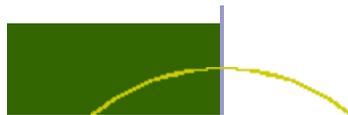


Special points of interest:

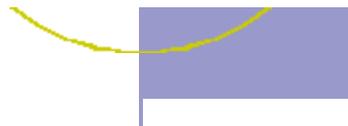
- *Taste and Odor Special Study Starts this year .. Page 5*
- *303 (d) list News: Sulphur South Segment 303 Delisted ..page 6*
- *Photographs from the field ..pages 9 and 10*

Inside this issue:

Website Resources	2
Geographical Data	2
Basin Map	3
Monitoring Programs	4
Special Study	5
303 (d) Status	6-8
Public Outreach	9



Sulphur River Basin Authority

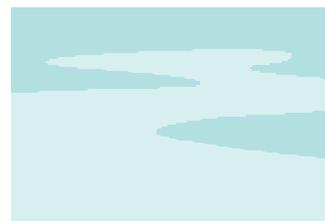


Clean Rivers Program Objectives in Our Basin

The goal of the Clean Rivers Program Water Quality Monitoring in the Sulphur River Basin is to provide appropriate, quality-assured data for continuing assessment and management of water quality. Objectives of the monitoring program are to:

- provide opportunities for public involvement in water quality issues;
- increase public awareness and knowledge of water quality conditions in the Basin;
- establish a long-term water quality monitoring program for the Basin;
- evaluate the suitability of existing water quality for designated uses, and to document water quality trends;
- identify and characterize water quality problems and their sources;
- evaluate the applicability of State Surface Water Quality Criteria to specific water bodies in the Basin;
- evaluate permit requirements in terms of water quality conditions and trends; and
- support the development of cost-effective water quality management programs with reliable data.

The Sulphur River Basin Authority directed this cooperative program in FY 2000. Participants in planning, data collection, analysis and reporting include the Texas Natural Resource Conservation Commission, members of the Clean Rivers Program Steering Committee, the U.S. Geological Survey, and the City of Tarkana Water Utility Pollution Control Laboratory.



Sulphur River Basin Monitoring Programs

The Sulphur River Basin Authority (SRBA) conducts three types of surface water quality monitoring: fixed; systematic; and special studies.

FIXED- Fixed station monitoring is designed to provide information on long-term trends in the quality of water draining from key subwatersheds within the basin by using consistent sampling techniques at the same set of lo-

cations over an extended period of time. The primary objective of the fixed station monitoring program is to continue and extend the long-

(Continued on page 4)

Permitted dischargers should contact the SRBA to request a Rapid Biological Assessment (RBA) for their river segment.

SRBA Reaches Out Through the Internet *sulphurr.org*

The internet website designed to connect stake holders to Clean Rivers Program and TMDL Program in the Sulphur River Basin has been updated to provide program information for FY 2001 in a faster paced version.

other CRP Partners and Water Quality Programs.

Station data reports are connected to the interactive basin station map to help stakeholders track the water quality of stations in their area.

The Basin Summary Report is a comprehensive report of water quality and watershed conditions during the five preceeding years.

The purpose of this report is to communicate with statewide and local audiences regarding basin water quality issues and trends. The next Summary Report is due in 2004.

On this site you will find a description of the CRP program; Reports; Basin Station locations and data; Basin Maps; Events; Contacts and Links to

Both the Basin Highlights Report and the Executive Summary of the Sulphur River Basin Summary Report (1999) are available on the website.

GEOGRAPHIC INFORMATION

The Geographic Information System (GIS) is a layer-based computer program that allows us to combine information from both geographic (map) and database (table) sources. The different layers are then presented in a combined product that is utilized to locate and track information. The geographic position of all sampling stations, streams, lakes, and major urban areas are incorporated in the current GIS layers.

Additional tabular information relating to areas of concern such as sampling data or discharge information may be linked directly to the information currently mapped and updated as new information becomes available.

Rapid Biological Assessments (RBAs) for segments can identify where improvements to water quality have been implemented. These improvements can be tracked as geographic (map) and database (table) references.

The mapped layers can be spatially analyzed to assist in documenting their relationships and possible influences on water quality in the watershed.

