PERFORMANCE REPORT

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FEDERAL AID PROJECT F-221-M-2

INLAND FISHERIES DIVISION MONITORING AND MANAGEMENT PROGRAM

2011 Survey Report

Lake Monticello

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July 31, 2012

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SURVEY AND MANAGEMENT SUMMARY

Fish populations in Lake Monticello were surveyed in 2011 using electrofishing and in 2012 using gill netting. A vegetation and habitat survey was conducted in August 2011. Anglers were surveyed from December 2009 through February 2010 and December 2011 through February 2012 with an access creel. This report summarizes the results of the surveys and contains a management plan for the reservoir based on those findings.

- **Reservoir description:** Lake Monticello is a 2,001-acre impoundment constructed in 1972 on Smith and Blundell Creeks in the Big Cypress River Basin. Primary uses are for power plant cooling and recreation. Structural habitat is mainly inundated timber. Native aquatic plant abundance is limited and waterhyacinth and hydrilla are present in the reservoir. A substantial fish kill occurred during the summer 2006.

- **Management history:** Important sport fish include channel catfish and largemouth bass. Channel catfish are managed with the statewide 12-inch minimum length limit. Largemouth bass are managed with a 14- to 24-inch slot length limit and 5-fish daily bag, of which only one fish can be greater than 24 inches. The largemouth bass population is managed for its trophy potential due to the high percentage of pure Florida largemouth bass genetics and fast growth.

- **Fish community:**
  - **Prey species:** Few shad were collected during 2011 electrofishing, but bluegill abundance was adequate as prey for largemouth bass in the reservoir.

  - **Catfishes:** There were many channel catfish collected above legal length (12 inches) during the 2012 gill net survey. Catfish were the second most sought species during the past two winter creel surveys. Catfish angling is good during this time of year at Lake Monticello; anglers caught almost 3 fish/hour during the 2011/2012 winter survey.

  - **Black bass:** Electrofishing catch rates were low and no fish were observed > 24 inches. However, many young fish were collected, which indicated the potential for a strong year class to grow to larger sizes within the coming years. Fish body condition was good, indicating adequate prey availability. Largemouth bass growth was fast; average age of 14-inch fish was 1.5 years. In a sample of 30 fish in 2011, 27% were pure Florida largemouth bass. Over 90% of the directed effort during winter creel surveys in 2009/2010 and 2011/2012 at Lake Monticello was from anglers targeting largemouth bass. In both surveys, more than half of all largemouth bass caught were within the protective slot length limit.

  - **Crappie:** Trap netting was not conducted during this survey period due to historically poor trap-net catch at this reservoir. No anglers targeted crappie during the 2009/2010 or 2011/2012 winter creel surveys. No crappie were caught by other anglers.

- **Management strategies:** Conduct electrofishing surveys every other year beginning in 2013, and general monitoring with gill netting 2015-2016. Waterhyacinth surveys will be conducted annually beginning in 2012. Technical guidance will be given to controlling authority regarding waterhyacinth management. Largemouth bass will continue to be managed with a 14- to 24-inch slot length limit.

INTRODUCTION

This document is a summary of fisheries data collected from Lake Monticello from June 2011 through May 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 fishes was collected, this report deals primarily with major sport fishes and important prey species. Historical data are presented with the 2011 and 2012 data for comparison.

Reservoir Description

Lake Monticello is a 2,001-acre impoundment constructed in 1972 on Smith and Blundell Creeks in the Big Cypress River Basin. The reservoir is located in Titus County near the City of Mount Pleasant. The controlling authority is Texas Utilities. Primary water uses are power plant cooling and public recreation. It has a watershed of approximately 40 square miles, a shoreline length of 6 miles, and a Shoreline Development Index of 2.6. Water levels are relatively stable and can be maintained by supplemental water supply from Lake Bob Sandlin. Structural habitat consisted of inundated timber, overhanging brush, and creek channels. Native aquatic plant abundance was limited. Waterhyacinth and hydrilla were present in the upper end of the reservoir. Boat access consisted of one public boat ramp. Bank fishing access is limited. Heated effluent associated with power production limits available fish habitat during summer months. Water temperatures approach and sometimes exceed 95°F in the epilimnion during July through September, severely reducing preferred habitat for fish and contributing to occasional fish kills. A substantial fish kill occurred July 22, 2006 (Appendix C; TPWD Kills and Spills Team PRISM Event ID #20063A10157).

Management History

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

1. Monitor waterhyacinth coverage and provide technical guidance to controlling authority.
   Action: Annual surveys have been conducted; access to Smith Creek has been closed; information signs have been posted at boat ramp; private herbicide applicators have been hired in previous years by the controlling authority to treat the infestation.
2. Conduct winter-quarter angler creel surveys in 2009/2010 and 2011/2012 to monitor angling effort and success. Conduct electrofishing surveys in fall 2009 and fall 2011 to monitor largemouth bass and prey populations.
   Action: Angler creel surveys and electrofishing surveys have been conducted as planned.
3. Provide information to inform anglers of fishing opportunities.
   Action: Fishing opportunities at Lake Monticello have been conveyed to anglers through direct contact in field as well as telephone calls received at the district fisheries management office.

Harvest regulation history: Sport fishes in Lake Monticello are currently managed with statewide regulations except for largemouth bass (Table 2). Largemouth bass are managed with a 14- to 24-inch slot length limit and 5-fish daily bag of which only one fish can be over 24 inches. This regulation was implemented in September 1998. The length limit had previously been a 14- to 21-inch slot length limit.

Stocking history: Lake Monticello was stocked initially with Florida largemouth bass, blue catfish, channel catfish, flathead catfish, walleye, and green x redear sunfish hybrids. Florida largemouth bass and channel catfish stockings have been successful. Previous attempts to establish crappie in this reservoir have not been successful. The complete stocking history is presented in Table 3.

