BASIN HIGHLIGHTS REPORT
RED RIVER BASIN
Red River Authority of Texas

April – 2005

INTRODUCTION

In 1991 a group representative of the major river basins in Texas gathered in Austin at the Texas Water Commission[1] to address the newly adopted rules under Chapter 320 of the Texas Water Code enacted by the Legislature under Senate Bill 818. While a few were skeptical, most shared the excitement of embarking on a new adventure and pledged to work together to achieve its goals. The Texas **Clean Rivers Program** was born. Red River Authority of Texas assumed a leadership role in tackling the myriad issues and researching information required to undertake the program on a solid foundation. Now, 14 years later, the Authority continues to monitor the Red River Basin, discover its secrets, analyze samples, and interpret trends in the daily function of its mission – *the orderly conservation, reclamation, protection, and development of the water resources throughout the Red River Basin for the benefit of the public.*

The ***Basin Highlights Report*** is prepared annually to provide the stakeholders and people of the Red River Basin with a concise overview of the water quality conditions and issues throughout the basin. Water quality education is the key function of the report, which was prepared by Red River Authority of Texas as an integral part of the **Clean Rivers Program**.

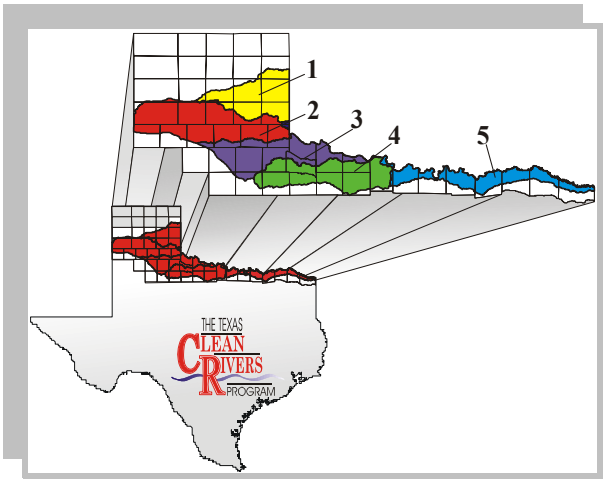

Figure 1

OVERALL APPROACH TO WATER QUALITY

In an effort to expedite watershed planning, monitoring, geographical analysis, and dissemination of data, the Authority divided the basin into five reaches (see **Figure 1**). A five-year rotational approach was developed to adequately monitor the aquatic health of the Red River Basin. This rotational approach provides emphasis to be given to a different reach per year, ultimately intensively covering the entire basin over the five-year planning cycle. In addition, to achieve the goals of the five-year plan, the Authority has coordinated collection and monitoring efforts with other entities, including the Texas Commission on Environmental Quality (TCEQ) and the U.S. Geological Survey (USGS).

The Red River Basin Highlights Report was Prepared with and Financed through Grants from the Texas Commission on Environmental Quality

[1] Texas Natural Resource Conservation Commission (1994-2002), Texas Commission on Environmental Quality (2003-)

MAJOR WATER ISSUES WITHIN THE RED RIVER BASIN

Even with increased rainfall and rising lake levels, there are two major issues within the Red River Basin. They are the drought and the excessive chloride levels. Although there is no quick fix for these issues, the Authority and the citizens within the Red River Basin are working toward managing these problems.

DROUGHT

Although the State of Texas has experienced some relief from the devastating drought, areas of north central and northwest Texas are still struggling and have not yet fully recovered. Drought conditions have eased somewhat in the northeastern areas of the basin with an abundance of rainfall since last year. Many reservoirs have not been at capacity for several years. Although some area lakes have received sufficient rainfall/runoff, others still remain uncomfortably lower than normal. The abundance of rain over large portions of the Red River Basin has been beneficial and has significantly improved many problems that have been caused by the continued drought. Still, portions of the western Red River Basin need the precipitation, and the affects of the drought continue to cause problems for farmers and ranchers.

Until sufficient rainfall has been received by the entire basin, conservation practices need to be taken to maintain a sufficient supply of good quality water to serve the needs of the people within the Red River Basin. **Table 1** shows the conservation capacity of the major reservoirs in the basin and their current capacity.

TABLE 1 – MAJOR RESERVOIRS OF THE RED RIVER BASIN
Conservation Capacity versus Current Capacity Percentage

Reservoir	County	Basin Reach	Capacity Ac/Ft	Capacity Percentage	Reservoir	County	Basin Reach	Capacity Ac/Ft	Capacity Percentage
Pat Mayse	Lamar	I	124,500	94%	Kemp	Baylor	II	319,600	76%
Texoma	Grayson	I	2,722,300	100%	Greenbelt	Donley	V	58,200	39%
Arrowhead	Clay	II	262,100	73%	Mackenzie	Briscoe	IV	46,250	22%
Kickapoo	Archer	II	106,000	70%	** as of 11/2004-Texas Water Development Board*				

CHLORIDE

Historically, the Red River Basin was once part of an ancient inland sea. However, through geologic processes, this ancient sea became isolated and slowly evaporated over time. The salts from the prehistoric sea continue to plague the basin today. They occur naturally either through salt springs and seeps or from artificial or manmade events. As a result, the waters of the Red River, Wichita River, and Pease River systems contain excessive concentrations of chloride and sulfate.

In 1957, the federal government initiated a study which identified ten natural salt source areas located in the Red River Basin. These sources contribute a daily average of over 2,360 tons of the 3,540 tons per day of chlorides that flow downstream and enter Lake Texoma in Grayson County. This equates to an amount greater than that consumed by every human and animal in the United States each year. Most of the sources are located within **Reaches II** and **III** of the basin.

The Authority and the United States Army Corps of Engineers (USACE) have worked together since 1959 through the implementation of the Chloride Control Project to reclaim the water for beneficial uses for all living things. Since its inception, this project has controlled more than 405 tons per day of chlorides entering the river system without harming the environment. Three of the natural

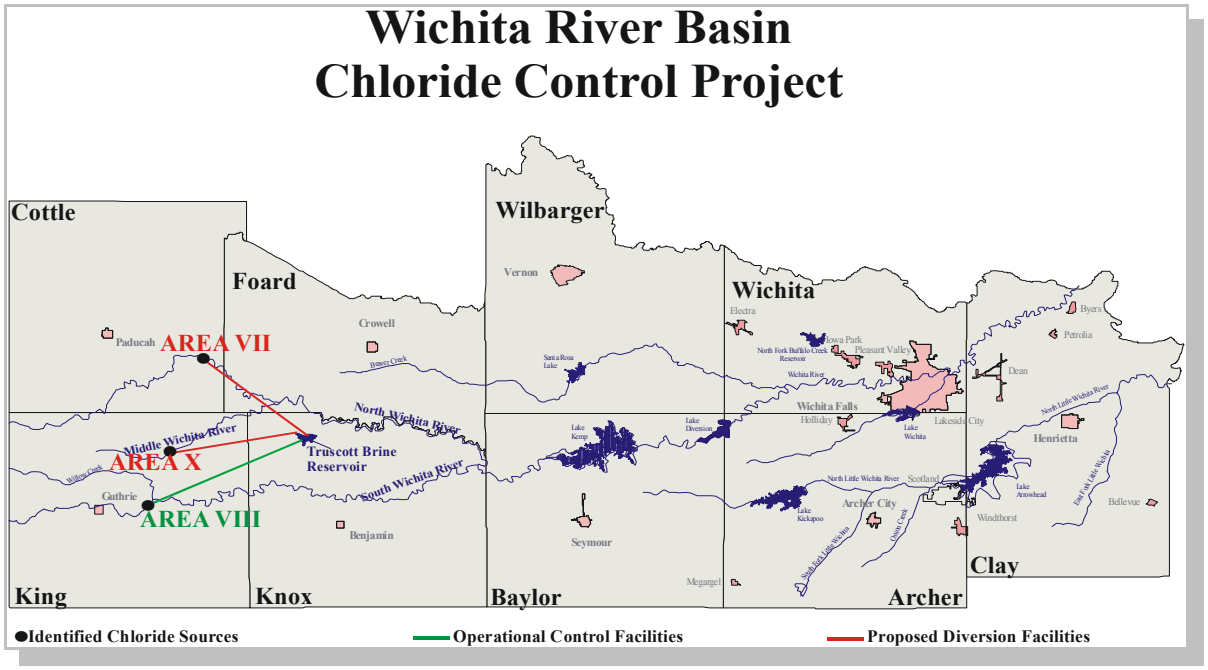

Figure 2

chloride sources are located in the Wichita River Basin (see **Figure 2**). To date, only one of the proposed chloride control facilities in the Wichita River Basin has been constructed and is operational. This low-flow dam structure on the South Wichita River retains low flows that are high in salts and diverts them via a pump station and pipeline to Truscott Brine Reservoir. Low-flow diversion dams are also planned for the Middle and North Wichita Rivers. When constructed, water high in chloride that would normally flow to Lakes Kemp and Diversion would be diverted to the Truscott Brine Reservoir. For additional information on the Chloride Control Project and/or the Wichita River Basin Chloride Control Project, please review the Authority's website at www.rra.dst.tx.us/ccp/ or the USCOE's website at www.swt.usace.army.mil.

OVERVIEW OF WATER QUALITY MONITORING

The Authority's Coordinated Monitoring Meeting is held annually to coordinate sites, parameters of concern, and frequency of collection. This meeting allows for the development of a monitoring schedule that reduces duplicity and maximizes effort and funds available to the monitoring entities. The Coordinated Monitoring Meeting is an essential element in the successful planning process of the Red River Basin and is open to any interested group or entity that would like to attend and/or participate in monitoring in the Red River Basin. A summary of the monitoring schedule in the Red River Basin for the fiscal year 2004 is listed in **Table 2**. A detailed Coordinated Monitoring Schedule can be found at http://cms.lcra.org.