In the future, new layers may be added to our existing database. These layers may be soil types, locations of industrial and agricultural facilities, and permitted discharges in the basin.

In the future, a database of TNRCC Water Quality Permit activities will allow easy listing of improvements, expansions and modifications of permits for discharge into public waters within the basin.



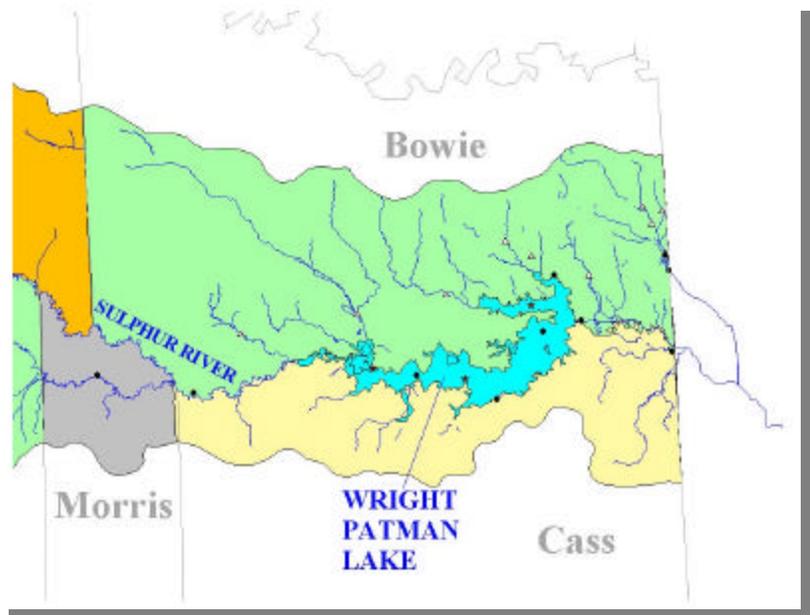
[Http://www.sulphurr.org](http://www.sulphurr.org)

