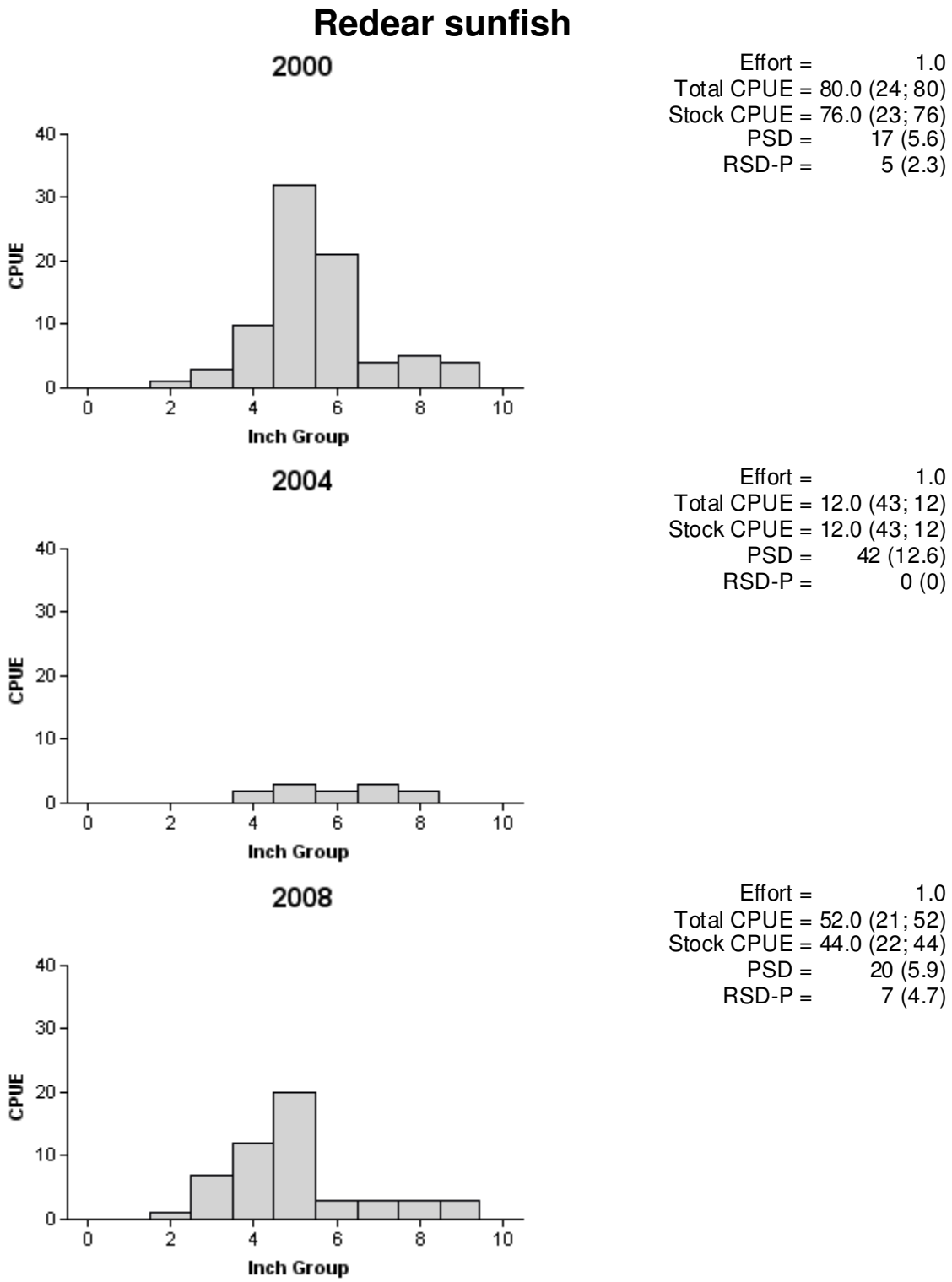
