

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

New Ballinger Reservoir

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SURVEY AND MANAGEMENT SUMMARY

Fish populations in New Ballinger Reservoir were surveyed in 2010 and 2012 using electrofishing. This report summarizes the results of the surveys and contains a management plan for the reservoir based on those findings.

- **Reservoir Description:** New Ballinger Reservoir is a 591-acre (when full) impoundment located on Valley Creek in the Colorado River basin in Runnels County, Texas. It was constructed in 1984 for municipal water supply and recreation. The reservoir has a history of extreme water level fluctuations; it has nearly dried up and refilled twice in the past 9 years. Boat and shoreline access are good, and habitat is predominantly flooded saltcedar. Watershed land use is primarily ranching.
- **Management History:** Important sport fish included Largemouth Bass, White Crappie, White Bass, Channel Catfish and Blue Catfish. Following its construction in 1984, the reservoir was initially stocked with Threadfin Shad, Coppernose Bluegill, Redbreast Sunfish, Blue Catfish, Channel Catfish, Palmetto Bass, Smallmouth Bass, Florida Largemouth Bass and Walleye. Periods of drying and refilling were followed up with stockings of Largemouth Bass, Bluegill, White Crappie, Channel Catfish, Walleye, and Gizzard Shad. Sport fish harvest has been managed according to statewide regulations.
- **Fish Community**
 - **Prey species:** Gizzard Shad have been reduced to low numbers by the 2011 drought.
 - **Catfishes:** No sampling for catfish was conducted due to drought.
 - **White bass:** No sampling for White Bass was conducted due to drought.
 - **Largemouth bass:** No Largemouth Bass were collected in 2012; the population has been severely affected by the 2011 drought.
 - **Crappie:** No sampling for crappie was conducted due to drought.
- **Management Strategies:** New Ballinger Reservoir should continue to be managed with existing regulations. The reservoir should be monitored to evaluate the recovering fish populations. A mandatory standard survey is scheduled in 2016-2017 with trap netting, gill netting, and electrofishing to assess important fish populations. Additional electrofishing in 2015 and additional hoop netting in 2016 are planned to monitor the recovery of fish populations.

INTRODUCTION

This document is a summary of fisheries data collected from New Ballinger Reservoir in 2010 and 2012. The purpose of the document is to provide fisheries information and make management recommendations to protect and improve the sport fishery. Although information on other species of fish was collected, this report deals primarily with major sport fish and important prey species.

Reservoir Description

New Ballinger Reservoir is a 591-acre (when full) impoundment located on Valley Creek in the Colorado River basin approximately 5 miles west of Ballinger in Runnels County, Texas. It was constructed in 1984 for municipal water supply and recreation on the Colorado River. The reservoir's water level dropped dramatically in 2004, and again in 2011, and the boat ramp was closed to the public during those times.

Intense rains in 2004 and 2012 caused the springs in Valley Creek watershed to begin flowing again returning the reservoir to near conservation elevation (Figure 1). Habitat is predominantly flooded saltcedar with some rock bluff and standing timber. Watershed land use is primarily ranching. Other descriptive characteristics for New Ballinger Reservoir are shown in Table 1.

Angler Access

New Ballinger Reservoir has one public access point at the park and campground maintained by the City of Ballinger. Shoreline access is good, and one concrete boat ramp is available when water level is suitable (Table 2). The boat ramp was usable when this report was written.

Management History

Previous management strategies and actions: Management strategies and actions from the previous survey report (Farooqi and Scott 2009) included:

1. Discontinue Walleye stockings and assess other populations, especially Largemouth Bass.
Action: Walleye stockings were discontinued after 2007 and additional electrofishing was conducted in 2010 to assess the Largemouth Bass and prey populations.
2. To better assess the catfish population, sample with hoop nets.
Action: The reservoir was too low to access with a boat during the planned sampling seasons.

Harvest regulation history: Sport fish in New Ballinger Reservoir are currently managed with statewide regulations (Table 2).

Stocking history: In the summer of 2004 the reservoir was nearly dry, but by 2005 water level had reached conservation pool. As a consequence, adult Gizzard Shad, Largemouth Bass, White Crappie, and fingerling Largemouth Bass, Channel Catfish and Walleye were stocked in 2005 to rebuild the populations.