*Basin Maps
Sampling Data
Program News*

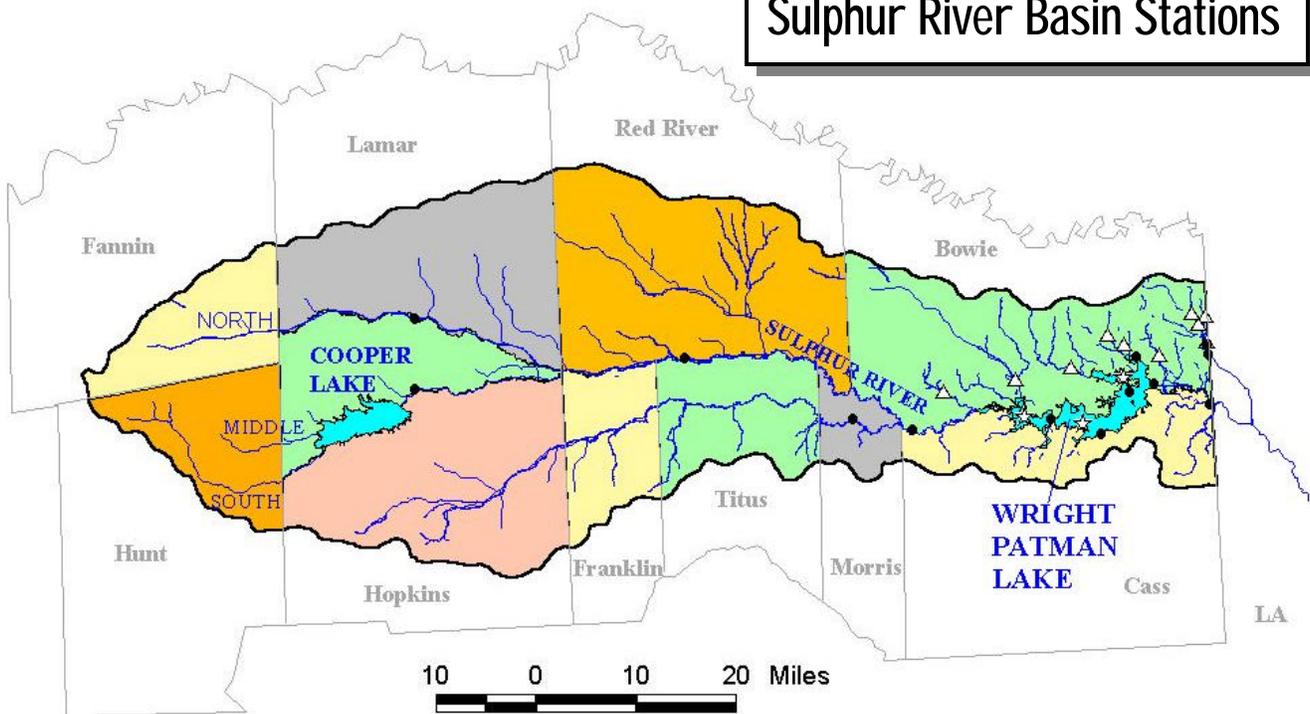
Special Study in Wright Patman

Lake Wright Patman is the subject of the FY2000-2001 Special Study.

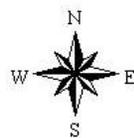
Taste and Odor Study for Lake Wright Patman
See complete story on page five.



Sulphur River Basin Stations



- △ Systematic Monitoring Stations
- Fixed Monitoring Stations
- ☆ Special Study Monitoring Stations
- Sulphur River Basin Reservoirs
- Sulphur River Basin Rivers
- Sulphur River Basin
- Sulphur Basin Counties



The Clean Rivers Program is a contact point for Permitted Dischargers to access the Water Quality data they need to renew or expand their permits. Permitted Dischargers (stakeholders) are offered the opportunity to provide input to the Systematic and Special Study programs by identifying areas where water quality data is lacking.

Special study sampling is designed to address a specific concern, or to provide additional information necessary to complete existing information

Sulphur River Basin Monitoring Programs

(Continued from page 1)

term water quality database to follow trends and identify water quality changes in major sub-basins of the Sulphur River Basin.

The FY 2000 monitoring plan included twelve fixed monitoring stations. Water samples were collected at least four times at all stations for field and conventional parameters, and four times at ten stations for bacteria. In addition, dissolved metals were sampled twice per year at two of the fixed stations and metals in sediment were sampled yearly at all stations. Twice during the year, 24-hour dissolved oxygen measurements were taken at four stations. Instantaneous flows were recorded quarterly at two fixed stations. The TNRCC conducted the monitoring at ten sites in the basin and one site was monitored by the USGS. The fixed monitoring station located on Days Creek was monitored by the City of Texarkana Water Utility Pollution Control Laboratory in coordination with SRBA in both 2000 and 2001.

SYSTEMATIC -The objective of the systematic monitoring program is to determine if there are water quality prob-

lem areas that have not been identified by the fixed station monitoring program. The systematic monitoring program in the Sulphur River Basin operates on a five-year cycle. Each year, one or more segments are the focus of the systematic monitoring program. All segments in the basin are screened during the five-year cycle. When a segment is the focus of systematic monitoring, additional parameters are monitored at locations in the watershed of that segment that are not included in the fixed monitoring program.

In FY 2000 the focus of the systematic monitoring program was on Segments 301, the Sulphur River below Wright Patman Lake, and Segment 302, Wright Patman Lake. The tributaries that were sampled included Big Creek, Elliott Creek, Anderson Creek, Bassett Creek, and Akin Creek. The aquatic community and 24-hour dissolved oxygen was characterized twice during the year. Conventional water quality measurements were performed quarterly, twice in conjunction with biological monitoring. Sampling station locations were selected within the segments to help determine im-

pacts associated with major tributaries.

During FY 2001 systematic monitoring is being conducted along White Oak Creek (a tributary to Segment 303 of the Sulphur River) at SH 19, FM 900, SH 37, FM 2152 and east of FM 1402 below the Mill Creek confluence. More closely spaced sampling along the mainstem of the stream was selected as the systematic monitoring method for White Oak Creek because it does not have any large tributaries, but receives inflows from a large number of small tributaries. The FY2001 systematic stations are sampled quarterly for conventional parameters, field parameters, bacteria and instantaneous flow. These same stations will be sampled twice yearly during FY 2001 for 24-hour dissolved oxygen, benthic community, fish community and habitat quality.