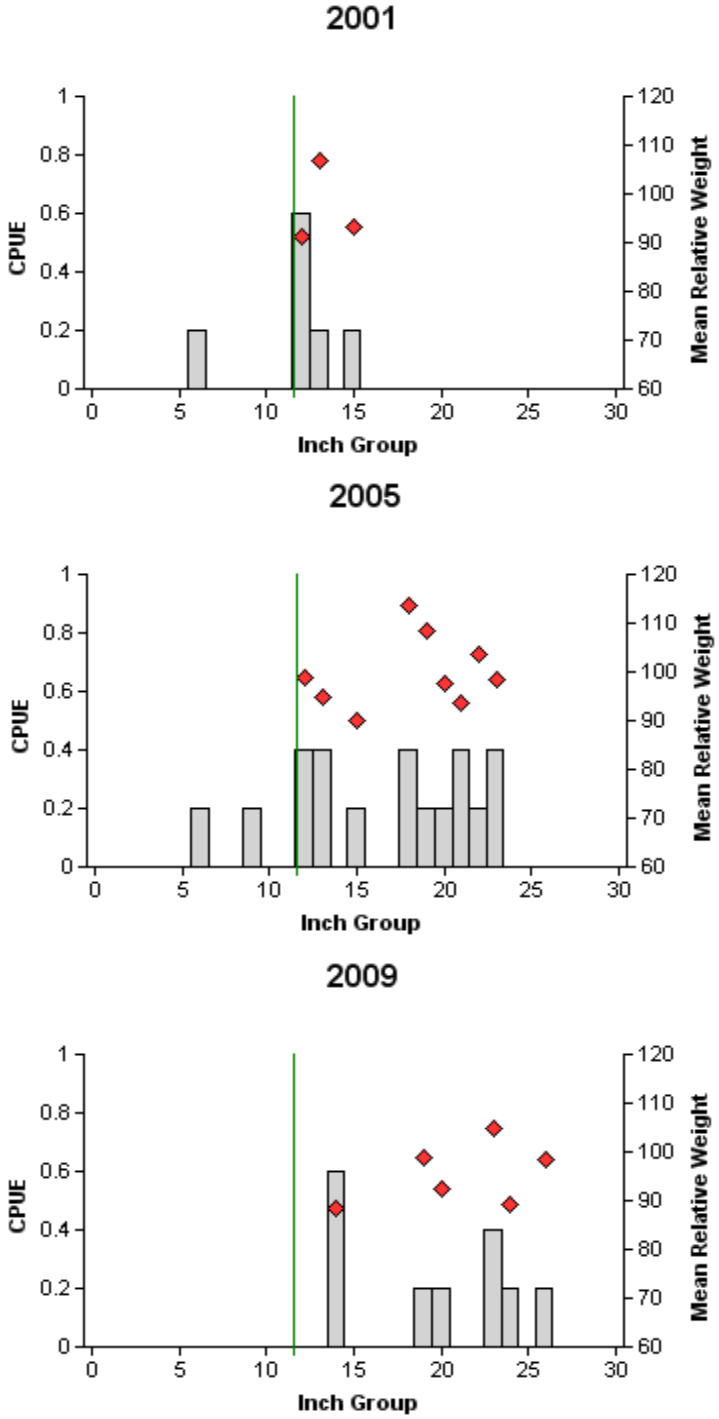