TABLE 2 – OVERVIEW OF WATER QUALITY MONITORING

Agency	Reach	*Cont Flow	24-Hr DO	Metals Water	Organ Water	Metals Sed	Conv	Ind Bact	Instant Flow	Field	RT	IS	DI	SS
RRA	I						44	44	24	44	11			
TCEQ	I						28	86	45	280	14			
USGS	I	730		16	2		4	4		365	2			
Total Reach I		**730**		**16**	**2**		**76**	**134**	**69**	**689**	**27**			
RRA	II				12		16	16	16	16	4			
TCEQ	II		12	8		4	26	26	26	26	9		2	2
USGS	II	4,745		72			72			4,015	13			
Total Reach II		**4,745**	**12**	**80**	**12**	**4**	**114**	**42**	**42**	**4,057**	**26**		**2**	**2**
RRA	III						8	8	8	8	2			
TCEQ	III			2	2	2	20	20	20	20	5			1
USGS	III	1,095		12			12			365	4			
Total Reach III		**1,095**		**14**	**2**	**2**	**40**	**28**	**28**	**393**	**11**			**1**
RRA	IV						16	16	16	16		4	1	
TCEQ	IV		4	4			12	12	8	12	4			
USGS	IV	1,460									4			
Total Reach IV		**1,460**	**4**	**4**			**28**	**28**	**24**	**28**	**8**	**4**	**1**	
RRA	V						4	4	4	4	1			
TCEQ	V						6	6	4	6	2			
USGS	V	1,460		8	8		8	8			4			
Total Reach V		**1,460**		**8**	**8**		**18**	**18**	**8**	**10**	**7**			
Basin Total		**9,490**	**16**	**122**	**24**	**6**	**276**	**250**	**171**	**5,177**	**79**	**4**	**2**	**3**

Cont Flow ..... Continuous Flow
24-Hr DO ..... 24-Hour Dissolved Oxygen
Metals Water ..... Metals in Water
Organ Water ..... Organics in Water
Metals Sed ..... Metals in Sediment
Conv ..... Conventional Parameters
Ind Bact ..... Indicator Bacteria
Instant Flow .. Instantaneous Flow Measurements
Field ..... Field Parameters
RT ..... Routine Sampling
IS ..... Intensive/Systematic Sampling
DI ..... Diurnal Sampling
SS ..... Special Studies

**Continuous flow measurements by the USGS are recorded on an hourly basis.*

OVERVIEW OF WATER QUALITY MONITORING (CONTINUED)

Regular monitoring is necessary to collect quality-assured data to complete an assessment of water quality conditions and impairments. Assessing the data determines whether or not a water body meets its standards. There are four types of monitoring in the Red River Basin by the Authority, TCEQ, and USGS.

- Fixed or "Routine" monitoring is conducted every year at key sites.
- Systematic or "Intensive" monitoring is conducted at specific sites on the annual reach of focus.
- Diurnal monitoring takes 24-hour dissolved oxygen (DO) measurements used to identify problematic areas where additional DO data are needed.
- Special studies are conducted where special attention is required.

Selected physical, chemical, and biological parameters collected by the Environmental Services Division (ESD) of the Authority are analyzed either in the field or at the Authority's environmental laboratory. Within days of collection, the results of the analyses are entered into the data repository, which contains years of quality-assured water resource information on the Red River Basin.

There are two primary types of data collected at each sampling site: *field and conventional*. Field parameters are collected and analyzed immediately after collection at the site, while conventional parameters are collected, preserved, and taken back to the laboratory for processing and analysis. **Table 3** provides a list of some of the field and conventional parameters that are currently being collected in the Red River Basin.

TABLE – 3

FIELD PARAMETERS	CONVENTIONAL PARAMETERS
pH	Alkalinity
Dissolved Oxygen	Ammonia
Conductivity	Calcium
Turbidity	Total Organic Carbon
Flow	Chloride
E. coli	Chemical Oxygen Demand
Fecal Coliform	Orthophosphate
Water Temperature	Total Phosphorus
Water Clarity	Sulfate
Water Color	Total Dissolved Solids
Water Odor	Total Suspended Solids
Weather	Volatile Suspended Solids

While the Authority is well equipped with its own environmental laboratory, samples collected by TCEQ and USGS are processed by their own in-house laboratories. All sampling entities are required to adhere to a Quality Assurance Project Plan approved by the TCEQ. This ensures that all data collected by the entities sampling within the Red River Basin are quality-assured and verified prior to its entry into the statewide data collection system administered by the TCEQ known as TRACS (Texas Regulatory Activity and Compliance System).

In addition, the quality-assured data collected by the Authority are entered into the Authority's database and are made available on the Authority's website at www.rra.dst.tx.us/data/swqm/ to assist entities in making informed decisions about their water resources based on scientifically valid data.

WATER QUALITY REVIEW

The Texas Surface Water Quality Standards (TSWQS) are fundamental building blocks used to manage surface water quality. A water quality standard is a combination of a designated use and the criteria necessary to attain and maintain that use. The standard can be defined as the level of quality that water bodies must maintain to ensure its compliance. Water quality standards are protective and signal a situation where a possibility exists that water quality may be inadequate to meet its designated use. The water use prescribes the purposes for which a water body should fit, such as recreational use, support of aquatic life use, or drinking water supply use. **Table 4** is a brief synopsis of the water quality standards for segments in the Red River Basin.

TABLE 4 – RED RIVER BASIN SURFACE WATER QUALITY STANDARDS

Segment Number	Water Body Use			Parameter Criteria							
	Contact Recreation	Aquatic Life	Public Water Supply	Chloride (mg/L)	Sulfate (mg/L)	TDS (mg/L)	Dissolved Oxygen (mg/L)	pH Range (SU)	Indicator Bacteria[1] #/100ml	Temperature (°F)	Temperature (°C)
201	CR	H	PS	375	250	1,100	5	6.5-9.0	126/200	93	33.9
202	CR	H	PS	375	250	1,100	5	6.5-9.0	126/200	93	33.9
203	CR	H	PS	600	300	1,500	5	6.5-9.0	126/200	92	33.3
204	CR	H		2,000	1,200	6,000	5	6.5-9.0	126/200	93	33.9
205	CR	H		5,000	2,000	10,000	5	6.5-9.0	126/200	93	33.9
206	CR	H		12,000	4,000	25,000	5	6.5-9.0	126/200	93	33.9
207	CR	H		37,000	5,300	46,200	5	6.5-9.0	126/200	93	33.9
208	CR	H	PS	75	150	350	5	6.5-9.0	126/200	90	32.2
209	CR	H	PS	100	175	350	5	6.5-9.0	126/200	90	32.2
210	CR	H	PS	200	60	550	5	6.5-9.0	126/200	93	33.9
211	CR	H	PS	250	50	500	5	6.5-9.0	126/200	91	32.8
212	CR	H	PS	250	50	500	5	6.5-9.0	126/200	93	33.9
213	CR	H	PS	100	50	400	5	6.5-9.0	126/200	90	32.2
214	CR	H		1,800	800	5,000	5	6.5-9.0	126/200	90	32.2
215	CR	H		1,800	1,100	5,000	5	6.5-9.0	126/200	90	32.2
216	CR	H		1,925	960	5,000	5	6.5-9.0	126/200	90	32.2
217	CR	H		7,000	2,500	15,000	5	6.5-9.0	126/200	93	33.9
218	CR	H		7,500	2,800	16,250	5	6.5-9.0	126/200	93	33.9
219	CR	H		1,000	400	1,800	5	6.5-9.0	126/200	90	32.2
220	CR	H		12,000	3,500	30,000	5	6.5-9.0	126/200	91	32.8
221	CR	H		870	1,400	2,800	5	6.5-9.0	126/200	91	32.8
222	CR	H		400	1,400	3,000	5	6.5-9.0	126/200	93	33.9
223	CR	H	PS	250	200	750	5	6.5-9.0	126/200	93	33.9
224	CR	H		800	1,200	2,500	5	6.5-9.0	126/200	91	32.8
225	CR	L	PS	60	90	400	3	6.0-8.5	126/200	93	33.9
226	CR	H		12,000	3,650	31,000	5	6.5-9.0	126/200	93	33.9
227	CR	H		270	200	1,000	5	6.5-9.0	126/200	91	32.8
228	CR	H	PS	50	200	500	5	6.5-9.0	126/200	90	32.2
229	CR	H		350	675	2,000	5	6.5-9.0	126/200	93	33.9
230	CR	I		12,000	3,500	30,000	4	6.5-9.0	126/200	91	32.8

The condition of the water resources within the Red River Basin is generally good and supports a hearty and healthy aquatic life with respect to stream standards. However, only 12 of the 30 classified stream segments have been designated for public water supply use due to naturally high concentrations of salt. As discussed earlier, the main constituents of the Pease River, Prairie Dog Town Fork of the Red and the Wichita Rivers contain high levels of dissolved solids, which are caused by elevated levels of chlorides and sulfates. These highly saline rivers contribute more than 65% of the dissolved solids load into the main stem of the Red River in the upper reaches, which matches or exceeds the salinity of seawater during low-flow periods. **Table 5** presents an overview of the water quality conditions in the Red River Basin based on the TCEQ's *Draft 2004 Texas Water Quality Inventory*.