SPECIAL-The Taste and Odor Study for Lake Wright Patman is described on page 5 of this report. A profile of Lake Wright Patman will be developed, and the areas of concern identified will be used for future management recommendations and water quality studies.

River Basin Monitoring Programs— Special Studies

A special studies survey will be designed to document specific concerns regarding taste and odor in Lake Wright Patman water. Previous taste and odor data, past water quality problems, and present and future water needs will shape the design of the analytical sampling and testing program.

The most current research on taste and odor studies refers to AWWA Standard Methods, a Texas A&M University extension school, and the Texas Natural Resources Conservation Commission (TNRCC). This Special Study will employ those references in the design. TNRCC will be responsible for structuring the upcoming water quality study by providing protocols for data collection, data management and for determining the legitimacy of results. A previous study conducted by the City of Longview to evaluate taste and odor problems will also be a valuable modeling tool.

Pinpointing past surface and ground water source areas of concern, along with public health concerns and public opinion of the water quality in Lake Wright Patman, will assist development of the special study. Water that

originates from Lake Wright Patman supplies Avery, DeKalb, Hooks, Maud, New Boston, Redwater, Wake Village and other individual supplies.

Interviews in twelve cities will help establish past taste and odor complaints, types of water treatment conducted, ways in which previous taste and odor problems have been managed, and if any mixing of surface and ground water occurs. Interviews of water users are tentatively scheduled for March 2001 through July 2001.

Stations located at the two water intake structures on Lake Wright Patman will be sampled during the five-month survey period (March to July 2001) to document lake water quality conditions at that time. The Texarkana College staff, students and laboratory staff will conduct the proposed sampling events, following approved sampling methods.

Study maps will be used to facilitate discussion of the relationship of water users to Lake Wright Patman and to other water sources.

Current water use at survey locations, along with present user populations and population trends, will be analyzed to estimate present and future water

needs. Use of other water sources in the area, such as ground water, could also impact amounts of water usage in Lake Wright Patman.

Targeted Monitoring of Atrazine in Big Creek Lake

With seven other Texas reservoirs, Big Creek Lake is part of a special study of atrazine in drinking water sources. The statewide study directed by TNRCC (Texas Natural Resource Conservation Commission) will assess background concentrations and the degree of contamination found within the lake. To eliminate the effects of water treatment processes, only raw (untreated) water will be monitored.

Titled "Targeted Monitoring and BMP Implementation in Seven Atrazine Threatened Lakes," the two major components to the project are: (1) surface water quality monitoring to better distinguish the threat of atrazine to drinking water sources, and (2) implementation of best management practices (BMP's) to reduce the addition of atrazine in the subject watersheds. Although the evalua-

(Continued on page 10)

This Report was prepared by Paul Price Associates, Inc for The Sulphur River Basin Authority in cooperation with the Texas Natural Resource Conservation Commission Under The Authorization of the Texas Clean Rivers Act

Following the initial three-year period of sampling, the atrazine data will be evaluated to determine the existing level of impairment and possible trends. It will then be determined if additional monitoring is needed, or if TMDL (Total Maximum Daily Load) development or delisting is appropriate for the lake.

2000 Texas Clean Water Act Draft Section 303(d) List For Sulphur River Basin (From Draft August 2000)

The Clean Water Act Section 303(d) requires the TNRCC to list water bodies which do not meet the state's water quality standards. Causes for impairment and priority ranking of water bodies in this basin for the year 2000, and their differences, are summarized in

the following tables.

Impaired water bodies are ranked Low, Medium or High priority based on the analysis of their data. These rankings determine the eligibility of each water body for future Total Maximum Daily Load

(TMDL) projects.

The TMDL projects are quantitative assessments of water quality, responsible parties, and implementation plans which prescribe specific corrective actions.

2000 Texas Clean Water Act Draft Section 303(d) List
For Sulphur River Basin
(From Draft August 2000) Delisted Segment

Segment Number	Segment Name	Type of Delisting	Reason for Delisting
0303	Sulphur/South Sulphur River	Complete	This segment now meets all applicable water quality standards. Based on new data, dissolved oxygen concentrations meet the criterion established for aquatic life use. Based on new data, average dissolved cadmium and dissolved aluminum concentrations are lower than the criteria.