Figure 3. Number of redear sunfish caught per hour (CPUE, bars) and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, Lake Holbrook, Texas, 2000, 2004, and 2008.

Channel catfish



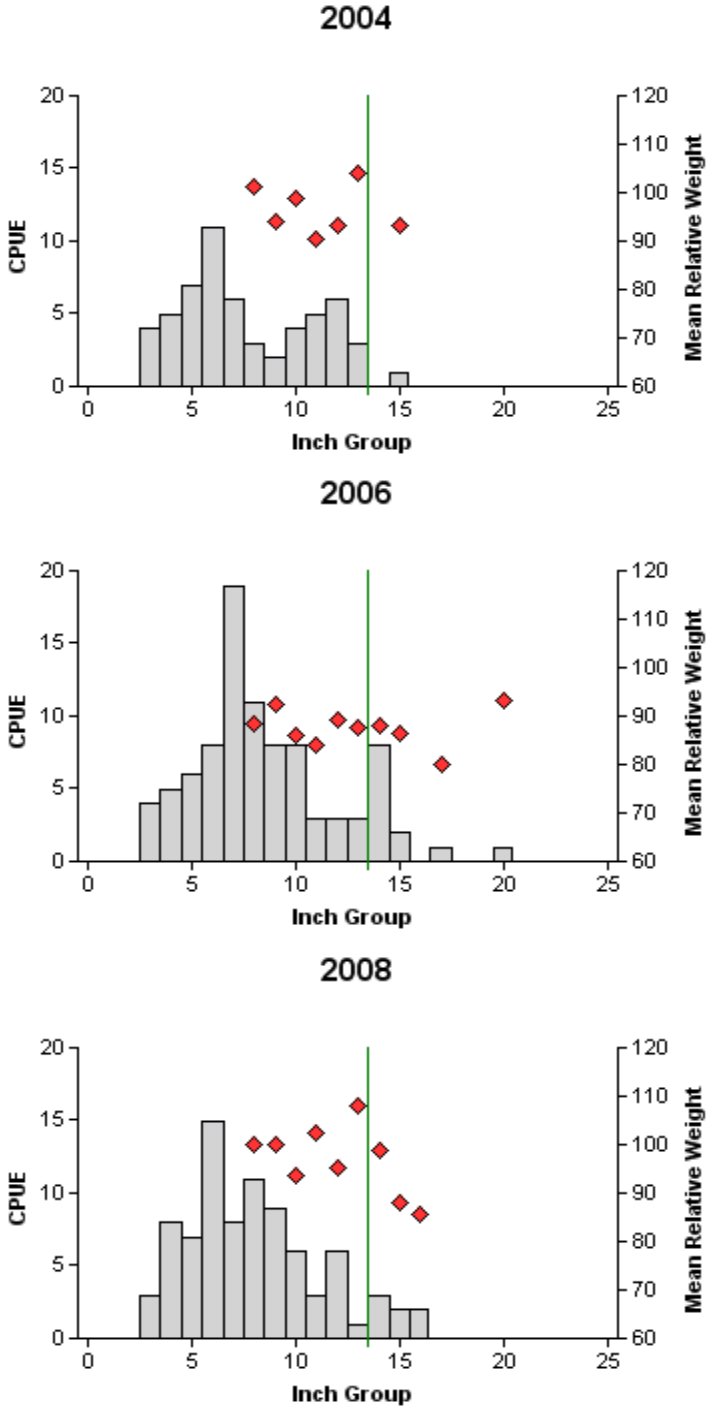
Effort =	5.0
Total CPUE =	1.2 (31; 6)
Stock CPUE =	1.0 (32; 5)
PSD =	0 (70.7)
RSD-P =	0 (0)

Effort =	5.0
Total CPUE =	3.2 (39; 16)
Stock CPUE =	2.8 (35; 14)
PSD =	64 (13.1)
RSD-P =	0 (0)

Effort =	5.0
Total CPUE =	1.8 (32; 9)
Stock CPUE =	1.8 (32; 9)
PSD =	67 (15.5)
RSD-P =	22 (16.6)

Figure 4. Number of channel catfish caught per net night (CPUE), mean relative weights (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring gill net surveys, Lake Holbrook, Texas, 2001, 2005 and 2009. Vertical lines indicate minimum length limit at time of survey.

Largemouth bass



Effort =	1.0
Total CPUE =	57.0 (15; 57)
Stock CPUE =	24.0 (31; 24)
PSD =	42 (6.6)
RSD-P =	4 (3.4)

Effort =	1.0
Total CPUE =	90.0 (14; 90)
Stock CPUE =	48.0 (15; 48)
PSD =	38 (10.6)
RSD-P =	8 (4.4)

