

Sabine River Authority of Texas



Sabine River Below Toledo Bend Reservoir

Sabine River Basin Highlights 2007

➤ *Prepared in Cooperation with the Texas Commission on Environmental Quality
Under the Authorization of the Texas Clean Rivers Act*



www.sratx.org



Sabine River Authority of Texas
P.O. Box 579
Orange, TX 77631
Phone (409) 746-2192
Fax (409) 746-3780

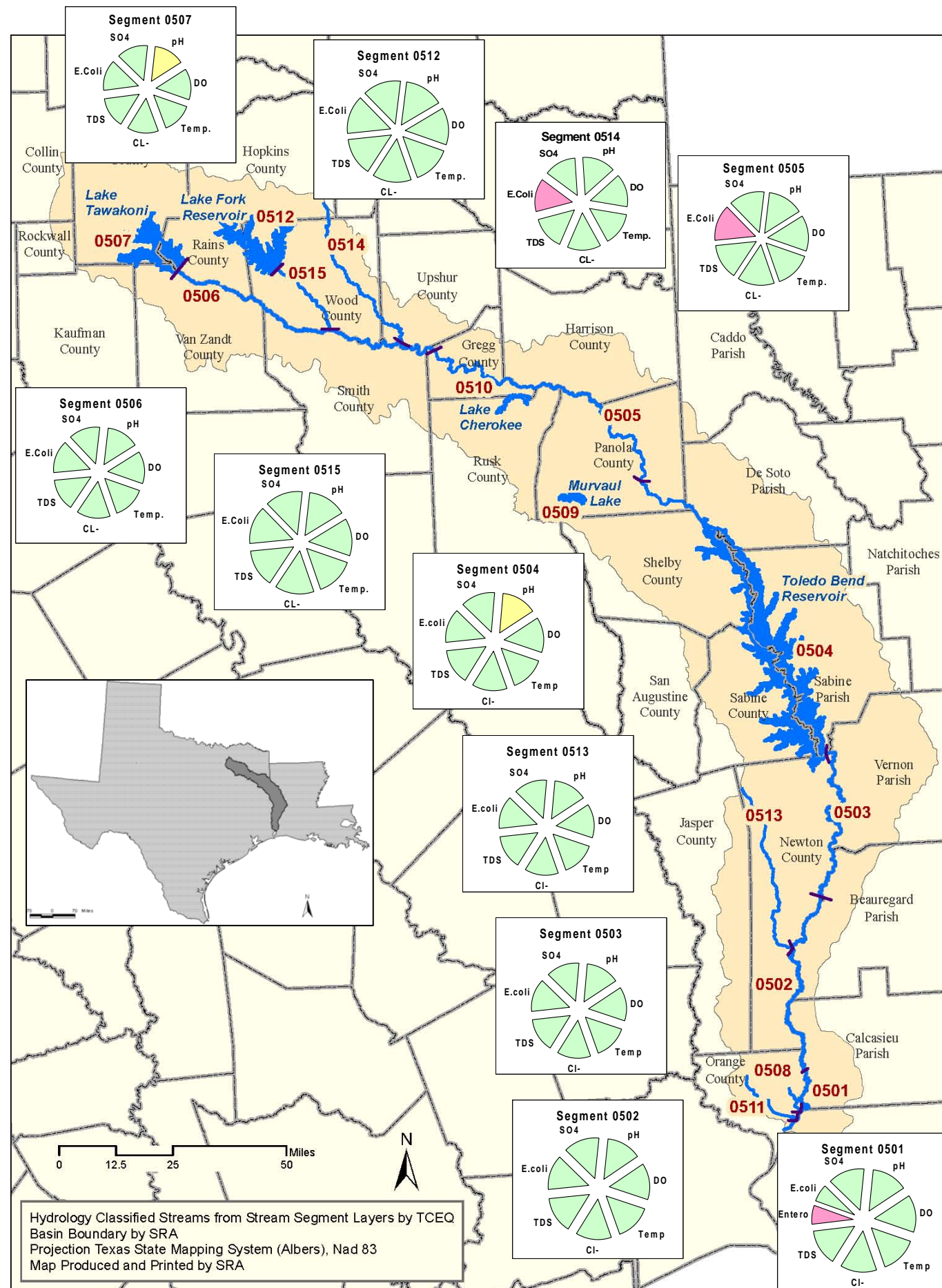
Summary of Current Water Quality Conditions