Vegetation/habitat history: Aquatic vegetation coverage has historically been low with American lotus as

the dominant species. Hydrilla has been present in the past but has not been problematic. Annual waterhyacinth surveys have been conducted; access to Smith Creek has been closed; information signs have been posted at boat ramp; private herbicide applicators have been hired in previous years by the controlling authority to treat the infestation.

Water Transfer: Lake Monticello receives water from Lake Bob Sandlin to maintain sufficient water level in the reservoir for power plant operation. Overflow returns to Lake Bob Sandlin via the spillway at Monticello. There are no inter-basin water transfers to or from Lake Monticello.

METHODS

Fishes were collected by electrofishing (1.0 hour at 12, 5-min stations) and gill netting (5 net nights at 5 stations). Since the last survey report, two access-point angler creel surveys were conducted from December 2009 through February 2010 and December 2011 through February 2012. The creel surveys consisted of 4 randomly-selected weekdays and 5 randomly-selected weekend days. Each day was partitioned into two, 5-hour survey periods, which were randomly selected for each survey day. An aquatic vegetation and structural habitat survey was conducted in August 2011. Catch per unit effort (CPUE) for electrofishing was recorded as the number of fish caught per hour (fish/h) of actual electrofishing and, for gill nets, as the number of fish caught per net night (fish/nn). All survey sites (Appendix B) were randomly selected and all surveys were conducted according to the Fishery Assessment Procedures Manual (TPWD, Inland Fisheries Division, unpublished manual revised 2011).

Sampling statistics (CPUE for various length categories), structural indices [Proportional Size Distribution (PSD), as defined 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). Relative standard error (RSE = 100 X SE of the estimate/estimate) was calculated for all CPUE statistics and for creel statistics and SE was calculated for structural indices and IOV. Ages were determined using otoliths from 13 randomly-selected largemouth bass (range 12.9 to 15.1 inches). Largemouth bass population genetics were assessed with micro-satellite DNA analysis using fish of various ages. Source for water level data was the United States Geological Survey (USGS) website.

RESULTS AND DISCUSSION

Habitat: Natural shoreline was the primary (85%) shoreline type at Lake Monticello. Inundated standing timber accounted for 380 acres of littoral habitat. Native floating-leaved aquatic vegetation (primarily American lotus) was the most abundant during the 2011 survey (185 acres, Table 4). During this survey, 39 acres of hydrilla was documented (Table 4). Hydrilla was not documented in the reservoir by Bister and Brice (2008), but it had been present historically (Ryan and Brice 2004). Waterhyacinth coverage has remained stable and was estimated at 4 acres during this survey period (Table 4).

Creel: Directed fishing effort by anglers during winter-quarter creels was highest for black bass followed by catfish in the last four surveys (Table 5). Total fishing effort for all species at Lake Monticello was 9,681 h from December 2011 through February 2012, and 7,431 h from December 2009 through February 2010. These estimates were much lower than previous surveys in 2004/2005 and 2006/2007 (Table 6). Anglers spent an estimated $114,404 in direct expenditures during the 2011/2012 winter survey period, which was more than twice that spent during the 2009/2010 survey ($51,586) (Table 6).

Prey species: Very few threadfin shad and gizzard shad were collected during the 2011 electrofishing survey (Figure 2, Appendix A). Size distribution of gizzard shad continues to be poor with an IOV of 0, indicating little contribution to the prey base. The electrofishing catch rate of bluegill has declined in recent surveys from 2,102/h in 2007, to 997/h in 2009, and to 676/h in 2011 (Figure 3). The bluegill catch rate in

2007 was much higher than any recent year surveyed. Bister and Brice (2008) reported lower catch rates in 2005 (1,044/h) and 2006 (1,116/h). The abundance of bluegill in the 2011 survey provided adequate prey for largemouth bass.

Channel catfish: The gill net catch rate of channel catfish in 2012 was 59.4/nn, was lower than in 2008 (70.4/nn) but similar to 2004 (54.2/nn) (Figure 4). Body condition was adequate with mean W_r for most inch groups >90 (Figure 5). The population size structure of channel catfish was excellent. Forty-five percent of all channel catfish ≥11 inches were longer than 16 inches (PSD = 45, Figure 5).

The 2009/2010 and 2011/2012 winter-quarter creel surveys indicated that directed effort for catfish has declined from previous surveys. Effort for catfish was 1.3 hours/acre in 2006/207 but only 0.3 hours/acre in 2009/2010 and 2011/2012 (Table 7). Anglers caught an estimated 4.8 fish/h in 2009/2010 and 2.7 fish/h in 2011/2012, which was similar to previous surveys (Table 7). Harvested fish ranged in size from 11 to 23 inches in 2009/2010 and from 13 to 18 inches in 2011/2012 (Figure 5).

Black bass: The electrofishing catch rate of largemouth bass in 2011 was 88.0/h, which was similar to 2009 (82.0/h) and higher than 2007 (53.0/h) (Figure 6). Genetic analysis of largemouth bass indicated that 27.0% of the sample was pure Florida largemouth bass (Table 9). All fish submitted for genetic analysis contained some Florida largemouth bass genetics. Initial growth of largemouth bass in Lake Monticello was fast; average age at 14 inches (12.9 to 15.1 inches) was 1.5 years (N = 13; range = 1 – 3 years). Condition of largemouth bass was above average with mean W_r for most inch groups >100, which indicated adequate prey availability.