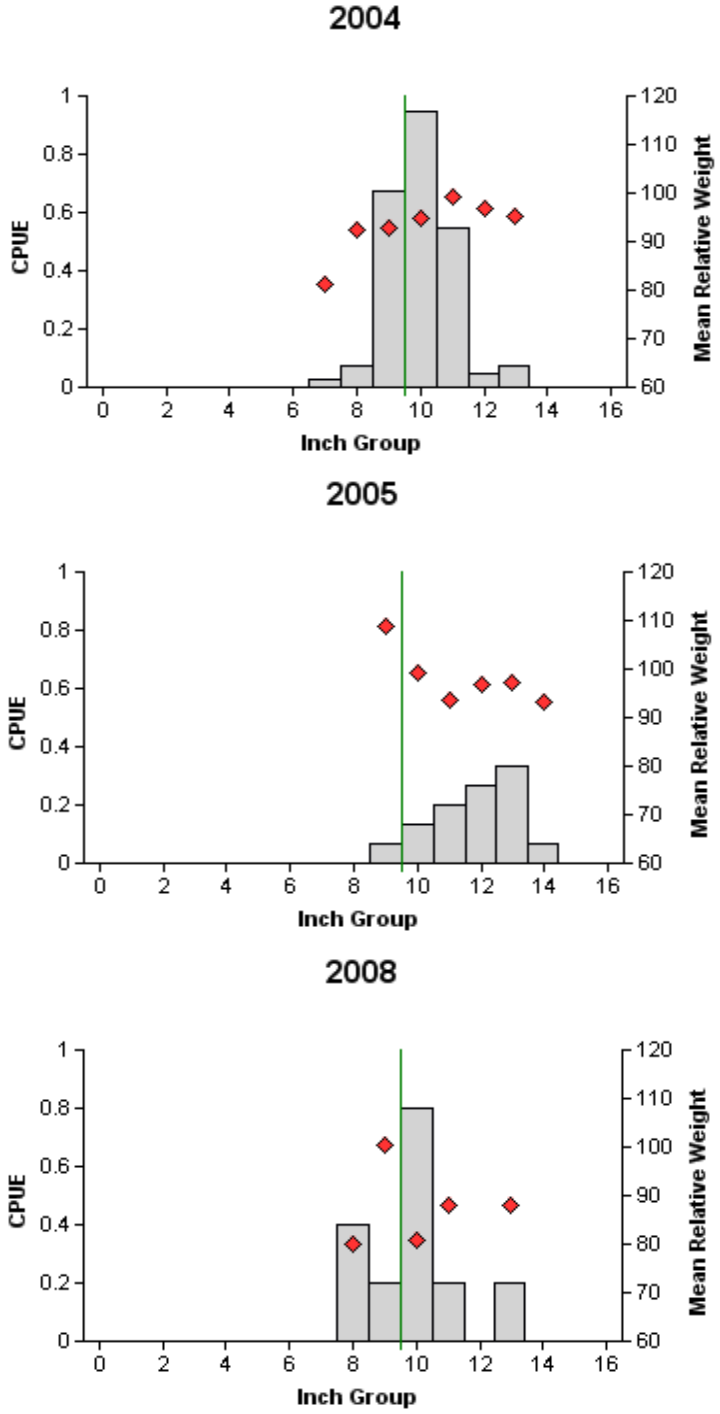
Effort =	1.0
Total CPUE =	84.0 (17; 84)
Stock CPUE =	43.0 (20; 43)
PSD =	33 (4.7)
RSD-P =	9 (4.9)

Figure 5. 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 Holbrook, Texas, 2004, 2006, and 2008. The 2006 survey was bass-only. Vertical lines indicate minimum length limit at time of survey.

Table 5. Results of genetic analysis of largemouth bass collected by fall electrofishing, Lake Holbrook, Texas, 1986, 1992, 1995, 1998, 2000, 2002, and 2004. Data from 1993 through 2003 are derived from starch-gel electrophoresis. FLMB = Florida largemouth bass, NLMB = Northern largemouth bass, F1 = first generation hybrid between a FLMB and a NLMB, Fx = second or higher generation hybrid between a FLMB and a NLMB.

		Genotype					
Year	Sample size	FLMB	F1	Fx	NLMB	% FLMB alleles	% pure FLMB
1986	30	0	10	10	10	25.8	0.0
1992	35	3	9	17	6	45.0	8.6
1995	35	2	9	10	12	31.1	5.7
1998	36	1	10	19	6	36.8	16.7
2000	17	2	3	5	7	27.9	11.8
2002	28	1	8	13	6	40.4	3.6
2004	16	2	3	9	2	51.6	12.5

