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INLAND FISHERIES DIVISION MONITORING AND MANAGEMENT PROGRAM

2014 Fisheries Management Survey Report

Stamford Reservoir

Prepared by:

Michael D. Homer Jr., District Management Supervisor
and
Natalie Goldstrohm, Assistant District Management Supervisor

Inland Fisheries Division
Abilene District
Abilene, Texas

Carter Smith
Executive Director

Craig Bonds
Director, Inland Fisheries

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SURVEY AND MANAGEMENT SUMMARY

Fish populations in Stamford Reservoir were not surveyed from 2014-2015 because of extreme prolonged drought conditions.

- **Reservoir Description:** Stamford Reservoir is roughly a 5,120-acre impoundment of Paint Creek, a tributary of the Clear Fork of the Brazos River Basin approximately 10 miles southeast of Haskell, TX. The reservoir is used for municipal and industrial water supply for the City of Stamford; it is also used for flood control and recreation. Water level steadily dropped since 2010 and had declined by about 17 ft. below conservation pool level by spring 2015. Heavy rains and water transfer efforts from California Creek (water scalping method) in May 2015 increased water level to nearly two ft. below conservation pool level. Previously surveyed habitat features consisted of featureless shoreline and dead brush as well as plant species including bulrush, Illinois pondweed, American lotus, duckweed, button bush, sago pondweed, salt cedar, and cattail. There were two inaccessible public boat ramps and limited bank-fishing access. Golden alga is established in the reservoir. Golden alga caused the first documented toxic bloom for Stamford Reservoir in late winter 2015 which resulted in a severe, lake-wide fish kill.

- **Management History:** Florida Largemouth Bass were introduced in Stamford Reservoir in the late 1970s. Stockings of Blue Catfish, palmetto bass, and Walleye also occurred during the 1970s. Palmetto bass and Walleye stockings were largely unsuccessful so stocking programs for these species were discontinued after 1982. An additional Blue Catfish stocking occurred in 1991. Water level began to drop in 1993 and reached 16 ft. below conservation pool in 2000. Once water level increased to a suitable elevation during 2001-2002, Florida Largemouth Bass and Channel Catfish were stocked.

- **Fish Community**
  - No data were collected for fish populations because of prolonged drought preventing access to the reservoir as well as golden alga caused a toxic bloom that resulted in a severe fish kill.

- **Management Strategies:** Golden alga has become established in the reservoir, and routine monitoring for the species will be conducted by periodically collecting water samples and water quality data. Based on current information, and due to extreme water level fluctuations, sportfishes should continue to be managed with existing statewide regulations. The focus will be on providing Largemouth Bass and Blue Catfish fisheries since the lake level improved and golden alga cell levels had subsided to allow for continued survival of the species. Largemouth Bass fingerlings were be requested and stocked as available and as water level and water quality conditions permit. Upon catching significant rainfall, catfish fisheries will be sampled to assess if supplemental stockings are needed to restore these fisheries. Access will be monitored.

INTRODUCTION

This document is a summary of the conditions of fisheries at Stamford Reservoir from 2014-2015. The purpose of the document is to provide fisheries information and make management recommendations to protect and improve the sport fisheries. No fisheries data were collected since the last report (Dumont 2011) because of prolonged drought conditions and a fish kill caused by golden alga that occurred during late winter 2015.

Reservoir Description

Stamford Reservoir is roughly a 5,120-acre impoundment constructed in 1953 on Paint Creek, a tributary of the Clear Fork of the Brazos River. The reservoir is located in Haskell County approximately 10 miles southeast of Haskell and is operated and controlled by the City of Stamford. The reservoir provides municipal and industrial water supply for the City of Stamford and is used for flood control and recreation. A steam electric generating plant was located on the reservoir but has not operated since 2002. Conservation pool level is approximately 1,417 ft. above mean sea level (MSL); and dead pool elevation is approximately 1,381 ft. (Figure 1). Since 2010, water level has dropped from slightly over conservation pool level to about 17 ft. below by spring 2015 (Appendix A). Late spring rains and water transfers from California Creek to the reservoir increased the water level to nearly two ft. below conservation pool level as of May 2015. Stamford Reservoir was eutrophic based on Carlson's Trophic State Index for Chlorophyll-a (TSI Chl-a) with a mean TSI Chl-a of 55.78 (TCEQ 2011). Golden alga became established in Stamford Reservoir. The first documented toxic bloom occurred in late winter 2015 which resulted in a severe lake-wide fish kill. Other descriptive characteristics for Stamford Reservoir are in Table 1.

