

CLEAN RIVERS PROGRAM CYPRESS CREEK BASIN HIGHLIGHTS REPORT 2011 UPDATE

NORTHEAST TEXAS MUNICIPAL WATER DISTRICT

BASIN WATER QUALITY MONITORING OVERVIEW

The Clean Rivers Program (CRP) is a water quality monitoring, assessment, and public outreach program administered by the Texas Commission on Environmental Quality (TCEQ) and funded by state collected fees. The Northeast Texas Municipal Water District (NETMWD) coordinates the Clean Rivers Program for the Cypress Creek Basin.

Sampling in the first quarter was abnormal due to severe flooding and repeated significant rain events. The region received a disproportionate amount of its annual rainfall this quarter and some sampling events were not completed or had to be rescheduled. Caddo Lake Institute (CLI) monthly monitoring could not be collected in October due to heavy rains and flooding at Skeeter's Marina near Caddo Lake. Four Station Location Requests were submitted for stations on tributaries to Hart, Tankersley and Big Cypress Creeks. Stations on Evan Creek (20704), Hayes Creek, (20705), an unnamed Tributary to Big Cypress Creek (20706), and Prairie Branch (20707) were created in SWQMIS. These stations were created for a Texas State Soil and Water Conservation Board (TSSWCD) project in the basin (see back page, bottom).

Flooding and high waters persisted through much of the second quarter due to heavy rains in December and early January; and heavy snow in February. All sampling was completed according to the coordinated monitoring schedule for Northeast Texas Municipal Water District (NETMWD) stations. Freezing cold temperatures killed much of the invasive aquatic vegetation in Segment 0401, Caddo Lake. Flow continued to be high this quarter and not all could be measured safely.

Stream conditions and lake levels remained above normal in the third quarter. Changes from previous flooding and extended high flow events had great impacts to the fluvial geomorphology and sediment transport of smaller creek channels. The reduction of invasive aquatic vegetation on Caddo Lake over the winter continued early; likely from contributions of heavy rains and freezing temperatures, but new growth was apparent in the latter part of the quarter. Discharge could not be measured at four downstream stations due to high water levels and dangerous conditions.

Heavy rains early in the fiscal year subsided to near drought conditions throughout the fourth quarter. Big Cypress Creek at the Caddo Lake State Park (15022) began the quarter at high flow severity in mid June, but by August, less than 10% of the June discharge was observed. Caddo Lake maintained above normal lake levels until mid-July, but in August it returned to normal.



Big Cypress Creek at US 259. Invasive aquatic vegetation covers much of the water surface.

The water level on Lilly Creek remained high while South Lilly Creek, James' Bayou, Kitchen Creek were intermittent with perennial pools. Invasive aquatic vegetation on Caddo Lake continued on through the summer until plant growth (including water hyacinth, hydrilla, and white water lilies) dominated the water surfaces on Clinton Lake, at Turtle Shell, and at Harrison Bayou.

Diel monitoring were conducted according to the Coordinated Monitoring Schedule. Quality assurance deviations were documented and included with quarterly data submittals.

Lab data for total suspended solids (TSS) and total phosphorous were not included in the June submittal (also TSS for September) due to exceeding quality control limits.

Common parameters of concern in the basin are pH, low dissolved oxygen, bacteria, and mercury and in edible fish tissue.

SPRING 2011

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Table 1: Status of Impairments and Concerns for the Cypress Creek Basin in 2010