Directed angling effort for black bass during winter creel surveys has declined in recent years. Anglers targeting black bass fished 3.4 hours/acre from December 2009 through February 2010 and 4.5 hours/acre from December 2011 through February 2012, compared to 11.5 hours/acre in 2004/2005 and 8.2 hours/acre in 2006/2007. Black bass anglers caught an estimated 0.73 fish/h in the 2009/2010 survey, but only 0.31 fish/h in the 2011/2012 survey (Table 8). During the 2011/2012 winter survey, anglers caught an estimated 3,800 largemouth bass. Approximately 58% of these fish were within the 14- to 24-inch slot length. Also, an estimated 63 fish above the slot limit were caught and released. During the 2009/2010 survey, 67% of largemouth bass caught and released were within the slot, and 20 fish were longer than 24 inches.

Crappie: Trap netting was not conducted during this survey period due to limited production of crappie and historically poor trap netting success at this reservoir. No anglers targeted crappie during the last two creel survey periods, nor were any crappie caught by anglers fishing for another species.

Fisheries management plan for Lake Monticello, Texas

Prepared – July 2012

ISSUE 1: The presence of waterhyacinth in Lake Monticello poses a threat to water quality, power plant operation, and recreational access. The main infestation is located in Smith Creek. Waterhyacinth coverage has remained stable with periodic treatment. The infestation should continue to be monitored.

MANAGEMENT STRATEGIES

1. Continue to provide technical guidance to the controlling authority regarding waterhyacinth management.
2. Conduct annual surveys to monitor trends and estimate coverage of waterhyacinth.

ISSUE 2: The Lake Monticello largemouth bass population is managed with a highly restrictive 14-to 24-inch slot length limit for the trophy potential of the fishery. Largemouth bass and prey populations should be monitored more frequently.

MANAGEMENT STRATEGIES

1. Conduct electrofishing surveys in fall 2013 and 2015 to monitor relative abundance and size structure of largemouth bass and prey species populations.
2. Conduct genetic analysis of the largemouth bass population during the fall 2015 electrofishing survey.
3. Conduct a Category 3 age and growth analysis to determine mean length of age 1-3 fish in the population.

ISSUE 3: Anglers and stakeholders need to be informed about fisheries management activities, fishing opportunities, and other issues at Lake Monticello.

MANAGEMENT STRATEGIES

1. Continue to provide news releases to the print and broadcast media.
2. Continue to provide fisheries presentations to the public regarding issues/opportunities at Lake Monticello.

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 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 and other invasive vegetation species can form dense mats, interfering with recreational activities like fishing, boating, skiing and swimming. The financial costs of controlling 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. Contact and educate marina owners about invasive species, and provide them with posters and literature so that they can educate their customers.
3. Educate the public about invasive species through the use of media and the internet.
4. Discuss invasive species when presenting to constituent and user groups.
5. Document existing and future inter-basin water transfers to facilitate potential invasive species

responses.

SAMPLING SCHEDULE JUSTIFICATION:

The proposed sampling schedule includes annual invasive aquatic vegetation surveys, a supplemental electrofishing survey in 2013, and required angler access, electrofishing, and gill netting surveys in 2015/2016 (Table 10). Annual vegetation surveys are necessary to monitor the status of invasive vegetation and to provide technical guidance and coverage estimates to the controlling authority. Supplemental electrofishing in 2013 will be conducted to monitor the largemouth bass and prey fish populations. Trap netting will not be conducted because of poor crappie catch rates in past surveys.

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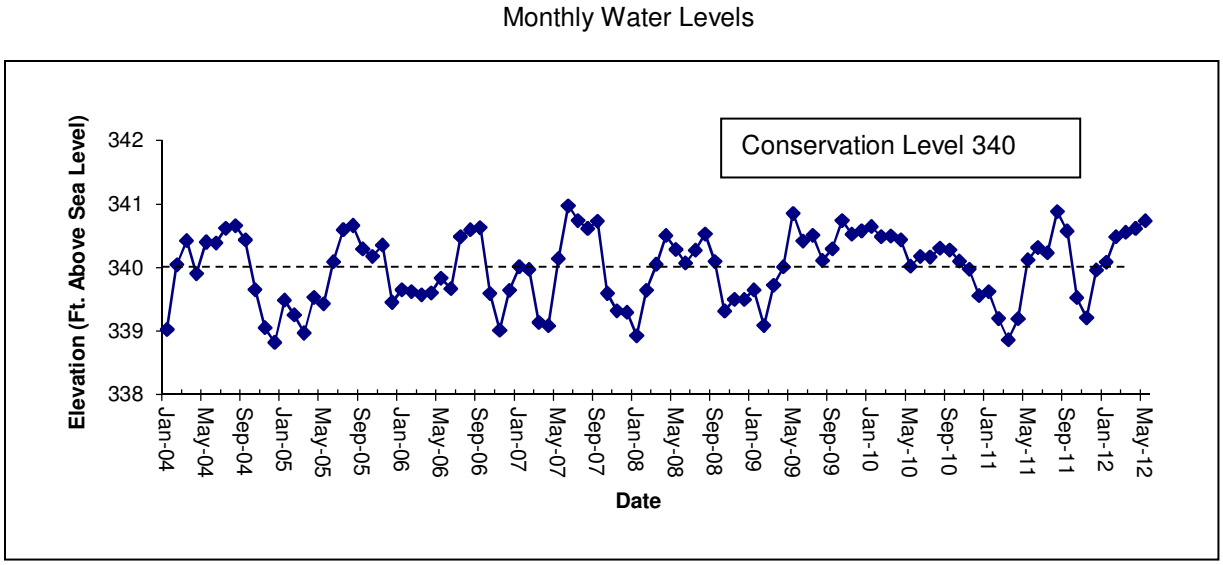


Figure 1. Monthly water level elevations in feet above mean sea level (MSL) recorded for Lake Monticello, Texas. Horizontal line denotes conservation pool level (340 msl).