DRAFT Water Bodies or Parameters in Sulphur River Basin
(Draft August 2000)
Considered But Not listed in 2000 303(d)

Segment Number	Segment Name	Reason Water Body or Parameter Was Not Listed
0303	Sulphur/South Sulphur River	In March 2000, the USGS supplied corrections to metals data they previously submitted. The mean concentration of dissolved cadmium was recalculated based on the corrected data, and is below the criterion.
0304A	Swampoodle Creek	Further investigation revealed that some of the data used to support the listing of malathion and mercury in water were not collected using the proper quality assurance measures. Without those samples, data were insufficient to assess support of the aquatic life and human health criteria.

The TMDL projects are quantitative assessments of water quality problems and their contributing pollutant sources. These projects include an implementation plan which identifies responsible parties and prescribes specific corrective actions.

2000 Texas Clean Water Act Draft Section 303(d) List For Sulphur River Basin
(From Draft August 2000) Listed Segments

Segment Name and Number	Overall Priority	Point Source	Non-Point Source	Parameter of Concern	Segment Summary
Wright Patman Lake (Seg. 0302)	M	Y	Y	Depressed dissolved oxygen, pH	In the upper 6.693 acres of the reservoir, dissolved oxygen concentrations are sometimes lower than the criterion established to assure optimum conditions for aquatic life (M/NS) ^{1, 2} . In a 400-acre area near the dam, a 123-acre area in the northwestern-most tip of the reservoir, and in a 3,381-acre area in the upper middle portion of the reservoir, dissolved oxygen concentrations are occasionally lower than the criterion established to assure optimum conditions for aquatic life (M/PS) ^{1, 2} . In a 123-acre area in the northwestern-most tip of the reservoir pH values are sometimes higher than the criterion established to safeguard general water quality uses (L/CN) ^{1, 2} . In the 2,350-acre arm northwest of the dam, a 3,725-acre area in the middle, and a 3,381-acre area in the upper middle of the reservoir, pH values are occasionally higher than the criterion established to safeguard general water quality uses (L/CP) ^{1, 2} .
Big Creek Lake (unclassified water body north of Cooper in Delta County) (Seg. 0303A)	T-h		Y	Atrazine in finished drinking water	All water quality measurements currently support use as a public water supply; however, atrazine concentrations in finished drinking water indicate a contamination of source water and represent a threat to future use (T-h) ¹ .

1. Overall Priority—Impaired waters: H=high, M=medium, L=low, Threatened waters: T-h=threatened-high, T-m=threatened-medium

2. Segment Summary—The priority level for each pollutant is shown in parentheses, as in the overall priority column. Following the priority level will be designation “NS” for water bodies that are not supporting their uses as designated in the Texas Surface Water Quality Standards, or the designation “PS” for water bodies that are partially supporting their designated uses. For water bodies listed for non-attainment or partial attainment of numeric or narrative criteria designed to safeguard general water quality, the designation “CN” for criteria supported, or “CP” for criteria partially supported, will follow the priority ranking.

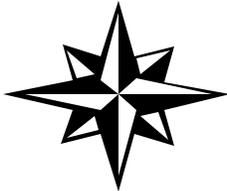
2000 Texas Clean Water Act Draft Section 303(d) List For Sulphur River Basin (From Draft August 2000)
Listed Segments