Angler Access

Stamford Reservoir has two public boat ramps. However, during the survey period (until mid-May 2015), both ramps were out of water because of prolonged drought and low water level. During the periods of low water level, anglers accessed portions of the lake bed and launched small boats off the bank. Anchor Marina Ramp is located on the north side of the reservoir off of Farm-to-Market Rd 3495 and Anchor Lane. The second boat ramp is located at Stamford Marina on the southern side of the reservoir off of FM 2976 and Stamford Marina Drive. Bank and handicapped access were restricted to the areas around the boat ramps and a pay-for-fishing dock that operated sporadically from 2008-present. Additional boat ramp characteristics are located in Table 2. Aerial photographs of the ramps are available in Appendix B.

Management History

Previous management strategies and actions: Management strategies and actions from the previous survey report (Neely and Dumont 2011) included:

1. Create watershed map, assess watershed characteristics' influence water collection in the reservoir, and make watershed-level management recommendations for fisheries.
   Action: A watershed map was created in 2012 and has been updated annually. Watershed characteristics and their influence on reservoir water collection are still being evaluated.

2. Promote the White Bass fishery in the reservoir through press releases and newspaper articles.
   Action: Various newspaper articles were written to highlight fisheries and the effects of drought/water level at Stamford Reservoir.

3. Conduct a year-long roving creel to collect baseline creel data for fisheries at the reservoir.
   Action: A creel was not conducted during the survey because of drought conditions.

4. Educate public about threats of invasive species.
   Action: Press releases were distributed to local and statewide media. Signage was posted at each public ramp to notify users of potential invasive species and threats.

Harvest regulation history: Sport fish in Stamford Reservoir have been managed with statewide harvest regulations (Table 3).

Stocking history: Stamford Reservoir has been stocked with numerous species including Channel Catfish, Blue Catfish, Largemouth Bass, and Walleye. An unsanctioned introduction of White Bass into the reservoir was detected in the mid-1990. A complete stocking history is presented in Table 4.

Vegetation/habitat management history: There has not been substantial vegetation or habitat management in Stamford Reservoir.

Water Transfer: An intrabasin three-pump water scalping system occurs on California Creek, a tributary to Paint Creek below the Stamford Reservoir Dam. The system can pump water into the reservoir during periods of high streamflow. No interbasin transfers are known to exist.

METHODS

In 2012, fishes were collected by electrofishing (1 hour at 12, 5-minute stations). 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 manuals revised 2011). No fisheries surveys were conducted in 2014 and 2015 because of extreme drought conditions. The source for water level data was the United States Geological Survey National Water Information System (USGS 2015).

RESULTS AND DISCUSSION

Habitat: A habitat survey was last conducted in 2010 (Neely and Dumont 2011). Shoreline habitat primarily consisted of bulrush and dead terrestrial vegetation although other species such as cutgrass, cattail, Illinois pondweed, American lotus, sago pondweed, coontail, water primrose, spikerush and exotic salt cedar were of low prevalence. Substrate was predominantly silt. Overall, habitat was mostly featureless with some occurrence of bulrush and dead brush.

Prey species: No data were collected because of drought conditions.

Catfishes: No data were collected because of drought conditions.

Largemouth Bass: No data were collected because of drought conditions.

White Bass: No data were collected because of drought conditions.

White Crappie: No data were collected because of drought conditions.

Stamford Reservoir has experienced multiple periods of prolonged drought, and fisheries have rebounded naturally and with proper management. Prior to the recent period of prolonged drought and spring 2015 fish kill, Stamford Reservoir provided excellent sport fisheries for Blue Catfish, White Bass, Largemouth Bass, and White Crappie. Prey species like Gizzard Shad were also productive, which the most recent electrofishing catch rate in 2012 had decreased to 720.0 fish/hour from the 1,203.0 fish/h in 2010 (Neely and Dumont 2011). Blue Catfish catch during the 2011 spring low-frequency electrofishing survey was 209.0 fish/h, and ample legal fish were available to anglers (CPUE-12=157.0 fish/h) (Neely and Dumont 2011). In 2010, White Bass catch during spring 2011 gill net surveys was 14.4 fish/net night. Largemouth Bass have been relatively abundant, but the drought conditions likely affected more recent catches in the electrofishing surveys. Dumont and Neely (2011) noted that catch of Largemouth Bass declined from 115.5 fish/hour in 2006 to 38.0 fish/hour in 2010; a similar decline in catch of legal fish (≥14 inches) was also evident . However, catch of Largemouth Bass slightly increased in the fall 2012 survey at 47.0 fish/hour. White Crappie have been relatively abundant in recent trap netting surveys, and catch rates were 41.2 fish/net night in 2006 and 30.4 fish/net night in 2008 (Neely and Dumont 2011).