The reservoir refilled in October 2012, and the district requested fingerling Bluegill, Largemouth Bass, and Channel Catfish for stocking in 2013. At the time of writing, New Ballinger Reservoir had received partial stockings of Florida Largemouth Bass and Bluegill. The complete stocking history is shown in Table 3.

Vegetation/habitat history: New Ballinger Reservoir has no vegetation/habitat management history.

Water transfer: No interbasin water transfers are known to occur.

METHODS

Fish were collected by electrofishing (1.0 hour at 12, 5-min stations). Trap netting and gill netting were not conducted because the reservoir nearly dried up in 2011 and had not been restocked before the 2012-2013 sampling seasons. Catch per unit effort (CPUE) for electrofishing was recorded as the number of fish caught per hour (fish/h) of actual electrofishing. 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), 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). 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. A littoral habitat and vegetation survey was not conducted because the reservoir was nearly dry in summer 2012. Source for water level data was the Ballinger water treatment plant.

RESULTS AND DISCUSSION

Habitat: The latest structural and vegetation survey results can be found in Farooqi and Scott (2009).

Prey species: Although electrofishing CPUE of Gizzard Shad in 2010 was moderate (109/h, Figure 2), the drought in 2011 reduced the population so that the 2012 catch rate was 1/h. The effect was similar on Bluegill (Figure 3); CPUE in 2010 was 11/h, but dropped to 1/h in 2012. No Threadfin Shad or other species of sunfish were captured in 2012.

Catfishes: No sampling for catfish was conducted.

White Bass: No sampling for White Bass was conducted.

Largemouth Bass: The electrofishing catch rate for Largemouth Bass was 14/h in 2010, with individual fish up to 19 inches in the sample (Figure 4). No Largemouth Bass were captured in the 2012 survey.

White Crappie: No sampling for crappie was conducted.

Fisheries management plan for New Ballinger Reservoir, Texas

Prepared – July 2013.

ISSUE 1: New Ballinger Reservoir was nearly dry in summer 2011, but water level returned to near conservation pool in fall 2012. Restocking of sport fish and prey fish species was begun in 2013 to start rebuilding the fisheries.

MANAGEMENT STRATEGY

1. Continue rebuilding the fisheries with stockings of Largemouth Bass, Bluegill, Channel Catfish, Gizzard Shad, and White Crappie.
2. Assess the effectiveness of the stockings with an additional electrofishing survey in fall 2015 and hoop netting in 2016.
3. When the fishery has recovered, publicize the survey findings in local media outlets.

ISSUE 2: 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. Contact and educate marina owners about invasive species, and provide them with posters, literature, etc... so that they can in turn educate their customers.
3. Educate the public about invasive species through the use of media and the internet.

4. Make a speaking point about invasive species when presenting to constituent and user groups.
5. Keep track of (i.e., map) existing and future inter-basin water transfers to facilitate potential invasive species responses.

SAMPLING SCHEDULE JUSTIFICATION:

The proposed sampling schedule includes additional electrofishing in 2015, and hoop netting in 2016. Mandatory monitoring is scheduled in 2016/2017 (Table 5). An additional electrofishing survey in 2015 is necessary to monitor the recovery of the Largemouth Bass and prey populations. An additional hoop net survey in 2016 is necessary to evaluate the recovery of the Channel Catfish population.

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- Guy, C. S., R. M. Neuman, D. W. Willis, and R. O. Anderson. 2007. Proportional size distribution (PSD): a further refinement of population size structure index terminology. *Fisheries* 32(7): 348.