White crappie



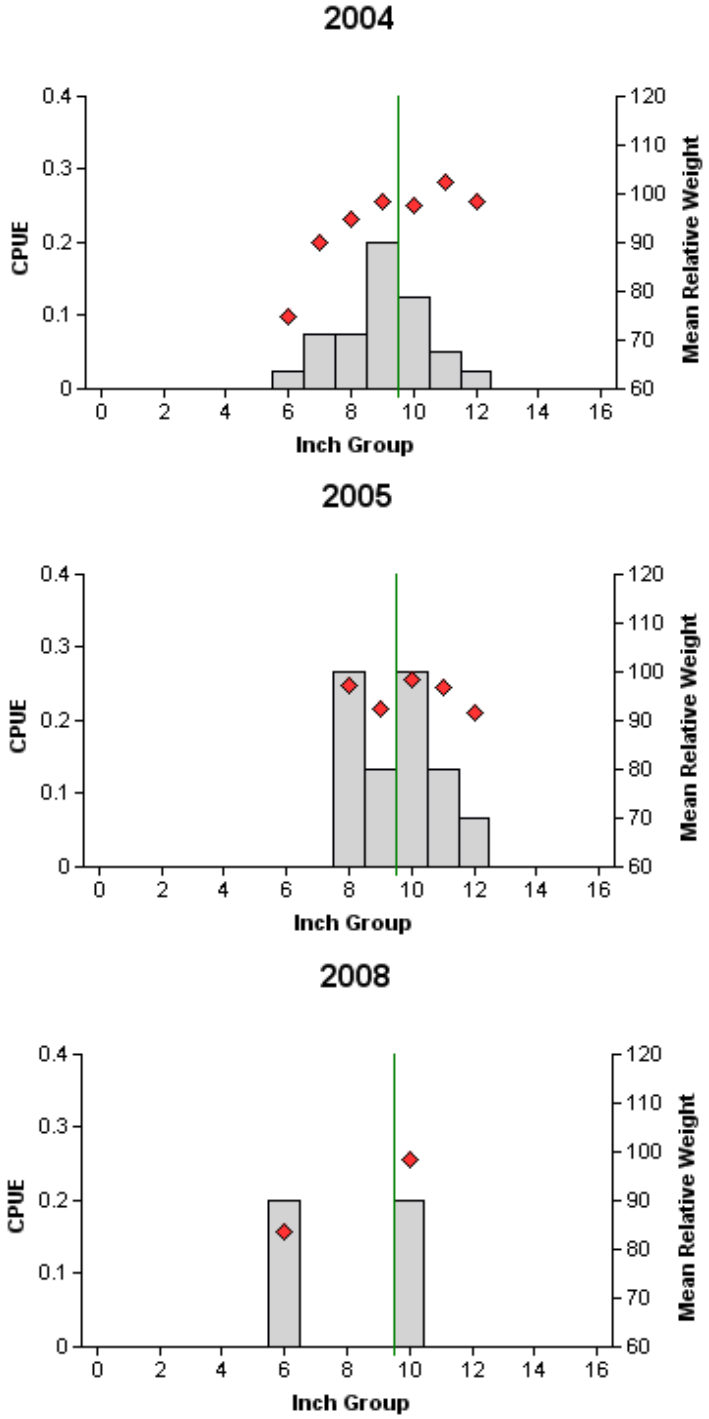
Effort =	40.0
Total CPUE =	2.4 (28; 96)
Stock CPUE =	2.4 (28; 96)
PSD =	99 (1)
RSD-P =	68 (6.1)

Effort =	15.0
Total CPUE =	1.1 (69; 16)
Stock CPUE =	1.1 (69; 16)
PSD =	100 (0.0)
RSD-P =	94 (2.5)

Effort =	5.0
Total CPUE =	1.8 (62; 9)
Stock CPUE =	1.8 (62; 9)
PSD =	100 (0)
RSD-P =	67 (5.9)

Figure 6. 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 Holbrook, Texas, 2004, 2005, and 2008. Vertical lines indicate minimum length limit at time of survey.

Black crappie



Effort =	40.0
Total CPUE =	0.6 (33; 23)
Stock CPUE =	0.6 (33; 23)
PSD =	83 (7.5)
RSD-P =	35 (11.7)

Effort =	15.0
Total CPUE =	0.9 (57; 13)
Stock CPUE =	0.9 (57; 13)
PSD =	100 (0.0)
RSD-P =	54 (18.3)

Effort =	5.0
Total CPUE =	0.4 (100; 2)
Stock CPUE =	0.4 (100; 2)
PSD =	50 (0)
RSD-P =	50 (0)

Figure 7. 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 Holbrook, Texas, 2004, 2005, and 2008. Vertical lines indicate minimum length limit at time of survey.

Table 6. Proposed sampling schedule for Lake Holbrook, Texas. Gill netting surveys are conducted in the spring, while electrofishing and trap netting are conducted in the fall. Standard survey denoted by S and additional survey denoted by A.