Fisheries management plan for Stamford Reservoir, Texas

Prepared – July 2015

ISSUE 1: Stamford Reservoir has been subjected to periods of long-term drought and low water level. Severe drought conditions lowered the reservoir to about 17 ft. below conservation pool during the winter of 2014. As of May 2015, the reservoir has caught substantial water. However, if future drought conditions persist, fisheries could be detrimentally affected.

MANAGEMENT STRATEGIES

1. Sample sport fish and forage species populations for ascertaining management needs. Stock Florida Largemouth Bass fingerlings at 2,000 fish/km to take advantage of greatly increased habitat from spring 2015 rains and to supplement the population remaining after the fish kill caused by golden alga in March 2015.

ISSUE 2: During most of the survey period, boaters were unable to access the reservoir at the two access sites (Anchor and Stamford marinas) because of low water level. As a result, many boaters launched in sloped areas of exposed lake bed near the ramps. During a period of low water level, boat ramp improvements could be made to extend Stamford Marina Ramp for access; Anchor Marina Ramp cannot be feasibly extended (photos of ramps in Appendix B).

MANAGEMENT STRATEGIES

1. Speak with the City of Stamford about potential boat ramp improvements at Stamford Marina Ramp during a period of low water level.
2. Explore availability of funding and potentially apply for a TPWD Boater Access Grant.

ISSUE 3: Golden alga (*Prymnesium parvum*) was first documented during fall 2014, and a fish kill occurred in March 2015. Establishment of golden alga poses a threat for future fish kills which could devastate fisheries in the reservoir.

MANAGEMENT STRATEGIES

1. Continue to monitor golden alga presence, cell densities, and toxicity by quarterly water sample collection.
2. Collect periodic (i.e., winter and spring) water quality data to use and improve understanding of its influence on golden alga blooms and toxicity.

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

MANAGEMENT STRATEGIES

1. Cooperate with the controlling authority to post appropriate signage at access points around the reservoir.
2. Contact and educate marina owners about invasive species, and provide them with posters, literature, etc… so that they can educate their customers.

3. Educate the public about invasive species by use of media and the internet.
4. Discuss 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 tandem hoop netting for Channel Catfish and low-frequency electrofishing for Blue Catfish during summer 2015 to assess relative abundance, size structure, and any stocking needs for each fishery. Standard electrofishing will be conducted in fall 2015 to assess relative abundance, size structure, body conditions, and stocking needs for Largemouth Bass (Table 5). Standard electrofishing is planned for 2018 to monitor population trend data for Largemouth Bass and forage species. Trap netting is planned for fall 2018 to sample crappie and to monitor relative abundance, size structure, and body condition. Gill netting is planned to be conducted in spring 2019 to monitor catfish populations and White Bass for relative abundance, size structure, and body condition. Access, habitat and vegetation surveys are planned for summer 2018. Water quality conditions and golden alga cell counts/toxicity will be monitored periodically beginning winter 2015.

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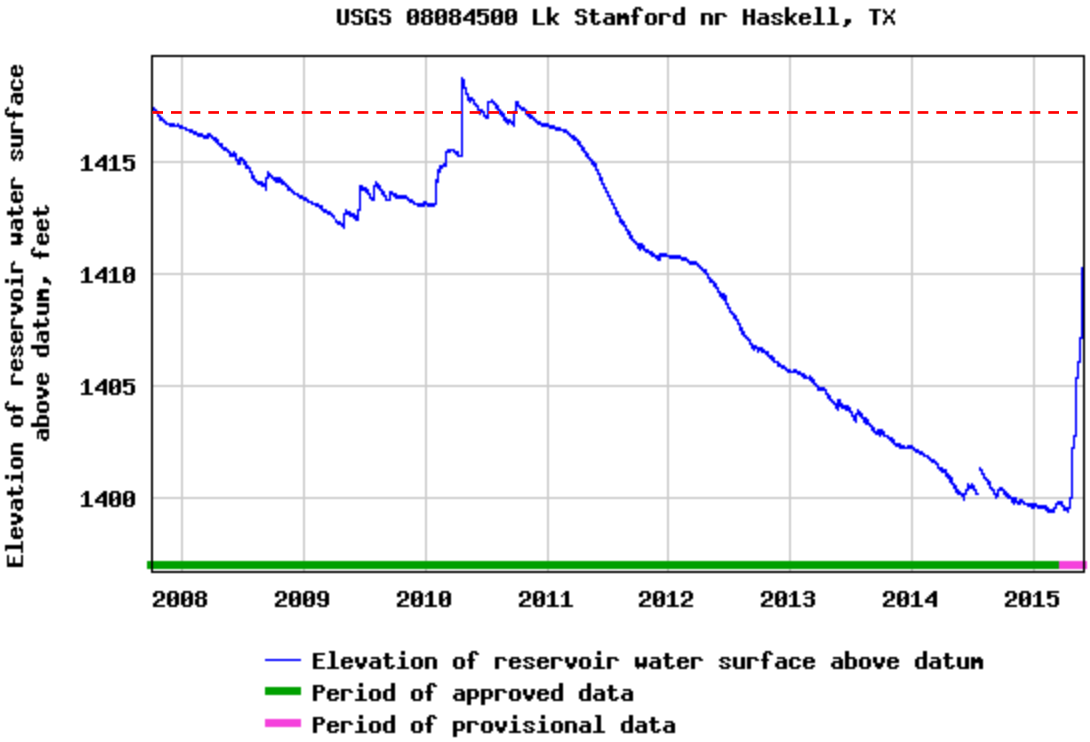