Segment Name and Number	Overall Priority	Point Source	Non-Point Source	Parameter of Concern	Segment Summary
White Oak Creek (unclassified water body north of Naples in Morris County to east of Sulphur Springs in Hopkins)	M	Y	Y	Depressed dissolved oxygen	In the lower 50 miles, dissolved oxygen concentrations are occasionally lower than the criterion established to assure optimum conditions for aquatic life (M/PS) ^{1, 2} .
Upper South Sulphur River (Seg. 0306)	M	Y	Y	Depressed dissolved oxygen, pathogens, pH	In the middle 25 miles, pH values are sometimes higher than the criterion established to safeguard general water quality uses (L/CN) ^{1, 2} . In the lower 6 miles, dissolved oxygen concentrations are occasionally lower than the criterion established to assure optimum conditions for aquatic life (M/PS) ^{1, 2} . In the same 6 miles, bacteria levels sometimes exceed the criterion established to assure the safety of contact recreation (L/NS) ^{1, 2} and pH values are occasionally higher and occasionally lower than the criteria established to safeguard general water quality uses (L/CP) ¹ .
Cooper Lake (Seg. 0307)	M	Y	Y	Depressed dissolved oxygen, pH	In the lower 8,000 acres of the reservoir, dissolved oxygen concentrations are occasionally lower than the criterion established to assure optimum conditions for aquatic life (M/PS) ^{1, 2} . In the 3,000-acre lower arm of the reservoir pH values are sometimes higher than the criterion established to safeguard general water quality uses (L/CN) ^{1, 2} . In the 10,000 acres of the middle and lower portions of the reservoir pH values are occasionally higher than the criterion established to safeguard general water quality uses (L/CP) ^{1, 2} .

1. Overall Priority—Impaired waters: H=high, M=medium, L=low

Threatened waters: T-h=threatened-high, T-m=threatened-medium

2. Segment Summary—The priority level for each pollutant is shown in parentheses, as in the overall priority column. Following the priority level will be designation “NS” for water bodies that are not supporting their uses as designated in the Texas Surface Water Quality Standards, or the designation “PS” for water bodies that are partially supporting their designated uses. For water bodies listed for non-attainment or partial attainment of numeric or narrative criteria designed to safeguard general water quality, the designation “CN” for criteria supported, or “CP” for criteria partially supported, will follow the priority ranking.



Public Forums

SRBA has made significant efforts to connect to the public and recruit volunteers to contribute to the knowledge base of water quality information in this basin. In January 2001, a Texas Watch seminar was held at Texarkana College. Representatives from Industry, Schools, Colleges, Environmental Groups, State Regulatory Agencies, Local Governments, County Governments, State Government, and area residents heard

presentations on current water quality concerns and proposed water related projects planned for the area. Senate I Bill and the Proposed Marvin Nichols I Reservoir, part of the Region D Plan for development of water resources in the Sulphur River Basin, was discussed.

On March 5, 2001, Michael Burke presented the SRBA and the Clean Rivers Program. He also fielded ques-

tions concerning Senate Bill I and the Construction of the Marvin Nichols I Reservoir and its economic effects.

The SRBA will continue in its efforts to connect basin stakeholders to the resources these water quality programs and database offer the permit holders in the basin.

Contact Michael Burke, Administrator, at 870-774-2144 to learn more.

Photographs from the Field

The people assigned to perform the study include the Sulphur River Basin Authority and Texarkana College staff, students and laboratory.



Photograph of Akin Creek (TS5(DS)) provided by Michael Buttram

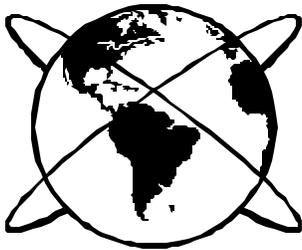
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[Http://www.sulphurr.org](http://www.sulphurr.org)

Special Studies -Atrazine in Big Creek Lake

(Continued from page 5)

tion of raw water concentrations of atrazine in Big Creek Lake is the focus of this study, alachlor, metolachlor, and simazine will also be monitored.

TNRCC Region 5 staff will monitor Big Creek Lake in the Sulphur River Basin. A statistical analysis of historical data on

atrazine concentrations in finished drinking water was used to determine that monthly sampling for a period of three years would produce a statistically sound data set. Following the first two years of sampling, the accumulated data will be reviewed by the TNRCC Surface Water Quality Monitoring Team to determine if sampling fre-

quency will be sufficient for subsequent years. In 1998 nine Texas reservoirs with atrazine concerns were documented on the 303(d) list as required by the federal Clean Water Act. Big Creek Lake is listed in the Draft 303 (d) (see listing on page 7 and basin map on page 3).

Photographs from the Field



Photograph of Elliott Creek (Mid TS5-6(DS)) by Michael Buttram