Table 1. Characteristics of Lake Monticello, Texas.

Characteristic	Description
Year constructed	1972
Controlling authority	Texas Utilities
County	Titus
Reservoir type	Cooling, tributary
Shoreline development index (SDI)	2.6
Conductivity	454 umhos/cm

Table 2. Harvest regulations for Lake Monticello, Texas.

Species	Bag Limit	Minimum-Maximum Length (inches)
Catfish, channel and blue catfish, their hybrids and subspecies	25 (in any combination)	12 - No Limit
Catfish, flathead	5	18 - No Limit
Bass, white	25	10 - No Limit
Bass, largemouth	5[a]	14 – 24[b]
Bass, spotted	5[a]	No Limit - No Limit
Crappie, white and black crappie, their hybrids and subspecies	25 (in any combination)	10 - No Limit

[a] Daily bag for largemouth bass and spotted bass = 5 in any combination.
[b] Largemouth bass 14 inches and less or 24 inches and greater may be retained. Only one largemouth bass 24 inches or greater may be retained each day.

Table 3. Stocking history of Monticello, 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	1988	50,000		1.0
	1989	50,119		1.0
	1990	100,488		0.8
	1991	98,330		0.9
	Total	298,937		
Black crappie x white crappie	1995	201,984	FRY	0.9
	1996	301,231	FRY	0.9
	Total	503,215		
Blue catfish	1972	10,000	UNK	UNK
	1980	3,250	UNK	UNK
	Total	13,250		
Channel catfish	1972	75,500	AFGL	7.9
	1973	91,405	AFGL	7.9
	Total	166,905		
Flathead catfish	1973	2,740		UNK
	Total	2,740		
Florida largemouth bass	1973	197,140	FRY	1.0
	1998	50,321	FRY	0.9
	Total	247,461		
Green sunfish x redear sunfish	1972	925		UNK
	Total	925		
Walleye	1973	1,000,000	FRY	0.2
	1974	40,000	FRY	0.2
	Total	1,040,000		
White crappie	1986	100,800	FRY	1.0
	Total	100,800		

Table 4. Survey of littoral zone and physical habitat types, Lake Monticello, Texas, 2011. A linear shoreline distance (miles) was recorded for each habitat type found. Surface area (acres) and percent of reservoir surface area was determined for each type of aquatic vegetation found. Survey was conducted at 1 foot above conservation pool.

Shoreline habitat type	Shoreline Distance		Surface Area	
	Miles	Percent of total	Acres	Percent of reservoir surface area
Natural shoreline	15.5	85		
Concrete	2.0	11		
Rock	0.5	3		
Bulkhead	0.1	1		
Standing timber			380	19
Native emergent vegetation			13	1
Native floating-leaved			185	9
Non-native				
Hydrilla			39	2
Water hyacinth			4	Trace

Table 5. Percent directed angler effort by species for Lake Monticello, Texas, 2004 – 2012. Surveys were winter quarter only (December – February).

Species	Year			
	2004-2005	2006-2007	2009-2010	2011-2012
Black bass	93.1	86.4	92.4	93.6
Catfish	5.6	13.4	7.6	6.4
Crappie	1.0	0.2		
Anything	0.3	0		

Table 6. Total fishing effort (h) for all species and total directed expenditures at Lake Monticello, Texas, 2004 – 2012. Surveys were winter quarter only (December – February).

Creel statistic	Year			
	2004-2005	2006-2007	2009-2010	2011-2012
Total fishing effort	24,793	18,930	7,431	9,681
Total directed expenditures	$189,847	$136,367	$51,586	$114,404