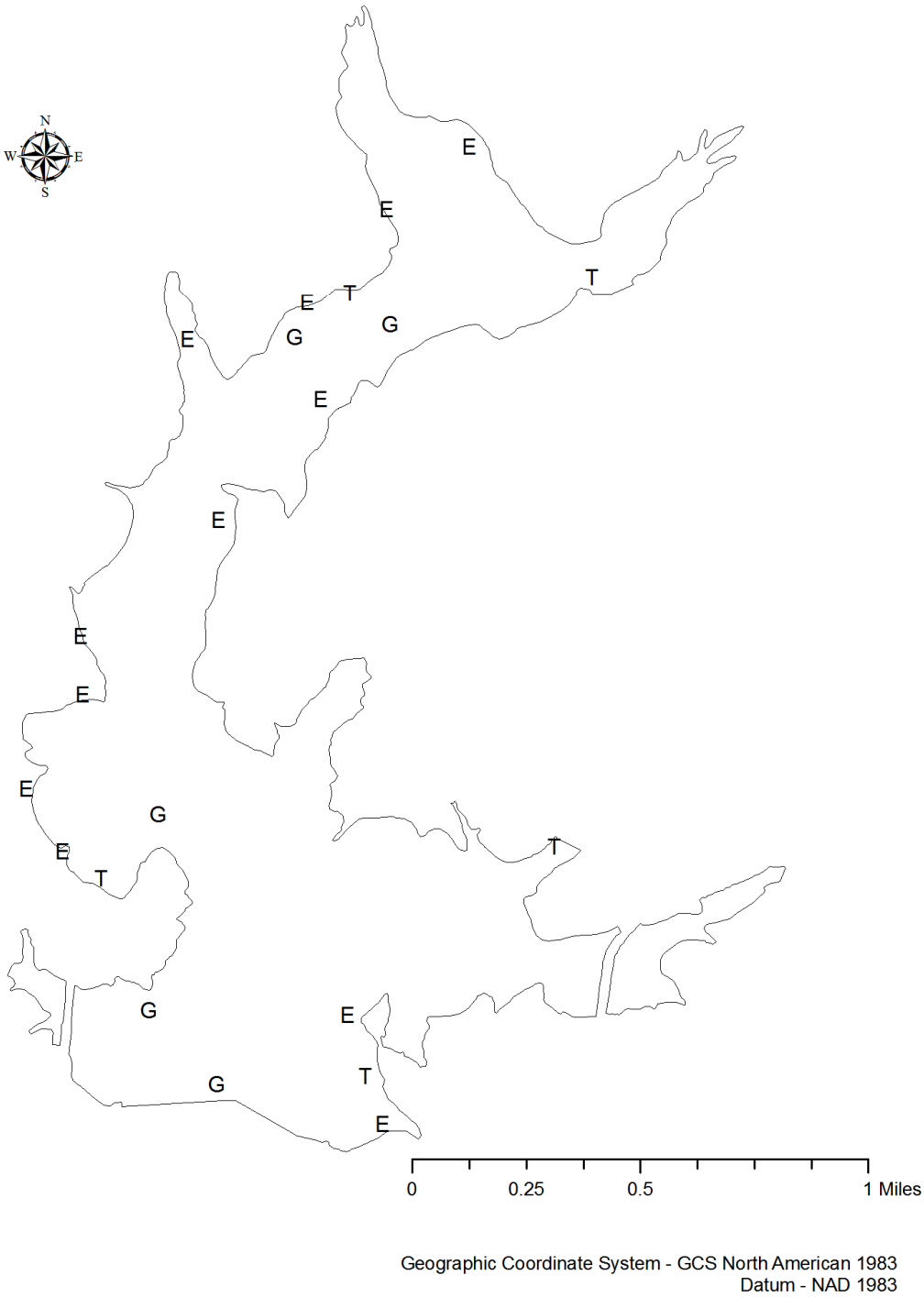
Survey Year	Electrofisher	Gill net	Trap net	Vegetation/ Habitat	Report
Summer 2009-Spring 2010					
Summer 2010-Spring 2011	A				
Summer 2011-Spring 2012					
Summer 2012-Spring 2013	S	S	S	S	S

APPENDIX A

Number (N) and catch rate (CPUE) of all target species collected by fall electrofishing, trap netting, and spring gill netting from Lake Holbrook, Texas, 2008-2009.