Water Body	Flow Status	Impaired Parameter(s)/ Category	Possible Source in the Watershed	Possible Reasons for Impairment and/or Concern	Special Study (Y/N)
Caddo Lake (0401)	Reservoir	Dissolved Oxygen/5c Mercury in Edible Tissue/ 5c pH/5c	Invasive aquatic vegetation growth Natural conditions Ammunition Plant	Low flow, swamp-like conditions, nutrient loading from upstream, Invasive species outcompete native vegetation	Yes, Caddo Lake Watershed Protection Plan; Caddo Lake Continuous Water Quality Monitoring (CWQM) Project
Harrison Bayou (0401A)	Intermittent w/ pools	Dissolved Oxygen/5c	Invasive aquatic vegetation growth Low flow, swamp-like habitat	Low flow, swamp-like conditions, Invasive species outcompete native vegetation	Yes, Use-Attainability Analysis: James' Bayou, Little Cypress Bayou, Harrison Bayou
Big Cypress Bayou below Lake O' the Pines (0402)	Perennial	pH/5b Mercury in Edible Tissue/ 5c	Industrial processes Natural conditions	Small town <2000 pop, Steel operations	Yes, USGS Flow Prescription Study; Caddo Lake Watershed Protection Plan; Diurnal Dissolved Oxygen (DO) Dynamics in Selected Least Disturbed Streams
Black Cypress Bayou (0402A)	Perennial	Dissolved Oxygen/5b Bacteria/5c Mercury in Edible Tissue/ 5c	Industrial processes, Non-point sources	Small town <2000 pop. on tributary, Steel operations	Yes, Black Cypress Bayou—Bio, Physical, and Chemical Survey (Submitted to EPA)
Lake O' the Pines (0403)	Reservoir	Dissolved Oxygen/4a	Nutrient loading from upstream land use management	Non-point sources, Over application of fertilizer upstream	Yes, Lake O' the Pined TMDL
Big Cypress Creek below Lake Bob Sandlin (0404)	Perennial	Bacteria/ 5a	Poultry processing, Mt. Pleasant (>14,000 pop.), Land use	Bacteria is elevated during steady state, and greatly accentuated during run-off, related to urban development, range-land and pasture.	Yes, Assessment of Contact Recreation Use Impairments and Watershed Planning for Big Cypress Creek and Tributaries; Recreational Use-Attainability Analyses
Ellison Creek Reservoir (0404A)	Reservoir	PCBs in edible tissue/5c Toxicity in sediment/5c	US Steel operations division in Lone Star, TX	Industrial discharge	Yes, Statewide fish Tissue Monitoring Project Tier 2
Tankersley Creek (0404B)	Perennial	Bacteria/ 5a	Poultry processing, Mt. Pleasant (>14,000 pop.), Land use	Bacteria is elevated during steady state, and greatly accentuated during run-off, related to urban development, range-land and pasture.	Yes, Assessment of Contact Recreation Use Impairments and Watershed Planning for Big Cypress Creek and Tributaries;

* - Water body was not assessed in the 2008 Texas Water Quality Inventory

Table 1: Status of Impairments and Concerns for the Cypress Creek Basin in 2010 (continued)

Water Body	Flow Status	Impaired Parameter(s)/ Category	Possible Source in the Watershed	Possible Reasons for Impairment and/or Concern	Special Study (Y/N)/Category
Hart Creek (0404C)*	Perennial	Bacteria/5a	Poultry processing, Mt. Pleasant (>14,000 pop.), Land use	Bacteria is elevated during steady state, and greatly accentuated during run-off, related to urban development, range-land and pasture.	Yes, Assessment of Contact Recreation Use Impairments and Watershed Planning for Big Cypress Creek and Tributaries
Lake Daingerfield (0404N)*	Reservoir	Mercury in Edible Tissue/ 5c	Natural conditions	Mercury had been documented in this system and does not decay	No
Black Bayou (0406)	Perennial	Dissolved Oxygen/5b pH/5b Bacteria/5c	Natural conditions	Low flow with possible nutrient loading	Yes, Use-Attainability Analysis: James' Bayou, Little Cypress Bayou, Harrison Bayou
Little Cypress Bayou (Creek) (0409)	Perennial	Dissolved Oxygen/5b Bacteria/5c	Gilmer, TX	> 5,000 pop.	Yes, Use-Attainability Analysis: James' Bayou, Little Cypress Bayou, Harrison Bayou; Caddo Lake Watershed Protection Plan
South Lilly Creek (0409B)*	Perennial	Bacteria/5c	Non-point sources Industrial processes	Poultry operations in the watershed	No

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Clean Rivers Program sampling on Big Cypress Creek at SH 11

NORTHEAST TEXAS MUNICIPAL WATER DISTRICT

PO Box 955, Hughes Springs
TX, US, 75656

Tel: 903-639-7538
Fax: 903-639-2208
E-mail: info@netmwd.com



Our Mission

The mission of the Northeast Texas Municipal Water District is to protect the water quality in the Cypress Basin and to provide a sufficient supply of water to Northeast Texas.