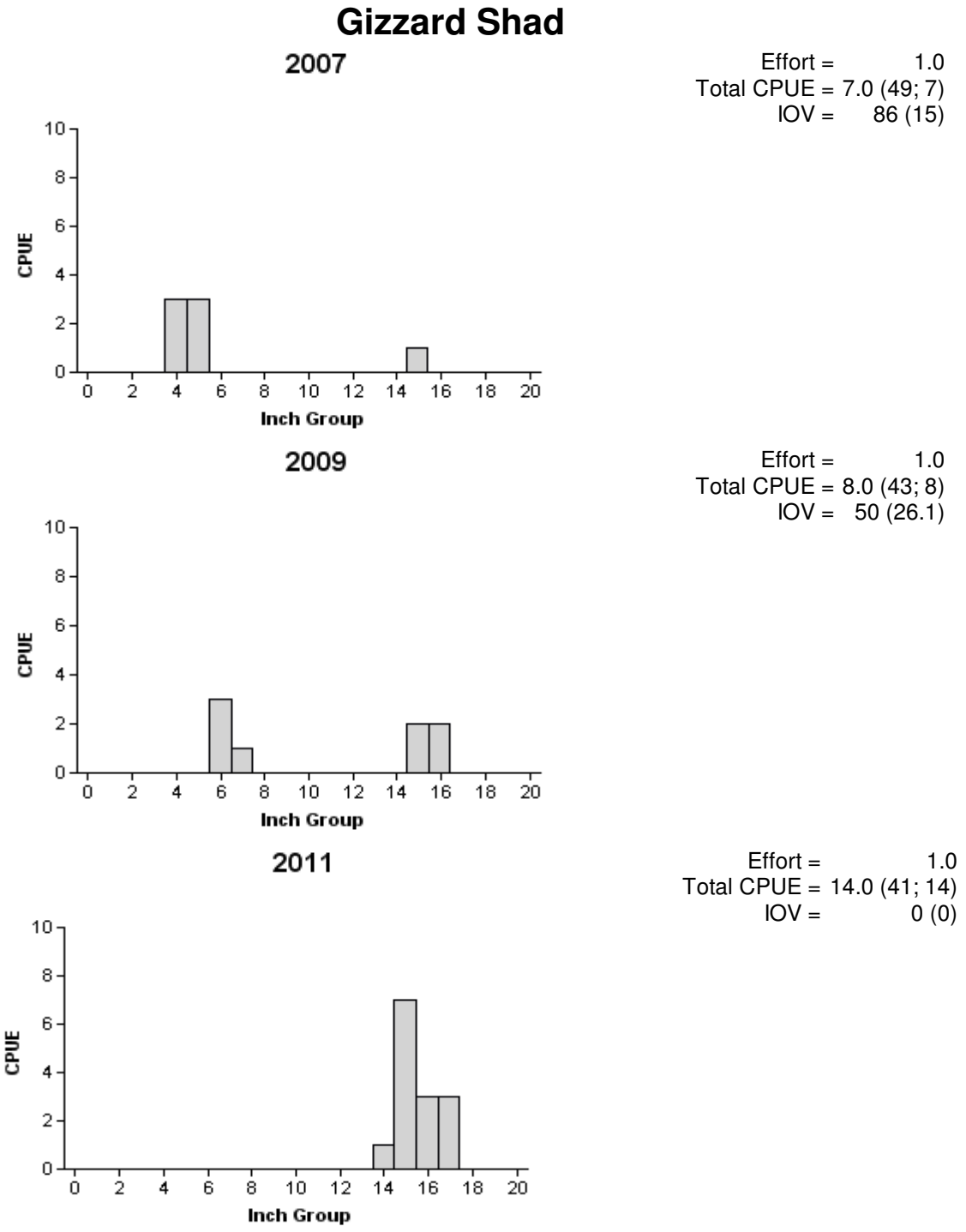
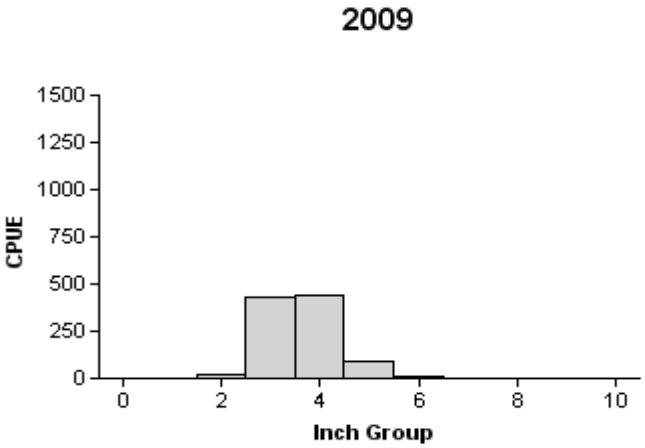


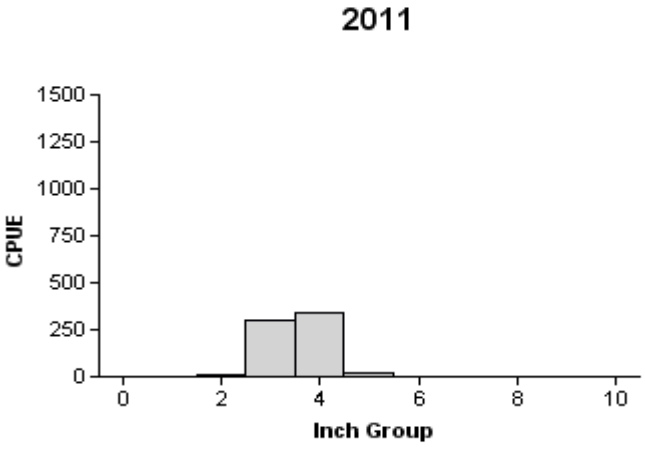
Figure 2. Number of gizzard shad caught per hour (CPUE) and population indices (RSE and N for CPUE and SE for IOV are in parentheses) for fall electrofishing surveys, Lake Monticello, Texas, 2007, 2009, and 2011.

Bluegill

Effort = 1.0
Total CPUE = 2,102.0 (14; 2102)
Stock CPUE = 2,086.0 (14; 2086)
PSD = 1 (0.3)
PSD-P = 0 (0.1)



Effort = 1.0
Total CPUE = 997.0 (12; 997)
Stock CPUE = 979.0 (12; 979)
PSD = 1 (0.7)
PSD-P = 0 (0)



Effort = 1.0
Total CPUE = 676.0 (15; 676)
Stock CPUE = 667.0 (15; 667)
PSD = 1 (0.3)
PSD-P = 0 (0)

Figure 3. 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 Monticello, Texas, 2007, 2009, and 2011.