TABLE – 5 RED RIVER BASIN
STREAM SEGMENTS LISTED ON THE DRAFT 2004 TEXAS WATER QUALITY INVENTORY

SEGMENT NUMBER / DESCRIPTION	AQUATIC LIFE USE	CONTACT RECREATION USE	GENERAL USE	FISH CONSUMPTION USE	PUBLIC WATER SUPPLY USE	OVERALL USE
0201-Lower Red River - Arkansas State Line to 25 Miles Upstream	FS	FS	FS	NA	FS	FS
0201_02 - Lower Red River - Remainder of Segment	NA	NA	FS	NA	FS	FS
0201A_01 - Mud Creek - Entire Water Body	FS	NS	NA	NA	NA	NS
0202_01 - Red River Below Lake Texoma - End of Segment to Pecan Bayou Confluence	FS	FS	FS	FS	FS	FS
0202_02 - Pecan Bayou to Pine Creek	FS	FS	FS	FS	FS	FS
0202_03 - Pine Creek to Bois D'Arc Creek	FS	FS	FS	NA	FS	FS
0202_04 - Bois D'Arc Creek to Grayson County Line	FS	FS	FS	NA	FS	FS
0202_05 - Grayson County Line to Denison Dam	NA	NA	FS	NA	FS	FS
0202A _01 - Bois D'Arc Creek - Lower 25 Miles	FS	FS	NA	NA	NA	FS
0202A_02 - Bois D'Arc Creek - Remainder of Water Body	NA	NA	NA	NA	NA	NA
0202C_01 - Pecan Bayou - Entire Water Body	NA	NA	NA	NA	NA	NA
0202D_01 - Pine Creek - Entire Water Body	FS	NS	NA	NA	NA	NS
0202E_02 - Post Oak Creek - Lower End of Segment to N FM 1417	FS	NS	NA	NA	NA	NS
0202E_03 - Post Oak Creek from N FM 1417 to Upper End of Segment	NA	NA	NA	NA	NA	NA
0202F_01 - Choctaw Creek - Entire Water Body	FS	FS	NA	NA	NA	FS
0203 - Lake Texoma - Entire Water Body	NA	NA	NA	NA	FS	FS
0203A_01 - Big Mineral Creek - Entire Water Body	FS	NS	NA	NA	NA	NS
0204_01 - Red River above Lake Texoma - Segment End to Fish Camp Creek	FS	FS	FS	NA	NA	FS
0204_02 - Red River from Fish Camp Creek to Farmers Creek	NA	NA	FS	NA	NA	FS
0204_03 - Red River from Farmers Creek to Little Wichita River	FS	FS	FS	NA	FS	FS
0204_04 - Little Wichita River to End of Segment	NA	NA	FS	NA	NA	FS
0204B_01 - Moss Lake - Entire Water Body	NA	NA	NA	NA	NA	NA
0205_01 - Red River Below Pease River - Downstream End of Segment to Wichita County Line	NA	NA	FS	NA	NA	FS
0205_02 - Red River from Wichita County Line to China Creek	FS	FS	FS	FS	NA	FS
0205_03 - Red River from China Creek to Upstream End of Segment	NA	NA	FS	NA	NA	FS
0206_01 - Red River Above Pease River - Downstream Segment Boundary to Groesbeck Creek	NA	NA	NA	NA	NA	NA
0206_02 - Red River Above Pease River - Groesbeck Creek to Upstream Segment Boundary	NA	NA	NA	NA	NA	NA
0206A_01 - Groesbeck Creek - Entire Water Body	FS	NA	NA	NA	NA	FS
0207_01-Lower Prairie Dog Town Fork (LPDTF) Red River-Lower End of Segment to Hall County Line	FS	FS	FS	FS	NA	FS
0207_02 - LPDTF Red River - Hall County Line to FM Road 657	NA	NA	FS	NA	NA	FS
0207_03 - LPDTF Red River - FM Road 657 to Johnson Canyon	NA	NA	FS	NA	NA	FS
0207_04 - LPDTF Red River - Johnson Canyon to Upper End	NA	NA	FS	NA	NA	FS
0207A_01 - Buck Creek - Lower 25 Miles	FS	NS	NA	NA	NA	NS

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SEGMENT NUMBER / DESCRIPTION	AQUATIC LIFE USE	CONTACT RECREATION USE	GENERAL USE	FISH CONSUMPTION USE	PUBLIC WATER SUPPLY USE	OVERALL USE
0207A_02 - Buck Creek - Remainder of Creek	NA	NA	NA	NA	NA	NA
0208_01 - Lake Crook - Entire Water Body	NA	NA	NA	NA	NA	NA
0209_01 - Pat Mayse Lake - Lower Half of Water Body	NA	NA	FS	NA	FS	FS
0209_02 - Pat Mayse Lake - Upper Half of Water Body	NA	NA	FS	NA	FS	FS
0210_01 - Farmers Creek Reservoir - Entire Water Body	NA	NA	FS	NA	FS	FS
0211_01 - Little Wichita River - Lower End of Segment to East Fork Confluence	NA	NA	NS	NA	FS	NS
0211_02 - Little Wichita River - East Fork Confluence to Dam	NA	FS	NS	NA	FS	NS
0212_01 - Lake Arrowhead - Entire Water Body	NA	NA	NA	NA	FS	FS
0213_01 - Lake Kickapoo - Entire Water Body	NA	NA	NA	NA	FS	FS
0214_01 - Wichita River Below Diversion Lake Dam - Lower End of Segment to FM 2393	FS	FS	FS	NA	NA	FS
0214_02 - Wichita River Below Diversion Lake Dam - FM 2393 to 1 Mile above Eastland Lane	FS	FS	FS	FS	NA	FS
0214_03 - Wichita River Below Diversion Lake Dam - 1 Mile above Eastland Lane to 1 Mile above River Road	FS	NA	FS	NA	NA	FS
0214_04 - Wichita River Below Diversion Lake Dam - 1 Mile above River Road to US 281	FS	FS	FS	FS	NA	FS
0214_05 - Wichita River Below Diversion Lake Dam - US 281 to FM 368	FS	FS	FS	NA	NA	FS
0214_06 - Wichita River Below Diversion Lake Dam - FM 368 to Upper End of Segment	FS	FS	FS	NA	NA	FS
0214A_01 - Beaver Creek - Lower 25 Miles of Segment	FS	FS	NA	NA	NA	FS
0214A_02 - Beaver Creek - Upper 23 Miles of Segment	FS	FS	NA	NA	NA	FS
0214B_01 - Buffalo Creek - Entire Water Body	FS	NA	NA	NA	NA	FS
0214C_01 - Holliday Creek - Entire Water Body	FS	FS	NA	NA	NA	FS
0215_01 - Diversion Lake - Entire Water Body	NA	NA	NA	NA	NA	NA
0216_01 - Wichita River Below Lake Kemp Dam - Entire Segment	FS	FS	FS	FS	NA	FS
0217_01 - Lake Kemp - Lower Half of Water Body	NA	NA	FS	NA	NA	FS
0217_02 - Lake Kemp - Upper Half of Water Body	NA	NA	FS	NA	NA	FS
0218_01 - Wichita/North Fork Wichita River - Lower End of Segment to FM 287 in Knox County	NA	NA	FS	NA	NA	FS
0218_02 - Wichita/N Fork Wichita River - FM 287 to Foard Co Line	NS	NA	FS	FS	NA	NS
0218-03 - Wichita/N Fork Wichita River - Foard Co Line to Cottle Co Line	NS	NA	FS	NA	NA	NS
0218_04 - Wichita/N Fork Wichita River - Cottle Co Line to King Co Line	NS	NA	FS	NA	NA	NS
0218_05 - Wichita/N Fork Wichita River - King Co Line to End of Segment	NS	NA	FS	NA	NA	NS
0218A_01 - Middle Fork Wichita River - Lower 30 Miles of Water Body	NS	NA	NA	FS	NA	NS
0218_02 - Middle Fork Wichita River - Remainder of Water Body	NA	NA	NA	NA	NA	NA
0219_01 - Lake Wichita - Entire Water Body	NA	NA	NA	NA	NA	NA
0219A_01 - Holliday Creek Above Lake Wichita	FS	NA	NA	NA	NA	FS
0220_01 - Upper Pease/North Fork Pease River - Lower End to Middle Pease Confluence	FS	NA	FS	NA	NA	FS