We're on the Web!
<http://www.netmwd.com>



South Lilly Creek at FM 2454 (TCEQ Station #17954)

Prepared by

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for the
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in cooperation with the Texas
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PROJECT UPDATES

FY 2012 CRP Coordinated Monitoring Meeting Update

The Coordinated Monitoring Meeting for the Cypress Creek basin has been scheduled for March 29, 2011. TCEQ, NETMWD, WMS, other agencies in the watershed, and others with concerns will discuss monitoring needs and coordinate field sampling for fiscal year 2012. A cooperative monitoring effort will focus primarily on segments with parameters listed as impaired. This will also be an opportunity to address segments with recent activity that may affect water quality.

Caddo Lake Watershed Protection Plan

The Caddo Lake Watershed Protection Plan (WPP) is a 319 grant to establish NETMWD as the Watershed Coordinator for Caddo Lake. The five major components of the Caddo Lake WPP, according to stakeholder input, include concerns for water quality, water quantity, aquatic and riparian habitat, floodplain management, and aquatic vegetation. Funding from other sources are used to accomplish the objectives of stakeholders and steering committees. The Water Quality Work Group met in March 2010. For updates on this project, please visit <http://www.netmwd.com/>

Lake O' the Pines Total Maximum Daily Load Study

The Implementation Plan of the TMDL for Lake O' the Pines low dissolved oxygen conducted in 2006 was approved on July 9, 2008. Part of NETMWD milestones include replacing forty OSSF systems per year and annual educational workshops for commercial providers and residents with OSSF's. Water quality monitoring is also being conducted for compliance with dissolved oxygen state standards. Please visit the TCEQ site:

<http://www.tceq.state.tx.us/implementation/water/tmdl/19-lakeopines.html> for more information.

BIG CYPRESS CREEK BACTERIA STUDY

The Big Cypress Creek Bacteria Assessment Study is funded by the Texas State Soil and Water Conservation District (TSSWCD). Project objectives include: the assessment of bacteria in Big Cypress Creek watershed below Lake Bob Sandlin (0404), Tankersley Creek (0404B), and Hart Creek (0404C); verification of stream use; determine appropriate water quality standards, assess designated uses, and address impairments through the WPP and TMDL currently in the watershed.

Land use maps were generated for the project by the Texas A&M University – Spatial Sciences Laboratory (SSL) as part of a separate project. These maps show large percentages of the land is managed pasture or rangeland. Preliminary *E. coli* results showed the impact of non-point sources with frequent heavy, runoff causing rainfalls.

Sampling conditions have been erratic since the project began in August 2009. A disproportionately large amount of rainfall and slow drainage downstream affected stream channels at sampling stations in FY 2010 first and second quarter. Beginning in June 2010 rainfall fell below monthly averages. Stream flow has gone intermittent at times.

Rating curves were developed, refined, and staff plates were moved due to changing conditions. Five storm water samples have been collected to date. Geomeans were analyzed by separating the wet period (8/2009 to 5/2010) and dry period (6/2010 to 10/2010). The geomean for Tankersley Creek during the wet period was 29% higher than during the dry period. Likewise, geomeans for Hart Creek and Big Cypress Creek were 14% and 3% higher, respectively.

Average geomeans for Hart Creek and Tankersley Creek were higher when analyzed without their tributaries, while the average geomean on Big Cypress Creek was lower without its tributaries.

In 2010, NETMWD submitted a historical data report characterizing trends and variability and a bacterial source survey. Recreational Use Attainability Analysis sampling is scheduled for spring 2011.

For more information on this project, please visit us at: <http://www.netmwd.com/bccbactassessment.html>