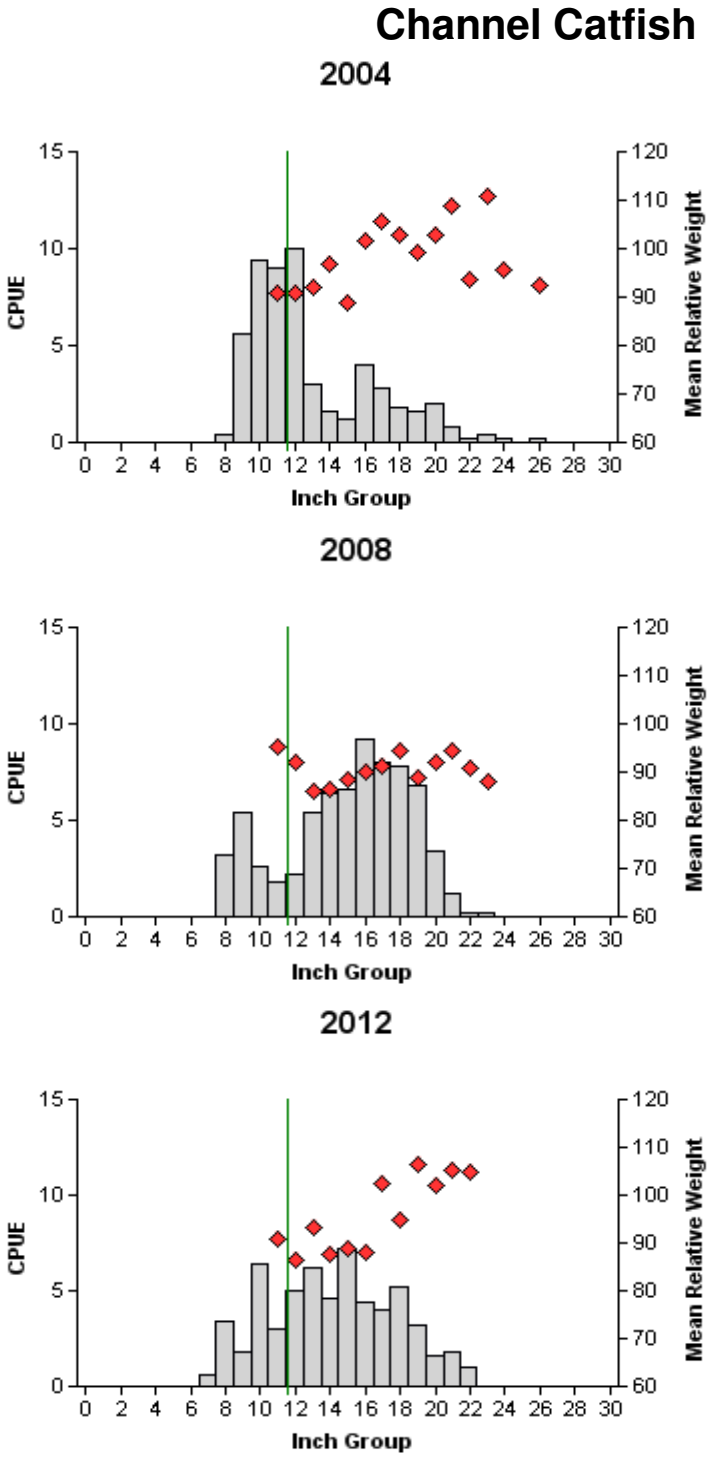


Figure 4. Number of channel catfish caught per hour (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for spring gill net surveys, Lake Monticello, Texas, 2004, 2008, and 2012. Vertical lines indicate the minimum length limit.

Channel Catfish

Table 7. Creel survey statistics for channel catfish at Lake Monticello, Texas during winter quarter surveys (December – February), 2004-2005, 2006-2007, 2009-2010, and 2011-2012 where 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	Year			
	2004-2005	2006-2007	2009-2010	2011-2012
Directed effort (h)	1,378 (54)	2,532 (38)	568 (60)	618 (68)
Directed effort/acre	0.7 (54)	1.3 (38)	0.3 (60)	0.3 (68)
Total catch per hour	2.5 (42)	3.4 (30)	4.8 (31)	2.7 (65)
Total harvest	3,209 (77)	4,670 (56)	2,466 (92)	3,567 (96)
Harvest/acre	1.6 (77)	2.3 (56)	1.2 (92)	1.8 (96)
Percent legal released	9.4	0.5	29.5	1.2