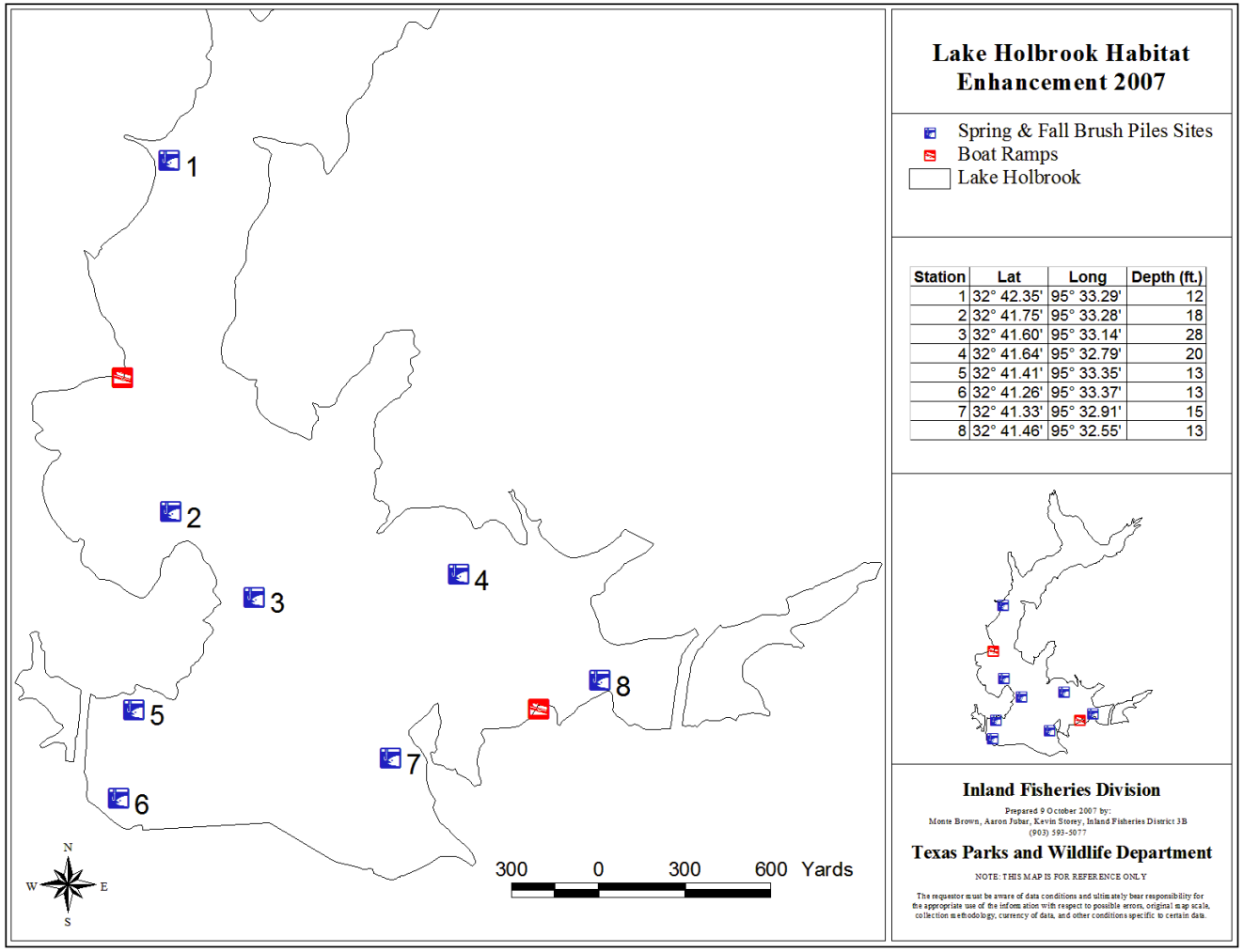
Species	Electrofishing		Trap netting		Gill netting	
	N	CPUE	N	CPUE	N	CPUE
Gizzard shad	31	31.0				
Threadfin shad	47	47.0				
Channel catfish					9	1.8
Warmouth	9	9.0				
Bluegill	389	389.0				
Longear sunfish	45	45.0				
Redear sunfish	52	52.0				
Largemouth bass	84	84.0				
White crappie			9	1.8		
Black crappie			2	0.4		

APPENDIX B



Location of electrofishing (E), gill net (G), and trap netting (T) sites, Lake Holbrook, Texas, 2008-2009.