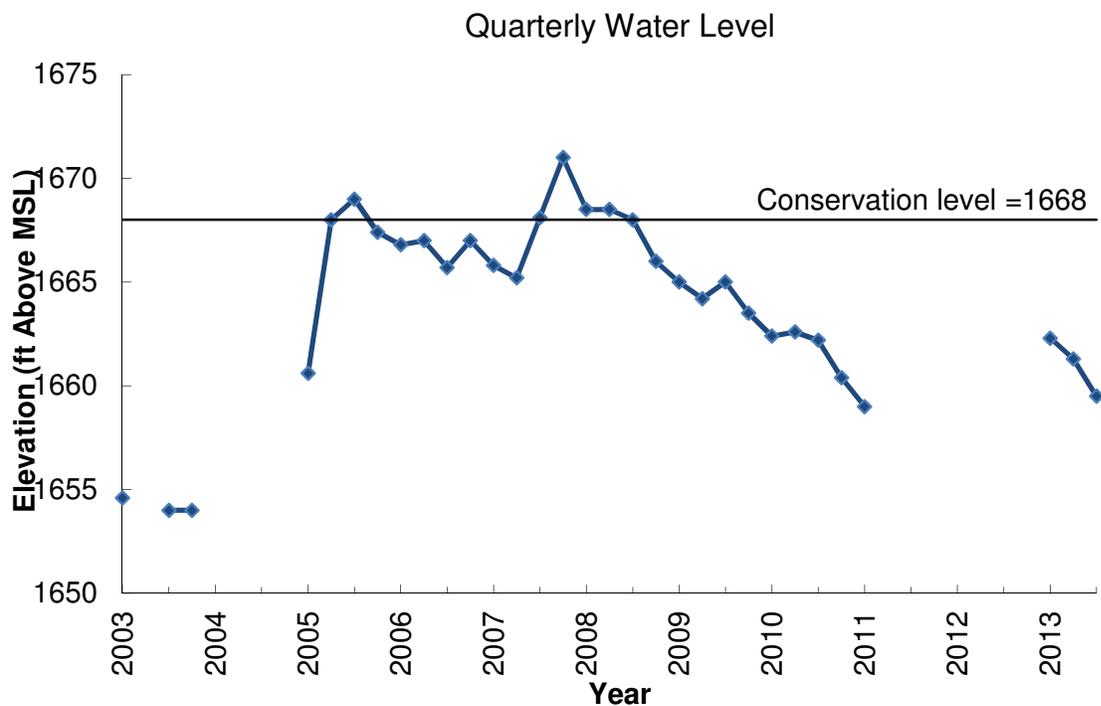


Figure 1. Quarterly water level elevations in feet above mean sea level recorded for New Ballinger Reservoir, Texas.

Table 1. Characteristics of New Ballinger Reservoir, Texas.

Characteristic	Description
Year constructed	1984
Controlling authority	City of Ballinger
County	Runnels
Reservoir type	Tributary
Shoreline Development Index	3.01
Conductivity	770 $\mu\text{mhos/cm}$

Table 2. Boat ramp characteristics for New Ballinger Reservoir, Texas, July 2013. Elevation at time of sampling was approximately 1662 ft above MSL.

Boat ramp	Latitude	Longitude (dd)	Public	Parking capacity (N)	Condition
Ballinger Municipal Lake Park	31°44'25.05"	-100°2'9.43"	Y	30	Good, no issues

Table 3. Harvest regulations for New Ballinger Reservoir, Texas.

Species	Bag Limit	Length limit
Catfish: Channel and Blue, 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	14-inch minimum
Crappie: White and Black, their hybrids and subspecies	25 (in any combination)	10-inch minimum

Table 4. Stocking history of New Ballinger Reservoir, Texas. Size categories are: FRY = ≤ 1 inch; FGL = 1-3 inches; ADL = adults, and UNK = unknown.

Species	Year	Number	Size
Threadfin Shad	1985	1,200	UNK
Gizzard Shad	2005	196	ADL
Coppernose Bluegill	1985	60,000	UNK
Bluegill	2005	386	ADL
	2013	15,720	FGL
	Total	16,106	
Redbreast Sunfish	1985	8,262	FGL
Blue Catfish	1984	1,000	FGL
	1985	12,022	FGL
	1986	12,005	FGL
	1995	57,500	FGL
	Total	82,527	
Channel Catfish	1986	30,012	FGL
	1987	31,030	FGL
	1995	58,894	FGL
	2005	30,766	FGL
	Total	150,702	
Palmetto Bass	1985	57,389	FRY
Smallmouth Bass	1985	13,000	FGL
	1986	12,800	FGL
	1987	12,225	FGL
	Total	38,025	
Largemouth Bass	2005	68	ADL
Florida Largemouth Bass	1985	12,000	FGL
	1986	13,605	FGL
	1997	57,507	FGL
	2005	31,161	FGL