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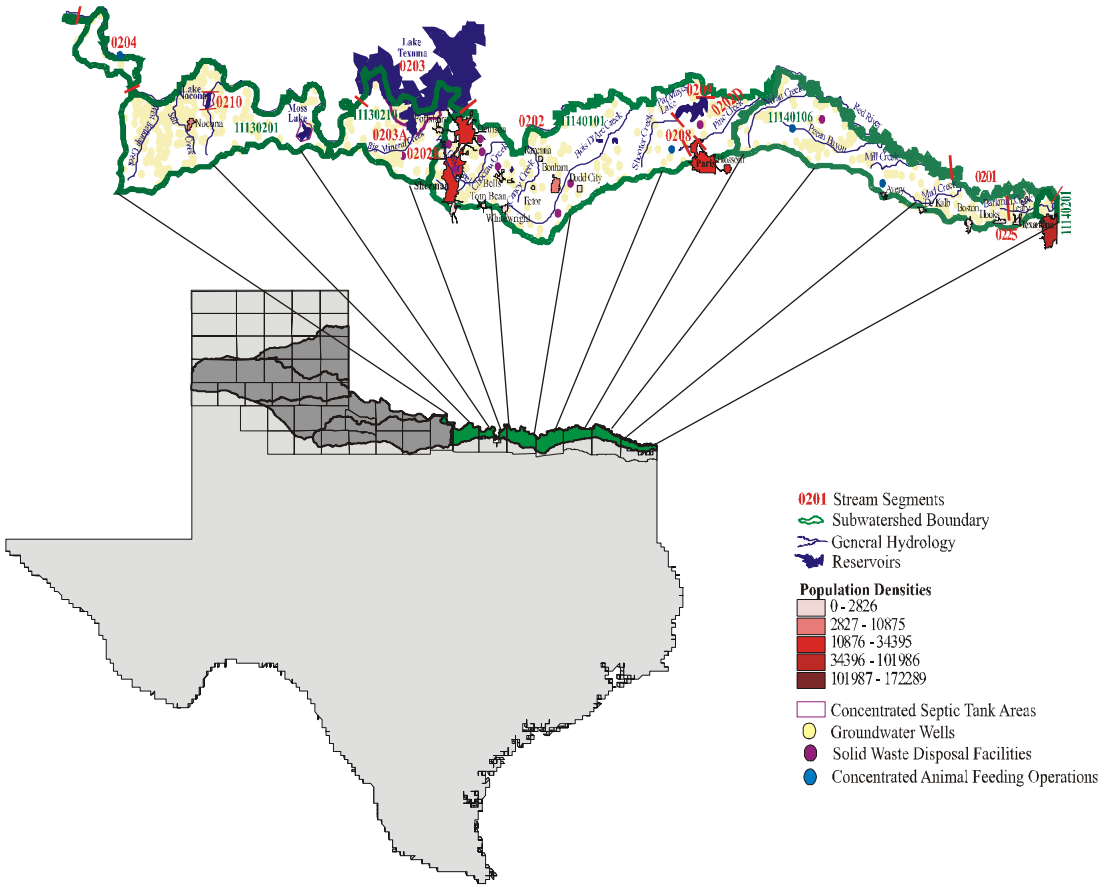
SEGMENT NUMBER / DESCRIPTION	AQUATIC LIFE USE	CONTACT RECREATION USE	GENERAL USE	FISH CONSUMPTION USE	PUBLIC WATER SUPPLY USE	OVERALL USE
0220_02 - Middle Pease Confluence to End of Segment	NA	NA	FS	NA	NA	FS
0221_01 - Middle Fork Pease River - Lower End of Segment to South Pease River Confluence	NA	NA	NA	NA	NA	NA
0221_02 - Middle Fork Pease River - Remainder of Segment	NA	NA	NA	NA	NA	NA
0222_01 - Salt Fork Red River - OK State Line to Lake Creek Confluence	FS	FS	FS	NA	NA	FS
0222_02 - Salt Fork Red River - Lake Creek to Upper End of Segment	NA	NA	FS	NA	NA	FS
0222A_01 - Lelia Lake Creek - Entire Water Body	FS	FS	NA	NA	NA	FS
0223_01 - Greenbelt Lake - Entire Water Body	NA	NA	FS	NA	FS	FS
0224_01 - North Fork Red River - OK State Line to FM 2473	FS	FS	FS	NA	NA	FS
0224_02 - North Fork Red River - FM 2473 to Upper End of Segment	NA	NA	FS	NA	NA	FS
0225_01 - McKinney Bayou - Entire Segment	NA	NA	NA	NA	FS	FS
0226_01 - South Fork Wichita River - Lower End of Segment to FM 267	NA	NA	FS	NA	NA	FS
0226_02 - South Fork Wichita River - FM 267 to King County Line	FS	NA	FS	FS	NA	FS
0226_03 - South Fork Wichita River - King County Line to Low Water Dam 6.6 Miles East of Guthrie	FS	NA	FS	FS	NA	FS
0226_04 - South Fork Wichita River - Low-water Dam to 0.5 Mile Upstream	FS	NA	FS	FS	NA	FS
0226_05 - South Fork Wichita River - 0.5 Mile Upstream of Dam to US 83	FS	FS	FS	NA	NA	FS
0226_06 - South Fork Wichita River - US 83 to End of Segment	NA	NA	FS	NA	NA	FS
0227_01 - South Fork Pease River - Lower End of Segment to Motley County Line	NA	NA	NA	NA	NA	NA
0227_02 - South Fork Pease River - Motley County Line to End of Segment	NA	NA	NA	NA	NA	NA
0228_01 - Mackenzie Reservoir - Entire Water Body	NA	NA	FS	NA	FS	FS
0229_01 - Upper Prairie Dog Town Fork (UPDTF) Red River - Lower End of Segment to SH 207	NA	NA	FS	NA	NA	FS
0229_02 - UPDTF - SH 207 to Palo Duro Canyon State Park North Boundary	FS	NS	FS	NA	NA	NS
0229_03 - UPDTF - Palo Duro Canyon State Park Upstream Boundary to Upper End of Segment	NA	NA	FS	NA	NA	FS
0229A_01 - Lake Tanglewood - Entire Water Body	FS	FS	NA	NA	NA	FS
0230_01 - Pease River - Red River to Hardeman County Line	FS	FS	FS	FS	NA	FS
0230_02 - Pease River - Hardeman County Line to End of Segment	NA	NA	FS	NA	NA	FS
0230A_03 - Paradise Creek - Lower 5 Miles of Water Body	NA	NA	NA	NA	NA	NA
0230A_04 - Paradise Creek - Remainder of Water Body	NA	NA	NA	NA	NA	NA
0299A_01 - Sweetwater Creek - Lower 25 Miles	FS	NS	NA	NA	NA	NS
0299A_02 - Sweetwater Creek - Remainder of Creek	NA	NA	NA	NA	NA	NA

FS – Fully Supporting:	NA – Not Applicable or Not Assessed	NS – Not Supporting

Reach I of the Red River Basin begins at Texarkana in Bowie County and ends upstream inside Clay County, east of Wichita Falls. This area includes several small communities including the Sherman and Denison area, which has recently become one of the fastest growing areas in the state due to the expansion of the Dallas/Fort Worth Metroplex. Other cities within **Reach I** include Bonham, Bowie, Clarksville, Nocona, Texarkana, Paris, and Gainesville. Average rainfall amounts range from 32 inches annually in the western portion of the reach to 50 inches annually in the eastern part.



The stream segments contained in **Reach I** are:

0201	-	Lower Red River	0203	-	Lake Texoma
0201A	-	Mud Creek	0203A	-	Big Mineral Creek
0202	-	Red River below Lake Texoma	0204	-	Red River above Lake Texoma
0202A	-	Bois D'Arc Creek	0204B	-	Moss Lake
0202C	-	Pecan Bayou	0208	-	Lake Crook
0202D	-	Pine Creek	0209	-	Pat Mayse Lake
0202E	-	Post Oak Creek	0210	-	Farmers Creek Reservoir
0202F	-	Choctaw Creek	0225	-	McKinney Bayou

Reach I contains 53 permitted municipal and industrial dischargers, 15 permitted solid waste disposal sites, approximately 1,600 petroleum storage tanks, and three concentrated animal feeding operations. It also includes over 1,800 ground water wells and an estimated 70,000 septic tanks. There are approximately 175 water systems and 207 community water systems. Additionally, Bowie County has three permitted superfund sites and two permitted hazardous waste sites. Mining of limestone, gravel, lignite, bituminous coal, sand, and gravel is also conducted in **Reach I**.

There are over 10,000 farms and ranches covering more than 2.9 million acres of land that produce mainly wheat, hay, soybeans, corn, milo, cotton, sorghum, turf grasses, wholesale nursery greenery, plus pecans, peaches, melons, peanuts, beef cattle, poultry, goats, dairy cattle, and horses.

During the reference period of September 1, 2003 through August 31, 2004, the Authority conducted 44 monitoring events and collected 815 parameters from 11 water quality monitoring stations. The TCEQ conducted 82 monitoring events and collected 1,371 parameters from 14 water quality monitoring stations. **Figure 3** illustrates the monitoring coverage of **Reach I**.

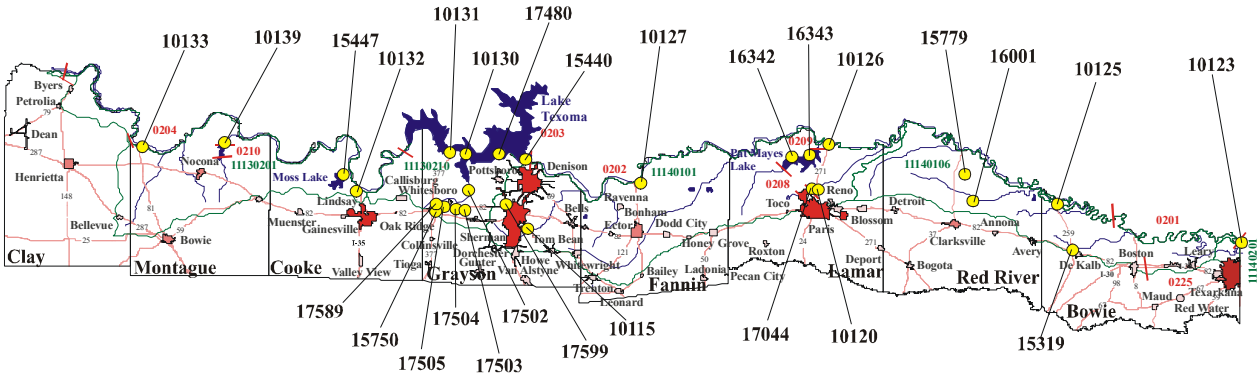


Figure 3

The year 2004 proved to be a good year for precipitation in **Reach I**. However, the much needed rainfall did have an adverse affect on some of the reach's water bodies. Watershed runoff increased concentrations of some water quality parameters, which resulted in some screening exceedances for several segments. Refer to **Table 5** for detailed information.

Segment **0202D** exceeded stream standards for elevated pH levels. Segments **0201A** and **0202D** experienced exceedances of low dissolved oxygen, and segments **0201, 0201A**, **0202D**, and **0203A** have exhibited elevated bacterial concentrations.

In addition, segments **0201A**, **0202D**, **0202E**, **0202F**, **0203**, **0203A,** and **0204** exceeded screening criteria for orthophosphate, total phosphorus, and ammonia-nitrogen. These nutrient elevations are more than likely due to increased concentrations caused by runoff due to rainfall events received in 2004.

In February 2004 the Authority contracted with the TCEQ to conduct an 18 month long flow monitoring study for permitting support purposes on two sites in **Reach I**, Bois D'Arc Creek and an unnamed tributary of Lake Texoma.

Bois D'Arc Creek runs directly into the main stem of the Red River in Fannin County. At this point in the study, the Authority has revealed that the creek receives a constant flow from tributaries and permitted dischargers. During one site visit in the summer, it was considered dry due to broken, isolated pools with no flow detectable. This was probably due to seasonal conditions.

The water quality in Bois D'Arc Creek seems to be good. Frequent log jams and beaver dams in the creek have caused increased concentrations in some water quality parameters.