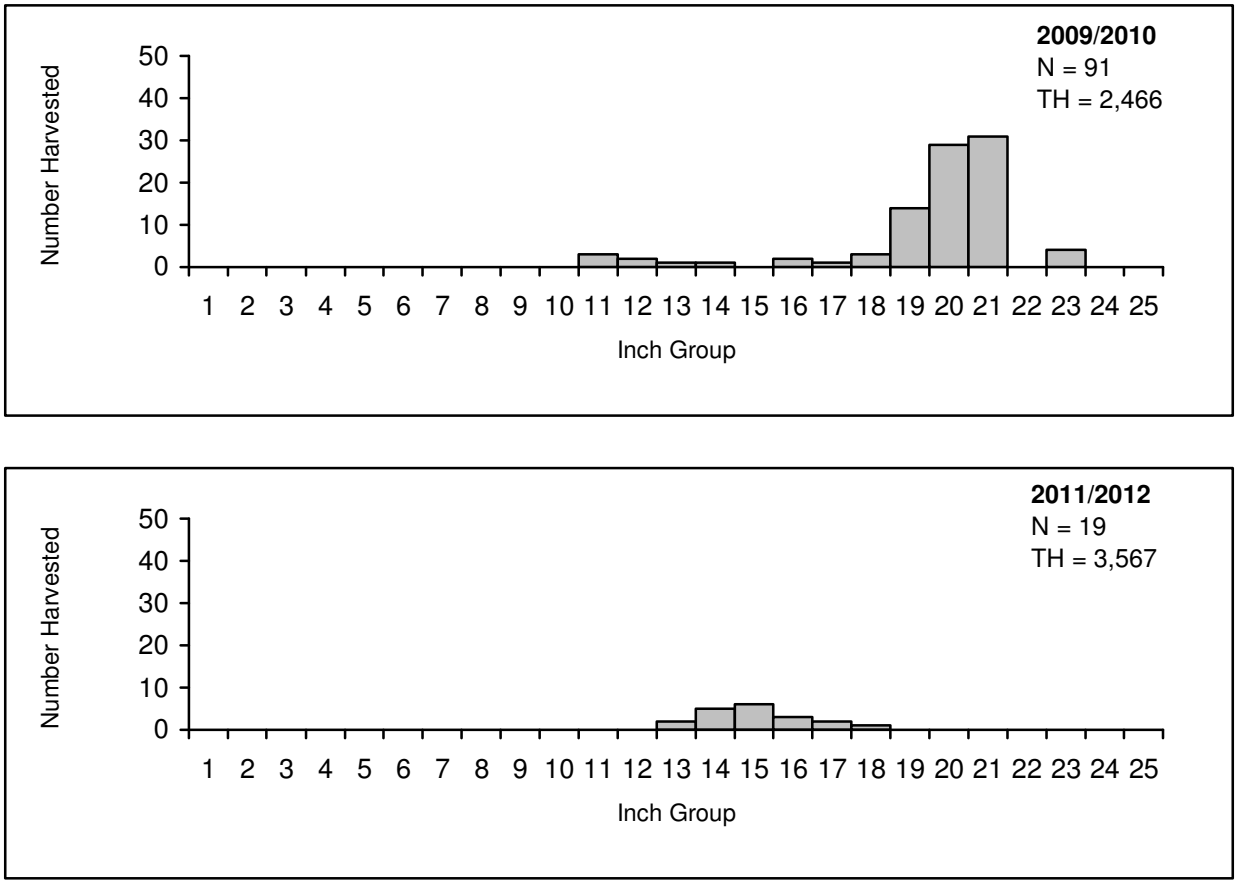


Figure 5. Length frequency of harvested channel catfish observed during winter (December – February) creel surveys at Lake Monticello, Texas, 2009-2010 and 2011-2012, all anglers combined. N is the number of harvested channel catfish observed during creel surveys, and TH is the total estimated harvest for the creel period.

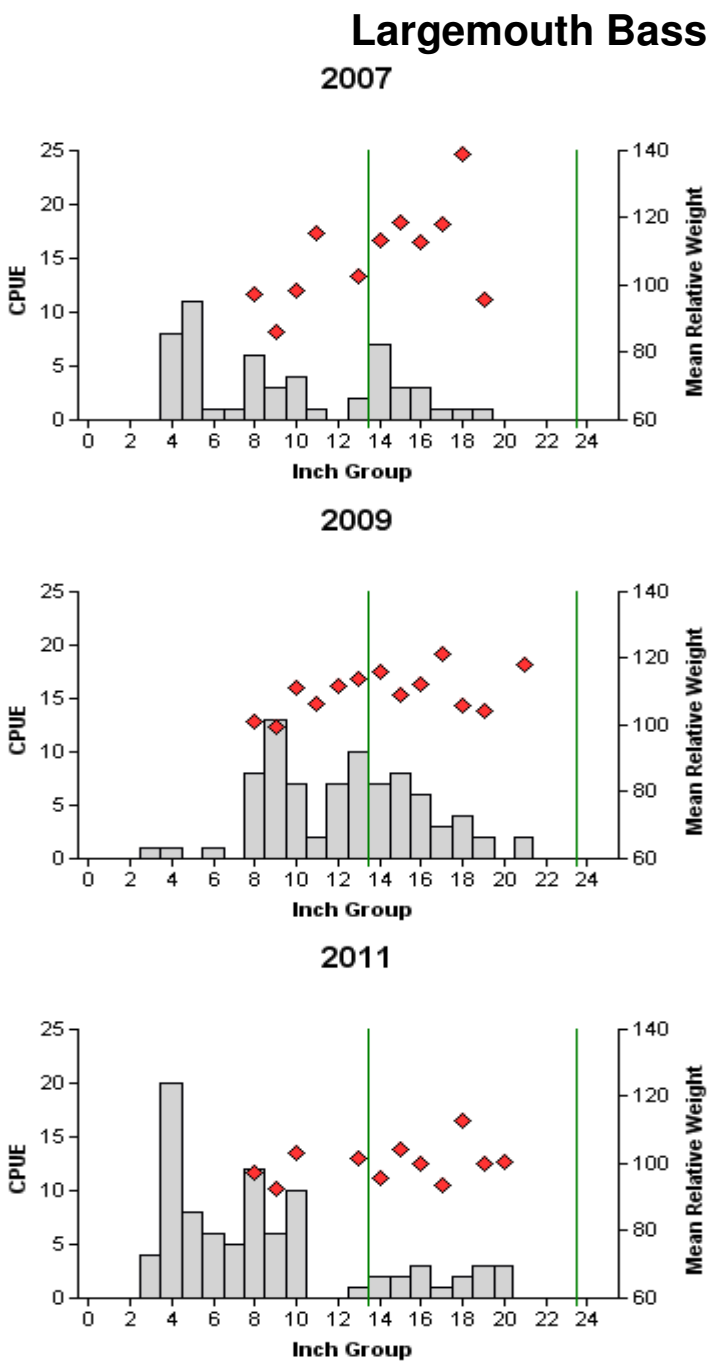


Figure 6. Number of largemouth bass caught per hour (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, Lake Monticello, Texas, 2007, 2009, and 2011. Vertical lines indicate the lower and upper end of the slot length limit.

Largemouth Bass

Table 8. Creel survey statistics for largemouth bass at Lake Monticello, Texas during winter quarter surveys (December – February), 2004/2005, 2006/2007, 2009/2010, and 2011/2012 where 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. Harvest estimates include fish held for tournament weigh-in and live release.