Figure 1. Water level data for Stamford Reservoir (October 2007 – June 2015), Haskell County, Texas (USGS 2015). Dashed line represents approximate conservation pool level.

Table 1. Characteristics of Stamford Reservoir, Texas.

Characteristic	Description
Year Constructed	1953
Controlling Authority	City of Stamford
County	Haskell
Reservoir Type	Tributary; Brazos River Basin
Shoreline Development Index	6.23
USGS 8-Digit Hydrologic Unit Watershed	12060103 (Paint)
Conservation Pool Level (ft. above mean sea level)	1,417
Dead Pool Level (ft. above mean sea level)	1,381
Conductivity (µS/cm)	1,500-3,200

Table 2. Boat ramp characteristics for Stamford Reservoir, Texas, June, 2015. Reservoir water level at time of survey was about 1,414 ft. above mean sea level.

Boat ramp	Latitude Longitude (dd)	Public	Parking capacity (N)	Elevation at end of boat ramp (ft)	Condition
Stamford Marina	33.046454º -99.609365º	Y	20	1,405	Accessible
Anchor Marina	33.068464º -99.599612º	Y	10	1,413	Accessible

Table 3. Harvest regulations for Stamford Reservoir, Texas.

Species	Bag Limit	Length limit
Catfish: Channel and Blue, their hybrids and subspecies	25 (in any combination)	12-in. minimum
Catfish, Flathead	5	18-in. minimum
Bass, White	25	10-in. minimum
Bass, Largemouth	5	14-in. minimum
Crappie: White and Black, their hybrids and subspecies	25 (in any combination)	10-in. minimum

Table 4. Stocking history of Stamford Reservoir, Texas. FRY = < 1 in.; FGL = 1-3 in. fingerlings.