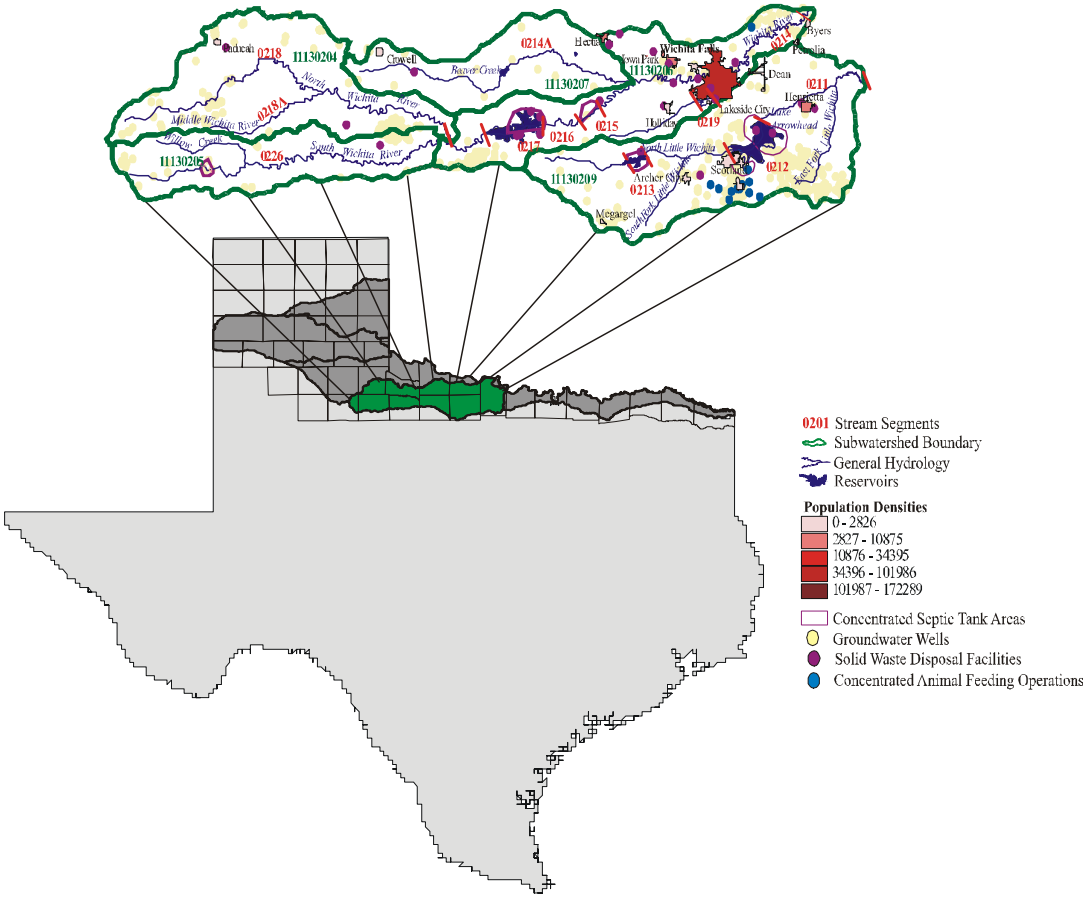
Bois D'Arc Creek
May 2004

Unnamed Tributary of Lake Texoma
March 2004

The unnamed tributary to Lake Texoma is a small creek that runs through the Hagerman National Wildlife Refuge. It is shallow and has been primarily dry except for late winter and early spring. The only flow it receives is from rainfall runoff, smaller tributaries, and permitted discharges. The unnamed tributary is classified as a perennial stream by the United States Environmental Protection Agency (EPA). Monthly site visits to the stream during this study have revealed that it does not meet the perennial stream criteria. Water quality in the creek could be considered fair. However, since it is visited frequently by livestock and natural wildlife, runoff from rainfall events likely increases the concentrations of parameters in the creek.

The Authority is proud of its cooperation with the TCEQ in assisting in the flow study project. The study on these two sites will continue until July 2005, at which time the Authority will provide a complete report to the TCEQ on its findings.

Reach II represents the Wichita River and Little Wichita River watersheds from the confluence of the Red River to their headwaters, which begins in Clay County and continues westward to Dickens County. The largest city within this reach is Wichita Falls, with a population of 104,200. Annual average rainfall for this reach ranges from 19 inches to 32 inches annually. Although rainfall has been significantly less during the previous five years, the past year has been a bonus year for rainfall with averages exceeding 37 inches. This abundance of rain and runoff has raised local lakes and ponds to levels not seen in nearly ten years. **Reach II** is a large, diverse area with most of the large population centers located in the eastern portion, while the western portion contains some of the largest ranches in the state, including the W.T. Waggoner Estate, Four Sixes Ranch, and several others.



The stream segments contained in **Reach II** are:

0211	-	Little Wichita River	0216	-	Wichita River below Lake Kemp
0212	-	Lake Arrowhead	0217	-	Lake Kemp
0213	-	Lake Kickapoo	0218	-	Wichita/North Fork Wichita River
0214	-	Wichita River below Diversion Lake	0218A	-	Middle Fork Wichita River
0214A	-	Beaver Creek	0219	-	Lake Wichita
0214B	-	Buffalo Creek	0219A	-	Holliday Creek above Lake Wichita
0214C	-	Holliday Creek	0226	-	South Fork Wichita River
0215	-	Diversion Lake			

There are approximately 4,200 ground water wells in **Reach II** located primarily in the Seymour and Trinity Aquifers. However, in the far western portion of the reach, the Ogallala Aquifer supplies the groundwater.

Within the ten-county area are more than 3,700 farms covering more than 5.2 million acres. These farms raise wheat, grains, hay, alfalfa, sorghum, cotton, pecans, peanuts, peaches, watermelons, beef cattle, cow/calf operations, dairies, horses, and some swine and goats.

There are 38 permitted municipal and industrial dischargers, 25 permitted solid waste disposal sites, approximately 2,100 petroleum storage tanks, 18 concentrated animal feeding operations, and an estimated 12,000 septic tanks. In portions of **Reach II**, oil and gas fields dominate the landscape. In other areas of the reach, farming or pasture lands predominate. Natural resource industries include some surface mining for copper, building stone, sand, gravel, volcanic ash, bituminous coal, and components for tile and ceramics.

During the reference period of September 1, 2003 through August 31, 2004, the Authority conducted 16 monitoring events and collected 340 parameters from four water quality monitoring stations. The TCEQ conducted 26 monitoring events and collected 1,111 parameters from nine water quality monitoring stations. **Figure 4** below illustrates the monitoring coverage of **Reach II**.

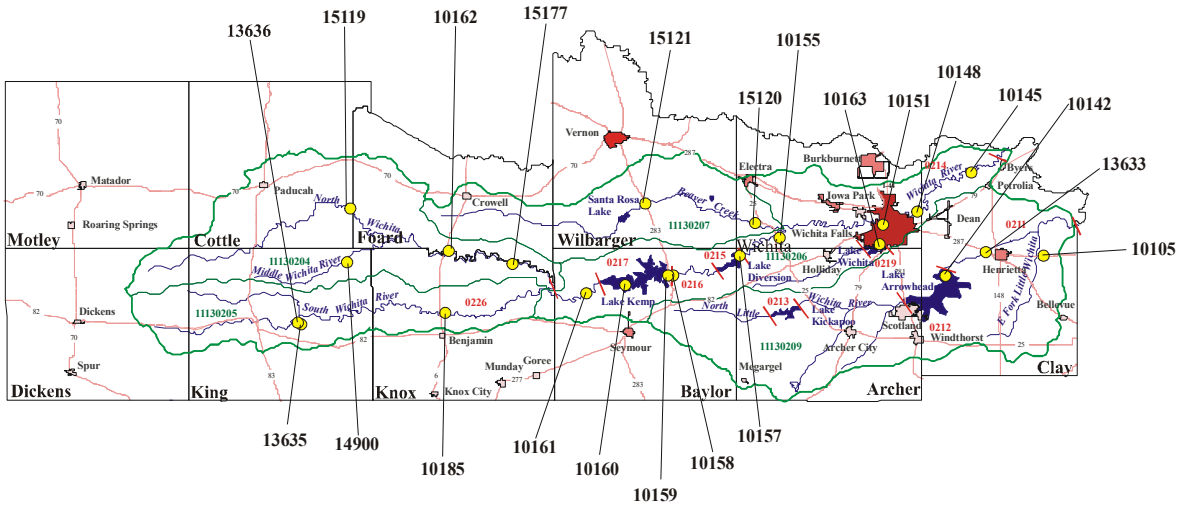
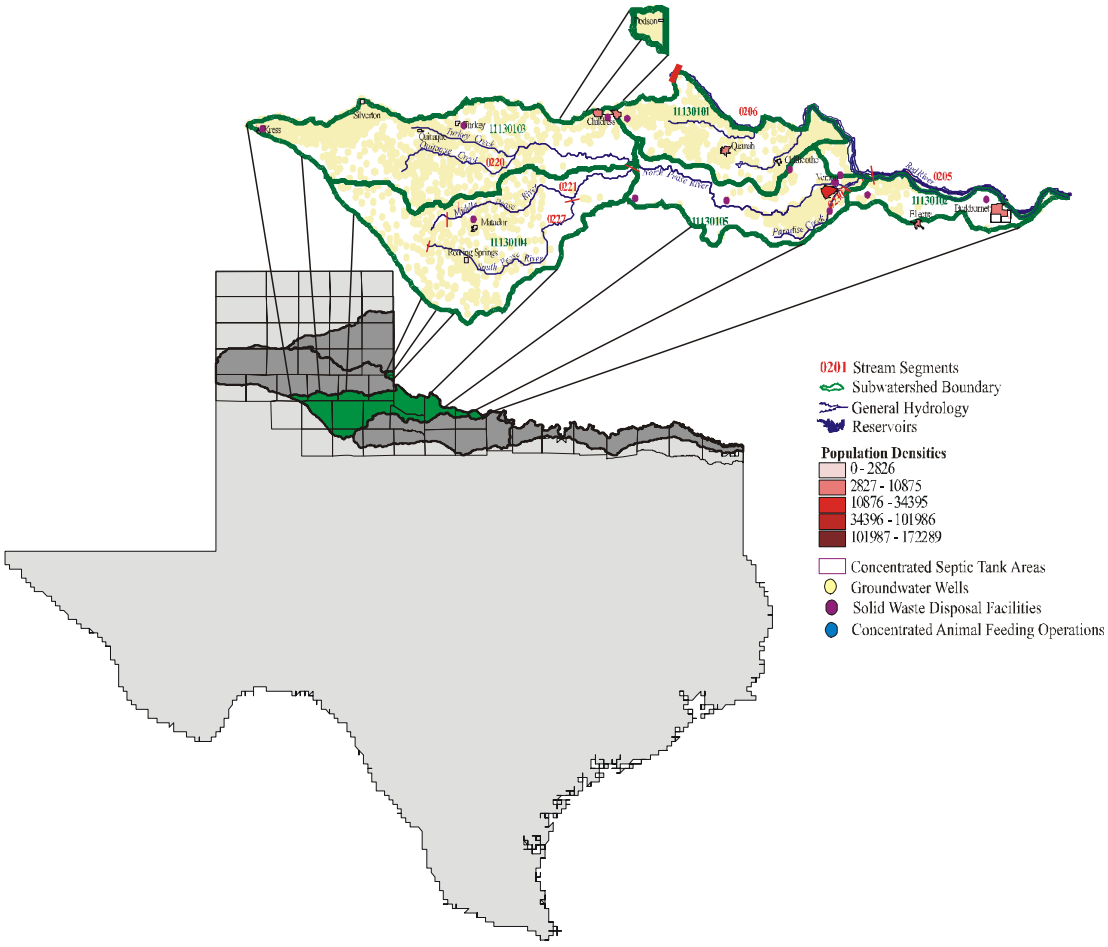