	2013	<u>54,503</u>	FGL
	Total	168,776	
White Crappie	2005	327	ADL
Walleye	1985	1,550,000	FRY
	1993	1,300,000	FRY
	1995	1,000,000	FRY
	1996	138,486	FGL
	2005	15,745	FGL
	2006	15,206	FGL
	2007	<u>705</u>	FGL
	Total	<u>4,020,142</u>	

Gizzard Shad

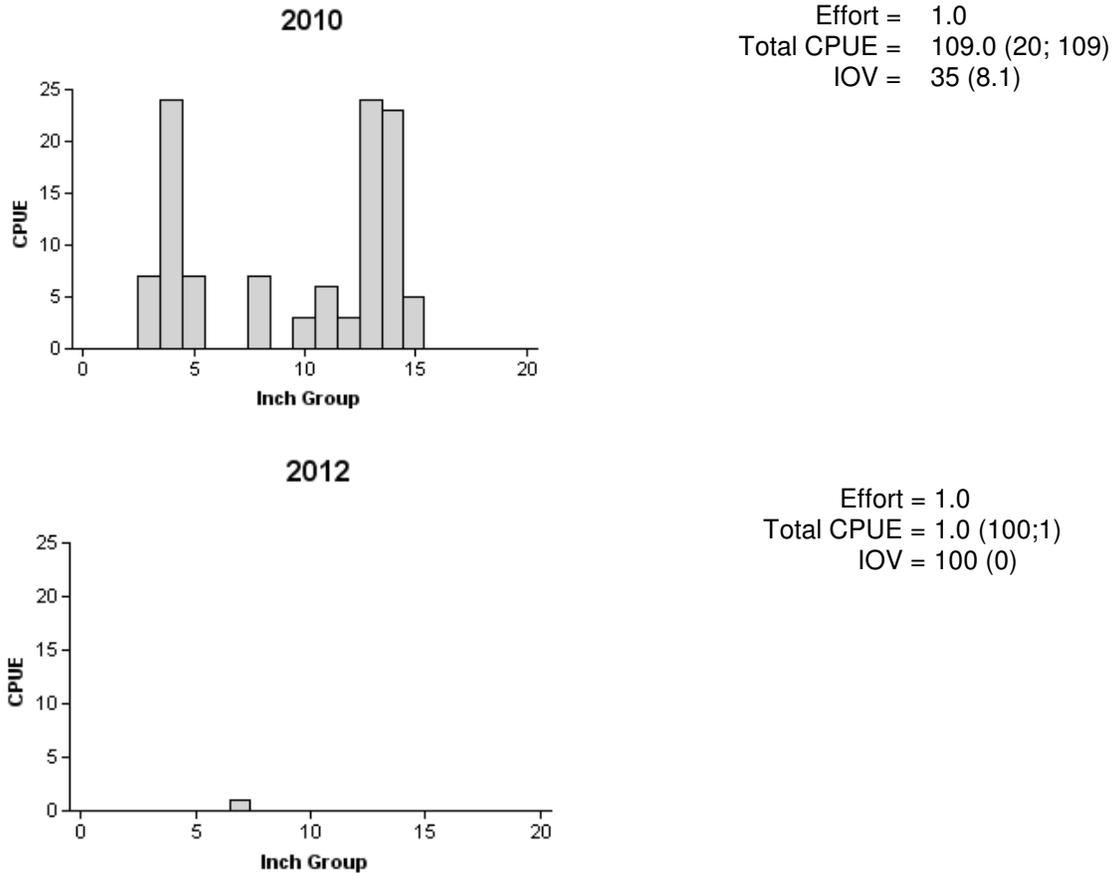
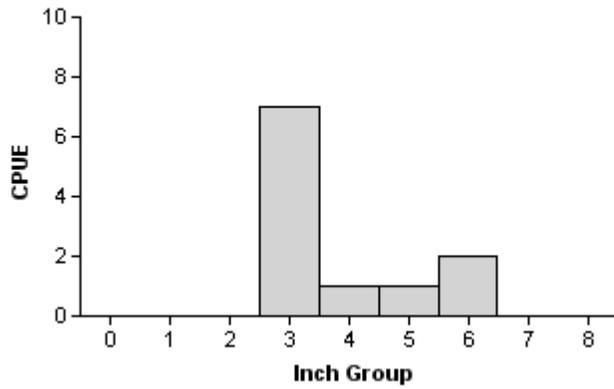