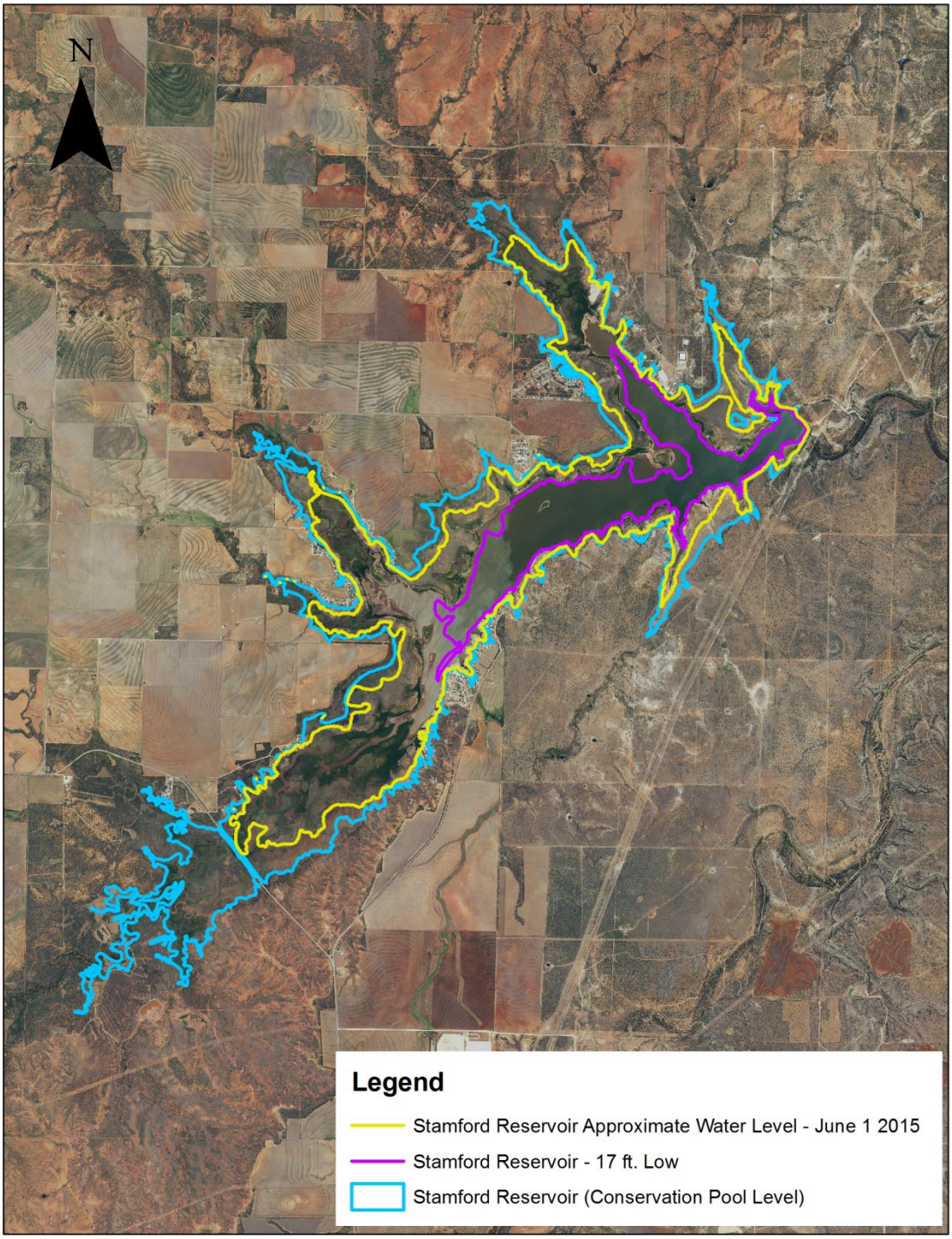
Species	Year	Number	Size
Catfish, Blue	1974	25,300	FGL
	1977	41,250	FGL
	1991	52,000	FGL
	Total	118,550	
Catfish, Channel	1971	2,250	FGL
	1973	13,000	FGL
	1974	1,500	FGL
	2003	149,712	FGL
	Total	166,462	
Bass, Florida Largemouth	1977	60,720	FGL
	1978	116,200	FGL
	1985	83,435	FGL
	1986	71,500	FRY
	1996	260,933	FGL
	1998	262,295	FGL
	2001	100,735	FGL
	2002	263,514	FGL
	Total	1,219,332	
Bass, Palmetto	1977	23,500	FGL
	1979	46,900	FGL
	1982	46,016	FGL
	Total	116,416	
Walleye	1976	1,000,000	FRY
	1977	1,227,000	FRY
	1978	1,150,000	FRY
	Total	3,377,000	

Table 5. Proposed sampling schedule for Stamford Reservoir, Texas. Survey period is June through May. Gill netting surveys are conducted in the spring, tandem hoop netting and low-frequency electrofishing are conducted in the summer, while high frequency electrofishing and trap netting surveys are conducted in the fall. Standard survey denoted by S and additional survey denoted by A.

Survey year	Electrofishing/ Low Frequency	Trap netting	Gill netting	Tandem Hoop netting	Habitat/ Vegetation	Access	Creel survey	Report
2015-2016	A/A			A				
2016-2017								
2017-2018								
2018-2019	S/A	S	S	A	S/S	S		S

APPENDIX A

Aerial Map (Scale 1:60,000; USDA National Agricultural Imagery Program 2014) of Stamford Reservoir's perimeter at conservation pool level (blue), current approximate water level (3 ft. low; yellow), and at 17-feet low (pink), Haskell County, Texas.



APPENDIX B

Aerial photographs with bathymetric one-foot contours (Scale 1:2000; USDA National Agricultural Imagery Program 2014) at Stamford Marina (top) and Anchor Marina (bottom) boat ramps, Stamford Reservoir, Haskell County, Texas. Yellow arrow indicates location of each ramp.