Figure 4

Reach II received some much needed precipitation in 2004. However, runoff from the rainfall events has contributed adversely to the water quality in this watershed.

Dissolved oxygen and bacteria levels are exceeding stream standards in segment **0211**. Segments **0214A** and **0216** have ammonia-nitrogen levels that exceeded nutrient screening levels. Increased nutrients concentrations such as ammonia-nitrogen, total phosphorus, and orthophosphate have been revealed in segments **0212**, **0214, 0214A, 0216**, and **0219**. In addition, segments **0211**, **0214**, **0214A** and **0219** have excessive algal growth due to elevated chlorophyl-*a* levels.

Reach III begins in northern Wichita County and proceeds westward toward Floyd and Briscoe Counties, involving the Pease River watershed from the confluence of the Red River to its headwaters. It includes the Red River main stem from the confluence of Cache Creek upstream to the confluences of Buck Creek and the Red River. The cities of Vernon and Burkburnett with populations of 11,700 and 11,000, respectfully, are the largest within the reach, with a total reach population of about 26,000.



The stream segments contained in **Reach III** are:

0205	-	Red River below Pease River	0221	-	Middle Fork Pease River
0206	-	Red River above Pease River	0227	-	South Fork Pease River
0206A	-	Groesbeck Creek	0230	-	Pease River
0220	-	Upper Pease/North Fork Pease River	0230A	-	Paradise Creek

Reach III contains 27 permitted municipal and industrial dischargers, 14 permitted solid waste disposal sites, approximately1,400 petroleum storage tanks, about four concentrated animal feeding operations, and an estimated 2,200 septic tanks. In addition, approximately 2,700 groundwater wells utilize water from the Seymour, Blaine, and Ogallala Aquifers in this reach.

Comprised mainly of agribusiness and oil and gas production, **Reach III** is predominately rural. There are over 2,000 farms and ranches covering 3.1 million acres that predominately grow cotton, wheat, hay, feed products, guar, alfalfa, soybeans, sorghum, peanuts, sunflowers, beef cattle, horses, hogs, poultry, and sheep.

During the reference period from September 1, 2003 through August 31, 2004, the Authority conducted eight monitoring events and collected 95 parameters from two monitoring stations. The TCEQ conducted 20 monitoring events and collected 466 parameters from six monitoring stations. **Figure 5** below illustrates the monitoring coverage of **Reach III**.

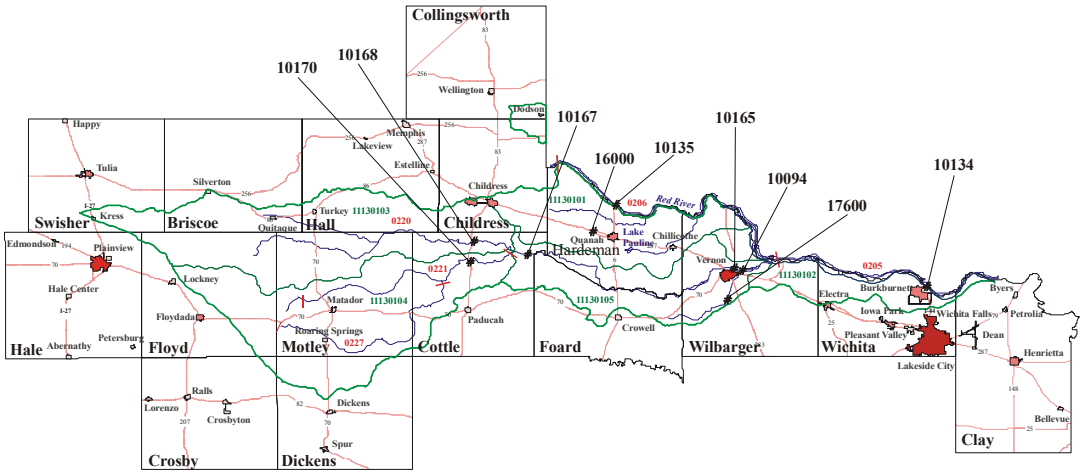


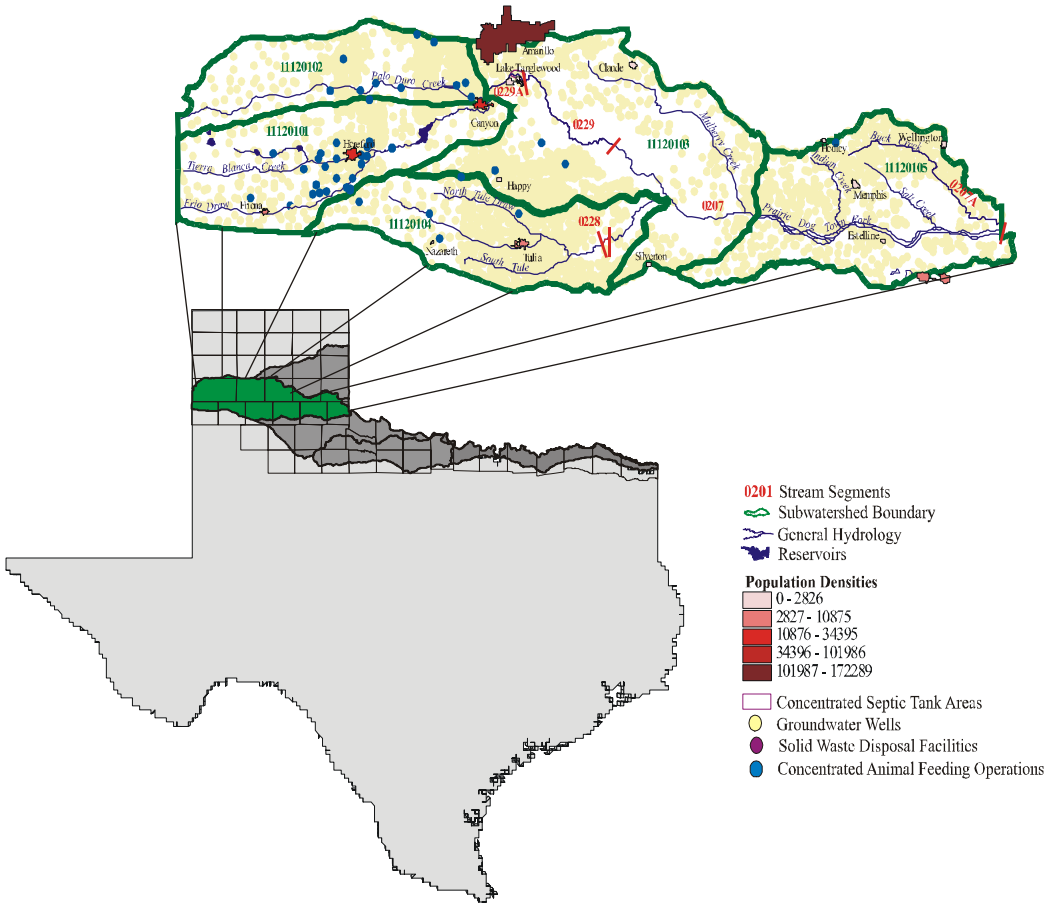
Figure 5

Segments **0206A** and **0230A** are frequented by numerous livestock, which is possibly causing these segments to exceed the stream standards for bacteria. Three segments (**0205**, **0206A** and **0230A**) have excessive algal growth concerns. Since segment **0230A** receives runoff from the City of Vernon, it is possible that the runoff is contributing to its excessive algal growth concerns for that segment.

In February 2004 the Authority contracted with the TCEQ to conduct an 18 month long flow monitoring study for permitting support purposes at one site in **Reach III**, South Groesbeck Creek at US 287. Site visits have revealed that it is a narrow, shallow stream with continuous flow. However, it is frequented by livestock and is demonstrating high bacterial concentrations. The flow study on this site will continue until July 2005, at which time the Authority will provide a complete report to the TCEQ on its findings.