The keys below illustrate the symbols used in the following pages:

	Water Quality Parameters	Results	
	pH – Acid Balance	Fully Supporting Designated Use	
	DO – Dissolved Oxygen	Concern for Support of Designated Use	
	Temp. - Temperature	Not Supporting Designated Use	
	Cl - Chloride		
	TDS – Total Dissolved Solids		
	<i>Entero.</i> – <i>Enterococci</i>		
	<i>E. coli</i> – <i>Escherichia coli</i>		
	SO4 - Sulfate		

Designated Segments in the Sabine Basin

Segment	Description	SRA Monitoring Stations for FY2007	Major Cities (>5,000)	Significant Influences
0501	Sabine River Tidal - from the confluence with Sabine Lake in Orange County to West Bluff in Orange County	6 (2 off Segment)	2	Urban / Industrial
0502	Sabine River Above Tidal - from West Bluff in Orange County to the confluence with Caney Creek in Newton County	1	0	None
0503	Sabine River Above Caney Creek - from a point immediately upstream of the confluence with Caney Creek in Newton County up to Toledo Bend Dam in Newton County	3 (2 off Segment)	0	Industrial
0504	Toledo Bend Reservoir - from Toledo Bend Dam in Newton County to a point immediately upstream of the confluence of Murvaul Creek in Panola County, up to the normal pool elevation of 172 feet (impounds Sabine River)	10	2	No Major Permitted Discharges
0505	Sabine River Above Toledo Bend Reservoir - from a point immediately upstream of the confluence of Murvaul Creek in Panola County to a point 100 meters (110 yards) downstream of US 271 in Gregg County	5	6	Urban / Industrial / Oilfields
0506	Sabine River Below Lake Tawakoni - from a point 100 meters (110 yards) downstream of US 271 in Gregg County to Iron Bridge Dam in Rains County	4	1	Industrial
0507	Lake Tawakoni - from Iron Bridge Dam in Rains County up to the normal pool elevation of 437.5 feet (impounds Sabine River)	3	1	Urban / Agriculture
0508	Adams Bayou Tidal - from the confluence with the Sabine River in Orange County to a point 1.1 kilometers (0.7 mile) upstream of IH 10 in Orange County	0 (TMDL in progress)	1	Urban / Industrial
0509	Murvaul Lake - from Murvaul Dam in Panola County up to the normal pool elevation of 265.3 feet (impounds Murvaul Bayou)	0 (2 sites monitored by TCEQ)	0	None
0510	Lake Cherokee - from Cherokee Dam in Gregg/Rusk County up to the normal pool elevation of 280 feet (impounds Cherokee Bayou)	0 (2 sites monitored by City of Longview & TCEQ)	0	Industrial
0511	Cow Bayou Tidal - from the confluence with the Sabine River in Orange County to a point 4.8 kilometers (3.0 miles) upstream of IH 10 in Orange County	0 (TMDL in progress)	1	Urban / Industrial
0512	Lake Fork Reservoir - from Lake Fork Dam in Wood County up to the normal pool elevation of 403 feet (impounds Lake Fork Creek)	3	0	Dairies
0513	Big Cow Creek - from the confluence with the Sabine River in Newton County to a point 4.6 kilometers (2.9 miles) upstream of R 255 in Newton County	1	0	None
0514	Big Sandy Creek - from the confluence with the Sabine River in Upshur County to a point 2.6 kilometers (1.6 miles) upstream of SH 11 in Hopkins County	1	0	None
0515	Lake Fork Creek - from the confluence with the Sabine River in Wood County to Lake Fork Dam in Wood County	1	0	None



Monitored Segments for FY2007

Segment 0501 - Sabine River Tidal

Water Quality: Elevated bacteria levels have been detected in this segment. Samples for *enterococci* have exceeded the numerical criteria in Stream Standards; however, a reduction in the number of exceedances over the past year was noted. At some sites samples for *E. coli* have exceeded the limits only once or twice in the last five years and over the past year no *E. coli* exceedances were noted. A rookery located in the Blue Elbow Swamp upstream of these locations is the probable source of the *enterococci* group of bacteria. The Lower Sabine Basin Tidal Flow Study was concluded and available at www.sratx.org.