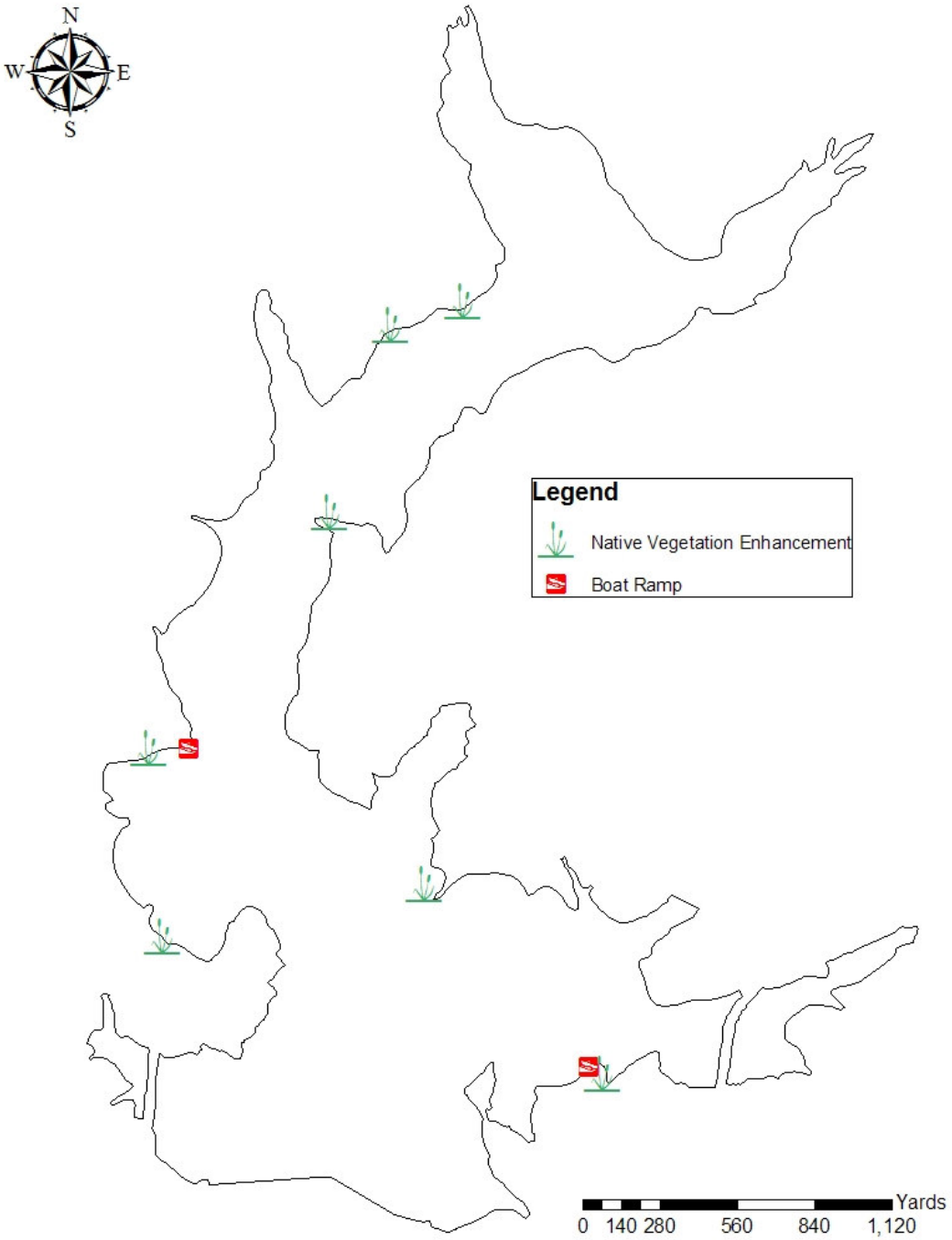
APPENDIX C



Station	Lat	Long	Depth (ft.)
1	32° 42.35'	95° 33.29'	12
2	32° 41.75'	95° 33.28'	18
3	32° 41.60'	95° 33.14'	28
4	32° 41.64'	95° 32.79'	20
5	32° 41.41'	95° 33.35'	13
6	32° 41.26'	95° 33.37'	13
7	32° 41.33'	95° 32.91'	15
8	32° 41.46'	95° 32.55'	13

Location of brush piles placed by TPWD staff and Lake Holbrook Homeowner's Association in 2007. Stations 2, 3, 6 and 8 received additional brush in summer 2008. This map is available to anglers for viewing and downloading: http://www.tpwd.state.tx.us/fishboat/fish/recreational/lakes/holbrook/

APPENDIX D



Location of native vegetation enhancement conducted in Lake Holbrook by TPWD staff from 2006 – 2008. All sites received plantings of both waterwillow and pickerelweed.