South Groesbeck Creek - July 2004

Reach IV begins in Childress County at the Texas/Oklahoma state line and continues through the Panhandle to Deaf Smith and Parmer Counties at the New Mexico state line. It encompasses the Prairie Dog Town Fork of the Red River from the confluence of Buck Creek. The uppermost part of the reach dissects the City of Amarillo, which is also the largest city in the Red River Basin. The towns of Hereford and Canyon have populations of over 14,600 and 12,900 respectively. Approximately 66 other towns and communities are located in this reach and include Childress, Dimmitt, Friona, Tulia, Wellington, and Claude. Rainfall is sparse ranging from 10 inches average per year in the west to 19 inches average per year in the eastern part of the reach.



The stream segments contained in **Reach IV** are:

0207	-	Lower Prairie Dog Tow Fork of the Red River	0229	-	Upper Prairie Dog Town Fork of the Red River
0207A	-	Buck Creek	0229A	-	Lake Tanglewood
0228	-	Mackenzie Reservoir			

There are 57 community water systems and 28 transient water systems. Below the western area of this reach lies the Ogallala Aquifer, which provides water for over 7,100 ground water wells. There are 78 permitted municipal and industrial discharges, 17 permitted solid waste disposal sites, about 2,900 petroleum storage tanks, and approximately 63 concentrated animal feeding operations. An estimated 13,900 septic tanks are spread throughout the **Reach IV** watershed.

Since cattle ranching plays a significant role in this area of the state, **Reach IV** contains over 3,900 farms and ranches that cover more than 4.9 million acres of land. Production includes beef cattle, cotton, wheat, corn, sugar beets, soybeans, sorghum, and potatoes.

Estelline Salt Springs is a group of natural brine springs located less than a mile east of Estelline, Texas in east-central Hall County on the flood plain of the Prairie Dog Town Fork of the Red River. The springs became active in the late 1800's and washed out a funnel in the alluvium. In 1964 the United States Army Corps of Engineers (USACE) built a dike around the springs to contain the flow and prevent the salt from entering the river system. Since then, the spring water has grown more saline.

During the reference period from September 1, 2003 through August 31, 2004, the Authority conducted 16 monitoring events and collected 297 parameters from four water quality monitoring stations, while the TCEQ conducted eight monitoring events and collected 239 parameters from three monitoring stations. **Figure 6** illustrates the water quality monitoring coverage of **Reach IV**. The rainfall received in 2004 in **Reach IV** has caused some stream segments in this reach to

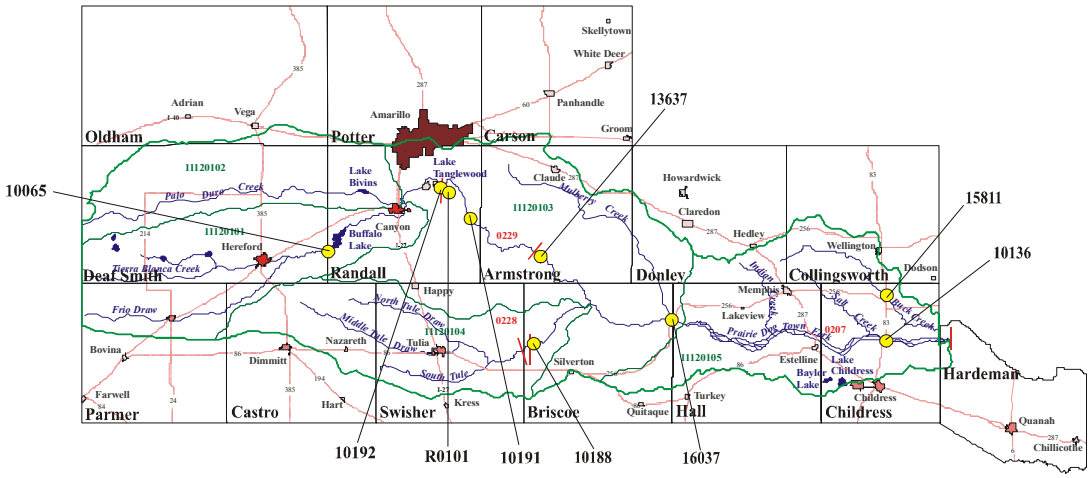
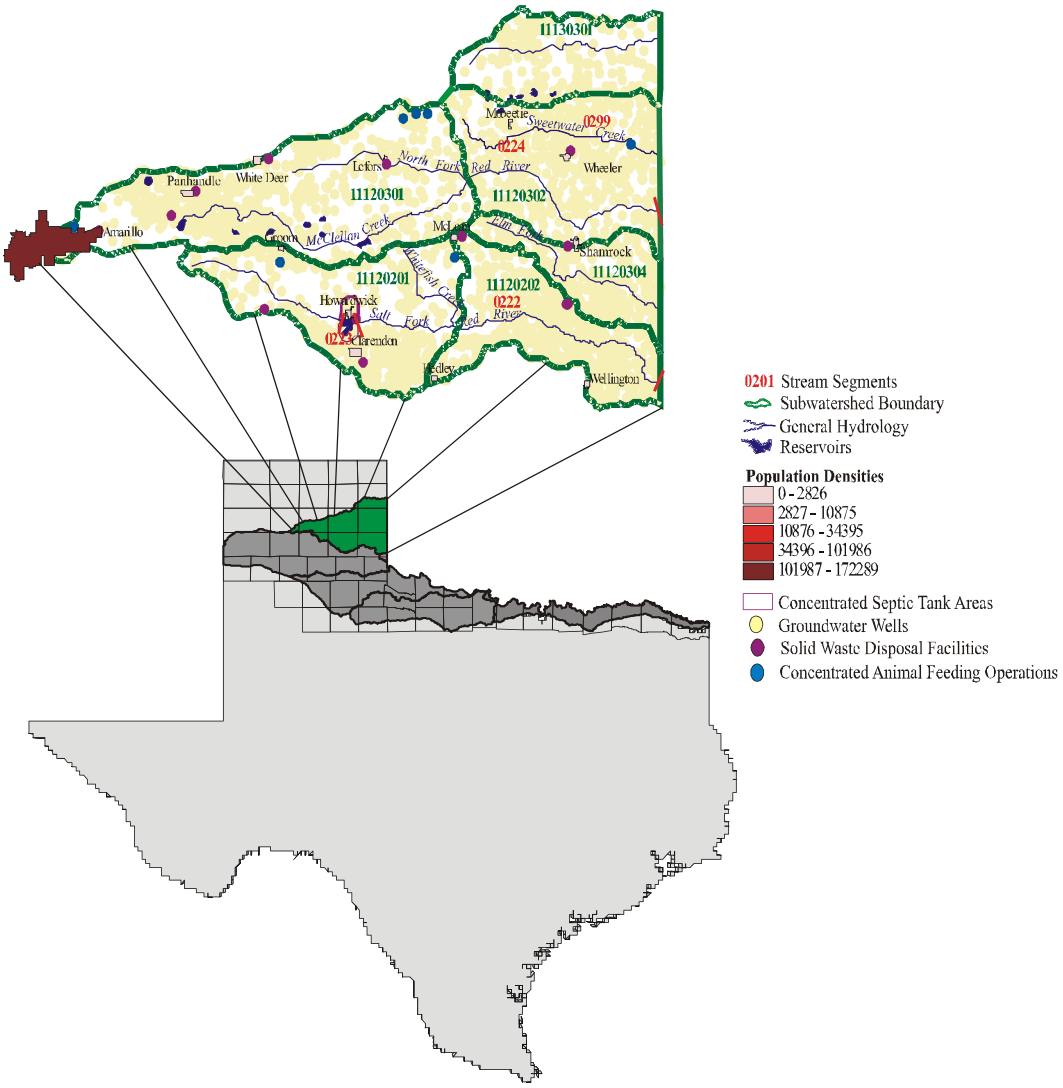


Figure 6

experience exceedances in some water quality parameters. Segment **0207A** has revealed exceedances in bacteria levels and some increase in nutrient concentrations. In addition, segment **0229** is showing to have increased levels of nutrient concentrations and segment **0229A** is exhibiting elevated pH values, excessive algal growth, and concentrated nutrient levels. In addition to runoff receipt caused by rainfall events in these segments, these exceedances could likely be caused by wastewater discharge or possible leaking septic tanks in this part of the reach.

Reach V of the Red River Basin begins at the eastern edge of the Texas Panhandle in Hemphill, Wheeler, and Swisher Counties and extends westward to Amarillo for about 100 miles. The reach contains the North Fork of the Red River upstream to the headwaters of McClellan Creek, including the headwaters of the Salt Fork of the Red River, Elm Fork of the Red River, and the Washita River. The eastern edge of the City of Amarillo is located in **Reach V.** In addition, the towns of Panhandle, Clarendon, Wheeler, and White Deer are located in this reach.



The stream segments contained in **Reach V** are:

0222	-	Salt Fork of the Red River	0224	-	North Fork of the Red River
0222A	-	Lelia Lake Creek	0299A	-	Sweetwater Creek
0223	-	Greenbelt Lake			

The largest reservoir in the reach is Greenbelt Lake located in Donley County. Lake M°Clellan, a small lake, is also in the reach, which is underlain by the Ogallala Aquifer in the northern and western areas.

There are 27 permitted municipal and industrial dischargers, 15 permitted solid waste disposal sites, about 4,200 petroleum storage tanks, and approximately 19 concentrated animal feeding operations located in **Reach V**. In addition, there are more than 4,200 ground water wells and an estimated 3,300 septic tanks are located in this reach.

Farms and ranches predominate the reach covering over 3.2 million acres. The ranches primarily raise cattle, while the farming consists of cotton, grain sorghum, wheat, corn, oats, barley, and alfalfa.

During the reference period from September 1, 2003 through August 31, 2004, the Authority conducted four monitoring events and collected 113 parameters from one water quality monitoring station. The TCEQ conducted six monitoring events and collected 117 parameters from two water quality monitoring stations. **Figure 7** illustrates the monitoring coverage of **Reach V**.