Segment 0502 - Sabine River Above Tidal

Water Quality: No impairments in water quality were found.

Segment 0503 - Sabine River Above Caney Creek

Water Quality: All water quality parameters measured over the past year were consistent with water of high quality. Elevated bacterial counts were measured at several sites during the past year, but each one of these sampling events closely followed a significant rainfall event. This suggests the runoff from these events was the major cause of the elevated results.

Segment 0504 - Toledo Bend Reservoir

Water Quality: Toledo Bend Reservoir was included on the 303(d) List for mercury in fish tissue. The Texas Department of State Health Services (DSHS) fish consumption advisory is still in effect for largemouth bass and freshwater drum in Toledo Bend Reservoir due to elevated levels of mercury in fish tissue. Diel monitoring of dissolved oxygen near the Tenaha Creek arm of the reservoir is being conducted bimonthly to assess current conditions. Elevated pH values were observed at three sites in the reservoir, but these conditions do not indicate impairments to the designated uses of the reservoir.

Segment 0505 - Sabine River Above Toledo Bend Reservoir

Water Quality: Elevated bacteria levels have been detected in this segment and one main-stem site has been included on the 303(d) List for bacteria levels. Elevated bacterial counts were measured at several sites during the past year, but each one of these sampling events closely followed a significant rainfall event. This suggests the runoff from these events was the major cause of the elevated results. Recently collected data indicate improving conditions.

Segment 0506 - Sabine River Below Lake Tawakoni

Water Quality: Elevated bacterial counts were measured at several sites during the past year, but each one of these sampling events closely followed a significant rainfall event. This suggests the runoff from these events was the major cause of the elevated results.

Segment 0507 - Lake Tawakoni

Water Quality: One main-stem site has been included on the 303(d) List for elevated pH. The elevated pH values increased in frequency during drought conditions. Recent monitoring has shown a return to pH values within acceptable ranges.

Segment 0512 - Lake Fork

Water Quality: No impairments in water quality were found.

Segment 0513 - Big Cow Creek

Water Quality: Elevated bacterial counts were measured in this segment during the past year, but each of these sampling events closely followed a significant rainfall event. This suggests the runoff from these events was the major cause of the elevated results.

Segment 0514 - Big Sandy Creek

Water Quality: Elevated bacteria levels have been detected and this segment has been included on the 303(d) List for bacteria levels. The conditions appear to be the result of non-point source pollution or natural conditions.

Segment 0515 - Lake Fork Creek

Water Quality: No impairments in water quality were found.

Sabine River Watershed Management Program

The Sabine River Authority of Texas (SRA-TX) takes a holistic approach to water management and recognizes that quality and quantity are inherently interdependent. SRA-TX has maintained a proactive role in water quantity and quality matters since initial operational activities began in 1954 and has expanded its services to meet increasing needs throughout the Sabine River Basin. The SRA-TX water quality management program was established in 1972 and is reviewed annually to help protect and manage the essential water resources in the Sabine Basin.

The Texas Clean Rivers Program (TCRP) is a collaborative effort between Texas Commission on Environmental Quality (TCEQ), Texas Parks & Wildlife Department (TPWD), the TCRP Partners, agencies, local entities, and the public. This integrated approach to water quality management reduces duplication of effort and provides for the best use of limited resources. The goal is to maintain and improve the quality of water resources within each river basin in Texas through regional assessments of watersheds. The SRA-TX collects and analyzes water quality data in the Sabine Basin to identify and prioritize water quality concerns and the causes of pollution. The SRA-TX is the planning agency for all TCRP activities in the Sabine Basin.

The fixed monitoring program included 44 sampling sites that were monitored monthly for routine physical and chemical parameters. Selected sites are also monitored annually for metals in water. The annual Sabine Basin Water Quality Report for all parameters measured is available at www.sratx.org.