Figure 2. Number of Gizzard Shad caught per hour (CPUE) and population indices (RSE and N for CPUE and SE for IOV are in parentheses) for fall electrofishing surveys, New Ballinger Reservoir, Texas, 2010 and 2012.

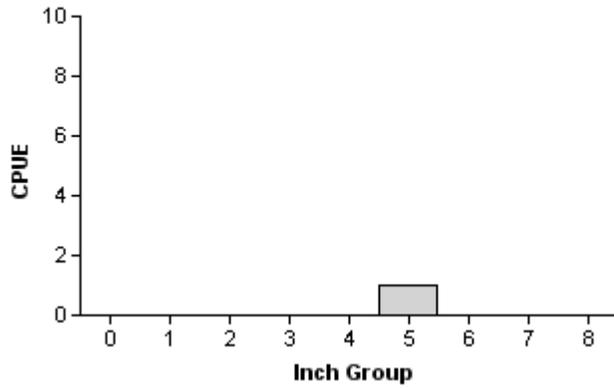
Bluegill

2010



Effort = 1.0
 Total CPUE = 11.0 (56; 11)
 Stock CPUE = 11.0 (56; 11)
 PSD = 18 (10.8)

2012



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

Figure 3. 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, New Ballinger Reservoir, Texas, 2010 and 2012.

Largemouth Bass

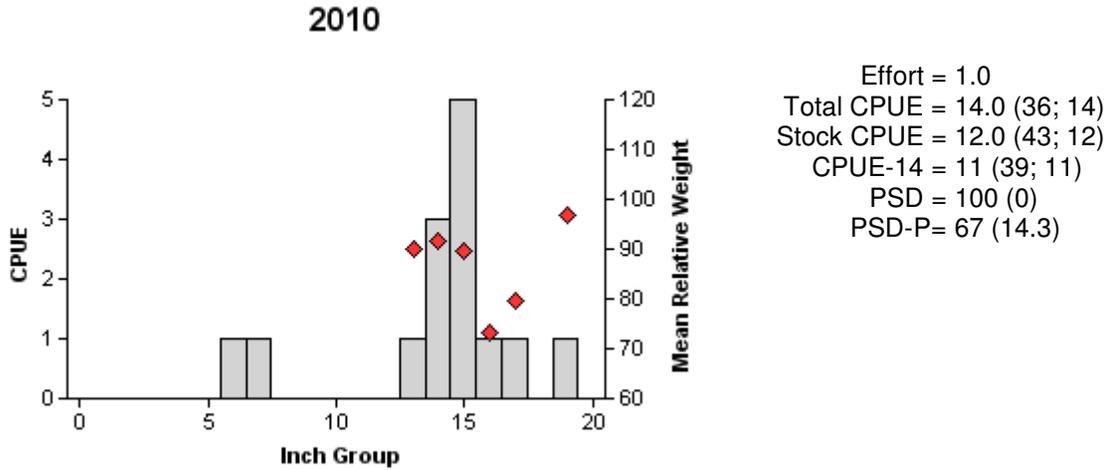


Figure 4. Number of Largemouth Bass caught per hour (CPUE, bars), mean relative weight (diamonds), and population indices (RSE and N for CPUE and SE for size structure are in parentheses) for fall electrofishing surveys, New Ballinger Reservoir, Texas, 2010. No Largemouth Bass were captured in the 2012 fall electrofishing survey (Effort = 1.0 hours).