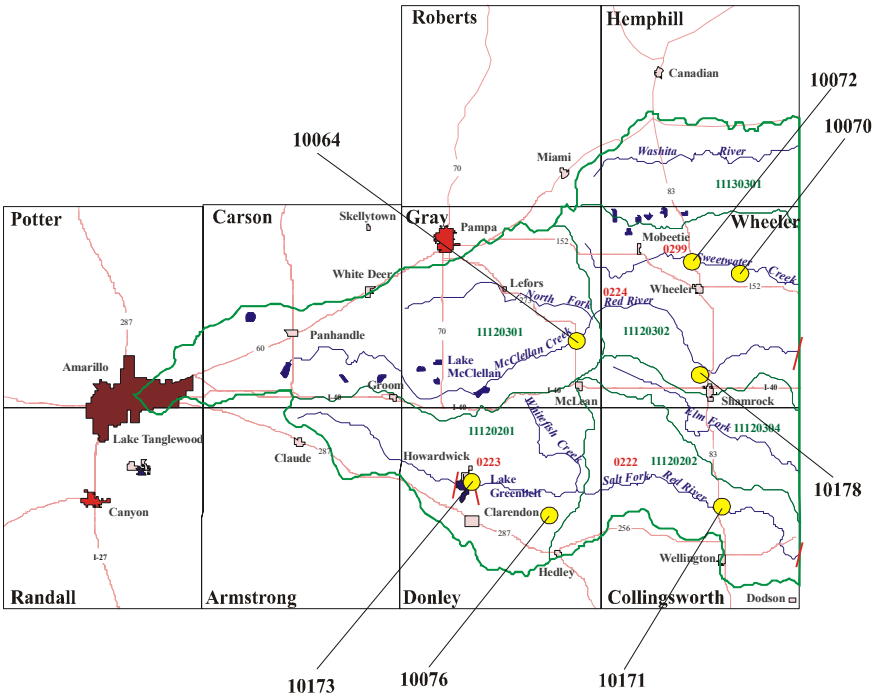


Figure 7

Water quality condition in **Reach V** is fairly good. The primary issue in the reach is segment **0299A**, Sweetwater Creek. At times, Sweetwater Creek experiences high bacteria levels. This is probably due to the numerous concentrated animal feeding operations surrounding the creek. Since more rainfall was received in 2004 than in previous years, runoff to the creek likely increased bacterial concentrations.

WELL PLUGGING INITIATIVE IN THE RED RIVER BASIN

The Red River Basin has been a primary location for the Saltwater Minimization Project. This is a three-year project between the TCEQ and the Texas Railroad Commission (RRC). The project objective is to eliminate a potential source of salinity in the Red River Basin through the plugging of abandoned, unplugged non-compliant oil and gas wells and the re-plugging of improperly plugged wells. In particular, well plugging activities are being focused in Clay, Montague, Wichita, and Wilbarger Counties of the Red River Basin. These wells provide pathways for migration of wellbore fluids, in particular, saltwater to surface and subsurface water. Properly plugged wells eliminate this potential source of pollution.

The RRC's plugging operations began during the 3rd quarter of FY 2003. To date, 117 wells in the Red River Basin have been plugged at a total cost of $235,578.65, an average of $2,013 per well. It is anticipated that the project's completion will be in August 2005 [2].

In addition, the RRC will gather analytical data to document the affects of the plugging activities on chloride and total dissolved solids concentrations. Additional information on the project can be found on the RRC's website at www.rrc.state.tx.us.

PUBLIC PARTICIPATION AND OUTREACH

One of the most successful components of the Clean Rivers Program has been public participation. This forum enables the general public to broaden their awareness of water quality conditions, share the knowledge and expertise of many, and cooperatively pursue avenues to rectify problems. The reflection of service with an emphasis on good science is fundamental to the Authority's purpose.

STEERING COMMITTEE

Originally conceived as a grass-roots project, the Clean Rivers Program established a way for the citizens of Texas to participate in effective statewide watershed planning activities. Each Clean Rivers Program partner developed a steering committee to set priorities within its own individual basin. These committees bring together diverse interests within each basin and watershed. Steering committee participants include representatives from the public, municipal, county, state, and federal government, industry, business, agriculture, fee payers, environmental, education, civic organizations, and others.

As one of the most successful components of the Clean Rivers Program, the Steering Committee guided the program during these past years. The Authority has placed a significant amount of importance on public participation and outreach. This

[2] Information provided by the Texas Railroad Commission's Red/Canadian Rivers Saltwater Minimization Project, Phase II, 1st Quarter, FY05 Report

STEERING COMMITTEE (CONTINUED)

enables the people of the basin to broaden their awareness of water quality conditions, share their knowledge and experience with others, and work together to solve issues within our area. The Steering Committee and Basin Advisory Committee are one and the same. When originally formed, the Steering Committee was created to meet together when it may not have been possible for the entire Basin Advisory Committee to meet. However, through the years, the two committees have evolved into one committee that serves its purpose very well.

Basin Advisory Committee Meetings are held at least once per year and are set up to be open, friendly, casual, and informative. They are designed to provide in-depth technical information regarding project work plans, monitoring schedules, reports, and any other relevant topics. Committee members are encouraged to ask questions and present their ideas. Members are also encouraged to bring guests.

VOLUNTEER ENVIRONMENTAL MONITORING

The Texas Rivers Project, in its 13th year, provides an opportunity for area students from junior high through high school to actively collect and analyze samples from their own unique monitoring sites. Over the last seven years, 12 schools have participated in the program. However, due to budget restrictions and time restraints, educators are not able to participate in the Texas Rivers Project as they have done in the past. The Authority is currently exploring ways to revitalize the program.

RED RIVER WATER RESOURCE CONFERENCE

Another popular outreach program that the Authority is involved with is the Red River Water Resource Conference. This annual conference is held in cooperation with the Red River Valley Association and provides attendees with information on issues within the entire Red River Basin. In addition it provides them with the opportunity to discuss any issues relevant to the basin. Last year's meeting was held in Wichita Falls on October 28, 2004. The conference was comprised of representatives from Texas, Oklahoma, Arkansas, and Louisiana. The focus of the meeting was water quality and quantity issues that affect everyone within the Red River Basin in all four states. The agenda for this year's meeting included speakers representing the United States Army Corps of Engineers-Tulsa, Oklahoma District, the Natural Resources Conservation Service with speakers from Texas and Oklahoma, the Oklahoma Water Resources Board, the Wichita County Water Improvement District #2, the Texas Water Development Board, the United States Geological Survey, and the Authority's Environmental Services Division staff.

EARTH DAY

The Authority is proud to be associated with local Earth Day celebrations. Earth Day is celebrated in cooperation with River Bend Nature Works, an environmental educational center located in Wichita Falls that provides hands-on environmental programs to children and adults within a 100-mile radius. Last year's event was held April 14th and 15th with more than 750 area school children participating. The Authority's Environmental Services Division staff provided presentations on water quality and conservation to the students. Teachers were also provided with environmental educational materials for their students.

EDUCATION

Authority personnel also provide presentations to various organizations, clubs, and civic groups to spark interest and awareness in our local natural resource issues. Additionally, the Authority provides all types of information and articles that appear regularly in newspapers throughout the basin.

Another program sponsored by the Authority is the distribution of educational materials. The *Major Rivers* and *Think Earth* curricula are provided to area schools upon request, as much as funds allow. These two publications are favored by teachers and students alike. Last year approximately 40 packets were provided to area schools.

RED RIVER AUTHORITY OF TEXAS WEBSITE

The Authority maintains a compelling commitment to provide up-to-date scientifically correct information on the website at www.rra.dst.tx.us. The website provides a virtual on-line encyclopedia of information and resources. The home page allows the user to locate information about the Authority and historically research the Red River Basin, and much more.

A popular feature on the Authority's website is the *Public Information Repository*. It guides one to a wealth of information. Facts and data on almost any aspect of the Red River Basin are just a few clicks away. Other information available include: data inventories, digital mapping, general information, legislation, environmental sites, historical weather data, and countless other links. The Authority also maintains an online publication library that includes reports and studies prepared by the Authority. Over the last few years, the Authority's web site has become very popular and is currently used by more than 3,500 visitors per day.

SUGGESTIONS FOR FUTURE WORK IN THE RED RIVER BASIN

As a Clean Rivers Program Partner, the Authority continues to monitor sites, analyze the data collected, determine trends, and assist in the development of Best Management Practices to maintain and/or improve the water quality in the Red River Basin.

The Clean Rivers Program has not received an increase in its program fees since its beginning in 1991. With rising costs for services and supplies throughout the state, monetary restrictions have been implemented. This has forced Clean Rivers Program partners to reduce sampling events and parameters collected. Since the number of monitoring sites and parameters needed to meet the Clean Rivers Program goals are far more than that actually sampled, an increase of continuous monitoring stations should be implemented to provide a constant, reliable source of water quality data. In addition, stream segments associated with the greatest risks of not attaining its water quality standards should receive the highest precedence.

With the United States under threat of terrorist attacks, precautionary measures should be in place to protect all water sources. Continuous monitoring upstream of the municipal water sources, similar to those mentioned above, should be the highest priority during these times.

As an agency of the state, and in compliance with its mission, the Authority provides financial assistance as much as possible to alleviate some of the budget shortfalls, and also contributes to the Clean Rivers Program by payment of the fees assessed to fund the program. The Authority supports itself through contractual agreements with governmental and non-governmental entities, limiting the additional funding required to adequately monitor the basin's many water resources. Nevertheless, the Authority will continue to work toward full attainment of the Clean Rivers Program goals.

The Authority receives its guidance from the TCEQ, but also listens and responds to the needs provided and directed by the Basin Advisory Committee. The ideal situation would be a much more balanced approach to all needs of the basin.

BECOME INVOLVED

Active involvement is vital in the watershed management in the Red River Basin for the Clean Rivers Program. There are many ways to become involved in the planning of the basin's water quality and environmental health. For information on becoming involved in the Basin Advisory Committee or other public outreach activities, please contact the Authority or refer to the Authority's website at www.rra.dst.tx.us.