For this Sabine Basin Highlights Report, water quality conditions from the long-term, routine monitoring sites were summarized for the past year and compared to the previous five years of water quality data. The data summaries were also compared to the Texas Surface Water Quality Standards established by the TCEQ (Stream Standards). The Clean Water Act in Section 303(d) requires that water bodies not meeting established water quality standards be listed as impaired. Support for the designated uses of the water bodies was determined by calculating the percent of compliance with the Stream Standards. A minimum of ten samples for a parameter is required to perform the comparison. Numeric criteria have been established for pH, dissolved oxygen, total dissolved solids, *E. coli*, *Enterococci*, chloride, and sulfate. Screening values have been set for chlorophyll a and nutrients; however stream standards have not been established at this time. Standards are being developed for chlorophyll a and some of the nutrients and should be included in the next revision of the Stream Standards.

The majority of routine monitoring sites for this year met their designated use criterion. However, elevated bacteria levels and elevated pH values were measured at some sites. The elevated bacterial counts were often measured following rainfall runoff events. The elevated pH values do not indicate impairments to the designated uses of the segments.

Orange County TMDL Project

The Orange County Total Maximum Daily Load (TMDL) Project is addressing the water quality impairments in the Adams Bayou (Segment 0508) and the Cow Bayou (Segment 0511). The impairments included low dissolved oxygen, elevated bacteria, and high nutrients from point and non-point sources. In response to these conditions, a TMDL project was initiated to determine the measures necessary to restore water quality in these bayous. The non-point sources include large populated areas using on-site sewage treatment systems that have historically functioned poorly in this area.

The TCEQ adopted the TMDL Reports on June 13, 2007. The EPA approved the TMDL Reports on August 28, 2007, at which time they became part of the state's Water Quality Management Plan. An implementation plan is now being developed to restore the water quality of these water bodies. More information can be found at www.sratx.org.

Lake Tawakoni Watershed Protection Programs

The SRA-TX is continuing to develop an Environmental Response and Watershed Protection Plan for Lake Tawakoni and its watershed. The TCEQ also developed a Source Water Assessment and Protection program to assist the thirteen local public water supply systems that draw from Lake Tawakoni in preventing contamination of drinking water supplies. The initiative was funded by the TCEQ and authorized by the Safe Drinking Water Act.

Sabine River Watershed Management Program

Water Quality

➤ **Public Participation and the Basin Steering Committee**

The Sabine Basin Steering Committee allows stakeholders to have an active role in addressing water quality issues in the Sabine Basin. The Basin Steering Committee meetings are held throughout the Basin to encourage participation from all of the stakeholders.

➤ **Quality Assurance Project Plan (QAPP)**

This document includes the details about the SRA-TX monitoring programs, the project definition and background, and the quality assurance requirements to ensure the data collected are accurate. The QAPP also ensures that the data collected are representative of the water body being sampled.

➤ **Data Collection, Management, and Analysis**

The collection, management, and analysis of water quality data is accomplished through an integrated program that includes a comprehensive monitoring program, a data management plan, and statistical analyses of historical and current data. Historical monitoring reports are available at www.sratx.org.

➤ **Geographic Information System (GIS)**

The SRA GIS provides analysis and spatial representation of the factors that influence water quality, such as point source locations, land use, and watershed characteristics. Inventories of factors that can impact water quality for the Sabine Basin are incorporated as GIS layers as they become available. Water quality monitoring data from each watershed are interpreted using GIS. New monitoring is prioritized based on the specific factors within the watershed.

Water Quantity

➤ **Water Supply Planning**

Management of the Basin's water resources is part of SRA-TX's responsibility to ensure that water is available to meet the Basin needs and to protect the value of the resource. After meeting the long-term needs of the Basin, the SRA is responsible to provide water for broader use by the State of Texas.

➤ **Water Conservation and Drought Contingency Planning**

SRA-TX views water conservation and drought contingency planning as an integral part of meeting near-term and long-term water supply needs. Water conservation and drought contingency planning is necessary to extend existing supplies and ensure the wise use of available resources.

➤ **Environmental Flows**

Environmental flows encompass instream flows and estuarine freshwater needs. The SRA-TX has assumed a leadership role in water management planning efforts in Texas through participation in water-related committees, workshops, and development and implementation of water quality monitoring programs within the watersheds of the Sabine River. SRA-TX is confident the balance between man's water supply needs and those of the environment can be achieved and that we have an opportunity for a win/win long-term solution in meeting those needs.