Creel survey statistic	Year			
	2004-2005	2006-2007	2009-2010	2011-2012
Directed effort (h)	23,090 (40)	16,361 (34)	6,863 (33)	9,063 (49)
Directed effort/acre	11.5 (40)	8.2 (34)	3.4 (33)	4.5 (49)
Total catch per hour	0.75 (11)	0.53 (12)	0.73 (16)	0.31 (36)
Total harvest	541 (78)	653 (61)	0	0
Harvest/acre	0.27 (78)	0.33 (61)	0	0
Percent legal released	95	69	100	100

Table 9. Results of genetic analysis of largemouth bass collected by fall electrofishing, Lake Monticello, Texas, 2003, 2005, 2007, and 2011. Largemouth bass population genetics were assessed with micro-satellite DNA analysis in 2005, 2007, and 2011 and with electrophoresis in 2003 from a minimum sample of 30 young-of-the-year fish. 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
2003	58	29	1	28	0	85.0	50.0
2005	75	62	[a]	13	0	96.7	83.0
2007	30	20	[a]	10	0	91.0	66.7
2011	30	8	0	22	0	86.0	27.0

[a] Determination of hybrid status not conducted.

Table 10. Proposed sampling schedule for Lake Monticello, Texas. Gill netting surveys are conducted in the spring, vegetation surveys are conducted in the summer, and electrofishing surveys are conducted in the fall. Standard survey denoted by S and additional survey denoted by A.

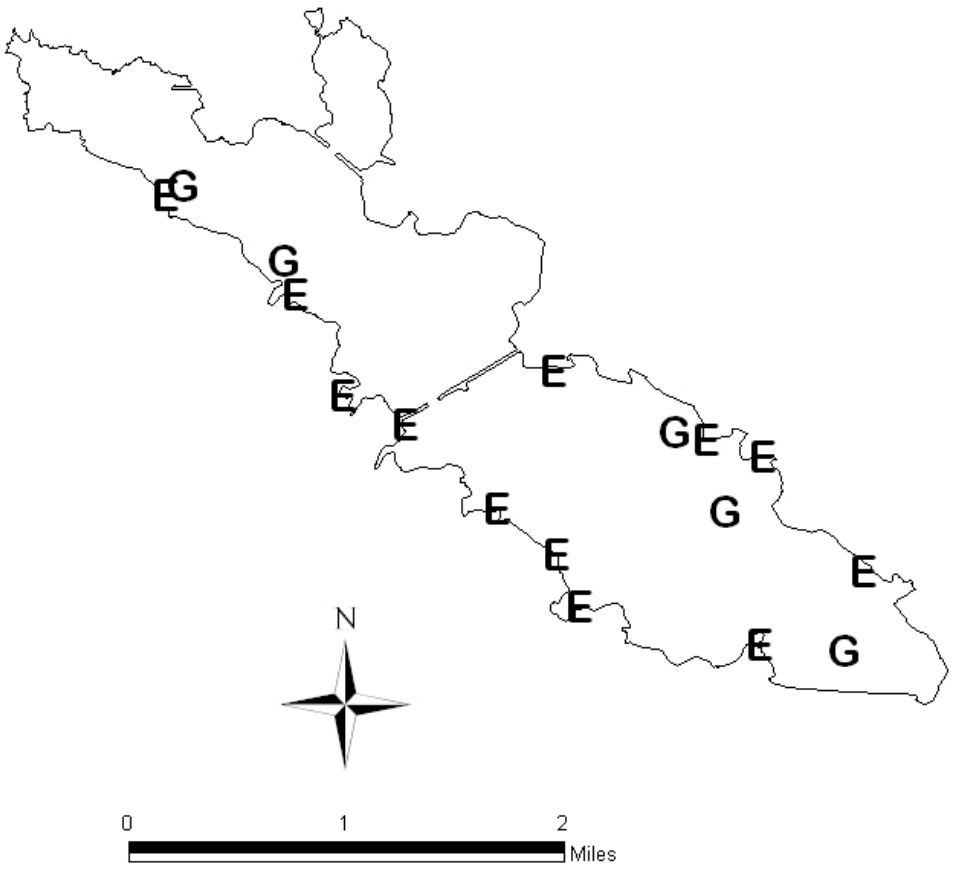
Survey Year	Vegetation	Electrofisher	Access	Gill Net	Report
2012 - 2013	A				
2013 - 2014	A	A			
2014 - 2015	A				
2015 - 2016	S	S	S	S	S

APPENDIX A

Number (N) and catch rate (CPUE) of all target species collected from all gear types from Lake Monticello, Texas, 2011-2012.

Species	Gill Netting		Electrofishing	
	N	CPUE	N	CPUE
Gizzard shad			14	14.0
Threadfin shad			18	18.0
Channel catfish	297	59.4		
Green sunfish			7	7.0
Bluegill			676	676.0
Longear sunfish			26	26.0
Redear sunfish			1	1.0
Redspotted sunfish			6	6.0
Largemouth bass			88	88.0

APPENDIX B



Location of sampling sites, Lake Monticello, Texas, 2011-2012. Gill netting and electrofishing stations are indicated by G and E, respectively.

APPENDIX C

Actual and expanded counts of Lake Monticello fish kill 7/22/2006. Actual count is the total number of fish observed in samples. Expanded count is the total estimate of fish killed in the reservoir.

Species	Length (inches)	Actual Count	Expanded Count
Bluegill	5	1	14
Channel catfish	2	2	2
	4	3	3
	8	1	14
	10	1	14
	11	1	14
	12	2	15
	18	2	28
Gizzard shad	2	3	41
	10	9	86
	12	1	14
	14	1	14
	15	1	14
	18	1	14
Largemouth bass	10	3	16
	12	4	4
	14	8	84
	15	20	237
	16	13	179
	17	11	152
	18	19	261
	19	14	193
	20	6	82
	22	3	41
	23	1	14
Threadfin shad	1	4	30
Unclassified sunfishes	1	1	14
	Event total killed:	136	1,594
	Estimated value:		$107,428