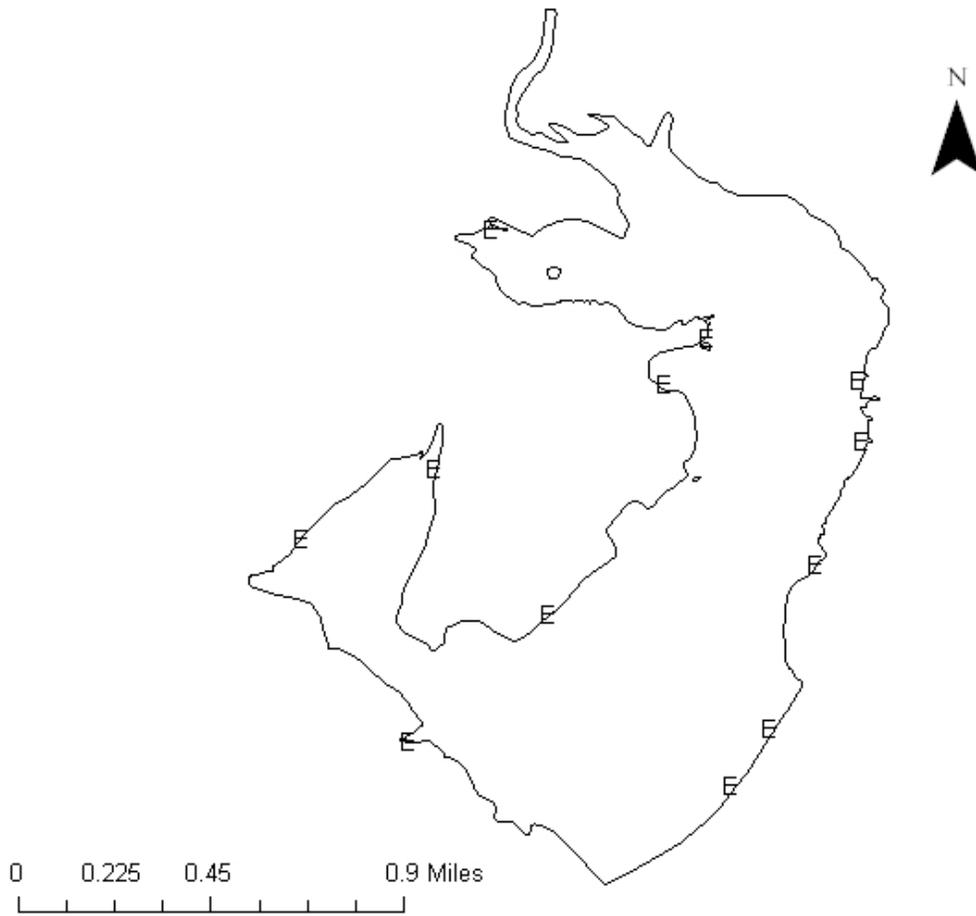
Table 5. Proposed sampling schedule for New Ballinger Reservoir, Texas. Sampling period is June through May. Gill netting surveys are conducted in the spring, while electrofishing and trap netting surveys are conducted in the fall. Standard survey denoted by S, and additional survey denoted by A.

Survey year	Electrofishing Fall(Spring)	Trap net	Gill net	Hoop net	Habitat			Creel survey	Report
					Structural	Vegetation	Access		
2013-2014									
2014-2015									
2015-2016	A								
2016-2017	S	S	S	A		S	S		S

APPENDIX A

Number (N) and catch rate (CPUE) of all species collected by electrofishing from New Ballinger Reservoir, Texas, fall 2012. Trap netting and gill netting were not conducted because the reservoir had recently dried up almost completely, and fall 2012 electrofishing collected very few fish.

Species	Electrofishing	
	N	CPUE
Longnose gar	3	3.0
Gizzard shad	1	1.0
Common carp	28	28.0
Smallmouth buffalo	4	4.0
White bass	1	1.0
Bluegill	1	1.0
White crappie	1	1.0
Freshwater drum	1	1.0

APPENDIX B

Location of electrofishing sampling sites, New Ballinger Reservoir, Texas, fall 2012. The reservoir was within three feet of conservation level at the time of sampling.