

North Sulphur River Watershed

The 491 square mile North Sulphur River Watershed extends from the extreme northwestern end of the basin to the confluence of the North and South Sulphur Rivers. The North Sulphur River (Segment 0305) flows year round throughout most of its length. A USGS streamflow gage station (USGS 07343000) is located on the North Sulphur River near the City of Cooper.

This watershed is located in the northern reaches of the Texas Blackland Prairies Ecoregion. The vegetation of the watershed is marked by a transition from the extensive agricultural clearing of the western portion of the basin to the more forested eastern portion.

Segment: 0305—North Sulphur River

Water Bodies: No large water bodies are found in this watershed.

Cities: Paris (pop. 25,898), Honey Grove (pop. 1,746), and Ladonia (pop. 667)

Counties: Fannin and Lamar Counties.

Land Use: Land use in the North Sulphur River Watershed is dominated by agribusiness. Agricultural land uses occupy over ninety percent of the watershed, making the North Sulphur River Watershed the most intensively developed watershed in the Sulphur River Basin.

Soils: Soils of the North Sulphur River floodplain are primarily clayey Trinity and Kaufman soils. Upland soils of the watershed are typically clayey Houston Black, Leson, and Heiden soils.

Permitted Discharges: Permitted dischargers in the North Sulphur River Watershed include five industrial and two municipal permits, and one confined animal feeding operation permit.

Water Quality Issues:

Segment 0305—North Sulphur River

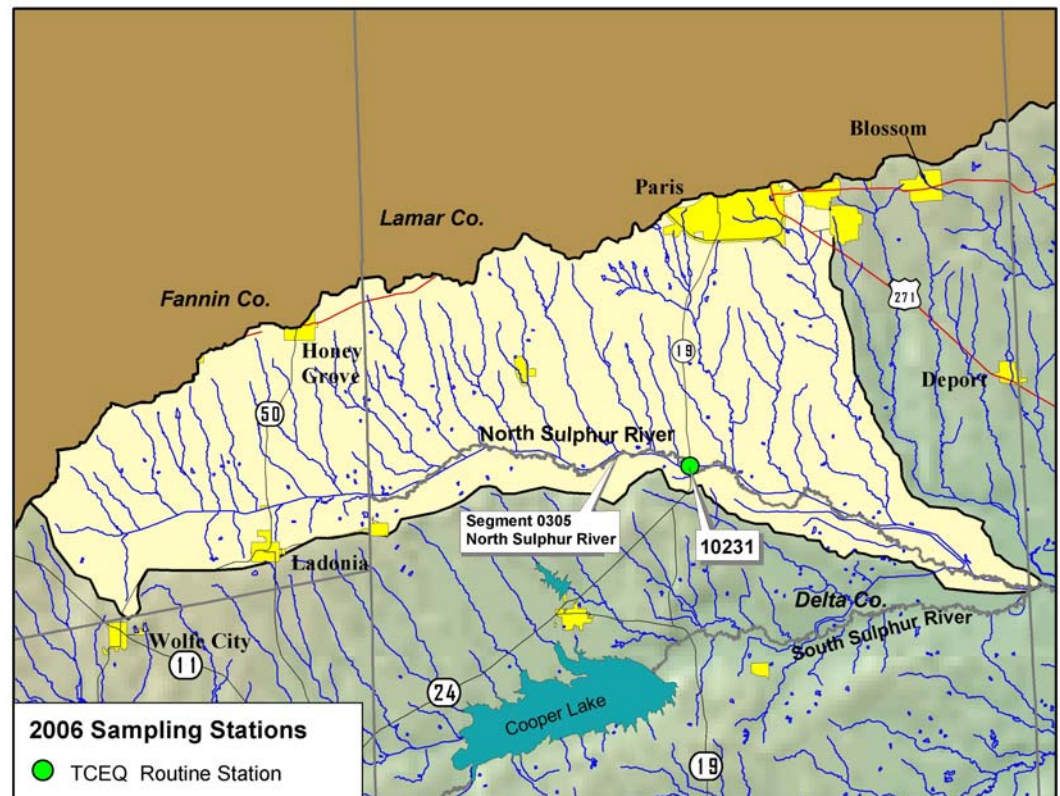
Field parameters indicate that water in the North Sulphur River tends to be turbid, slightly alkaline, well oxygenated, and of moderate to high conductivity. Major tributaries draining the North Sulphur River Watershed include Auds Creek, Maxwell Creek, Cane Creek, Rowdy Creek, Ghost Creek, and Baker Creek. Nutrient concentrations in this watershed are moderate to high in terms of the amount needed for plant growth under favorable conditions.

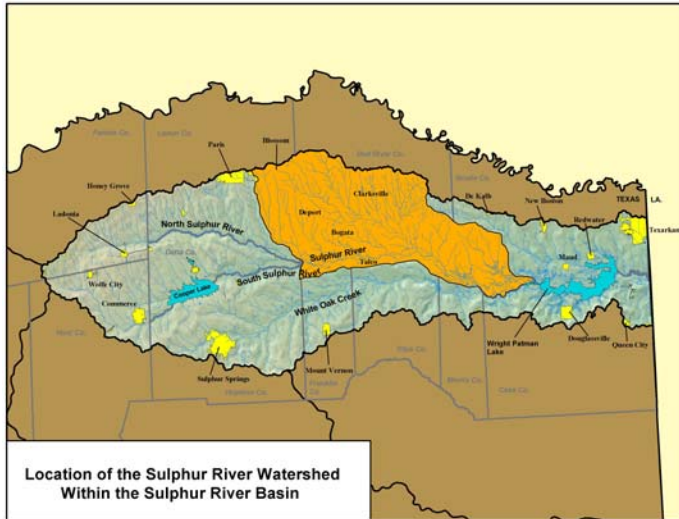
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North Sulphur River Watershed continued

None of the waters in the North Sulphur River watershed have been placed on the *Texas §303(d) List*, and the *Draft 2004 Texas Water Quality Inventory* indicates no concerns present in the current data from this watershed. The aquatic life use, contact recreation use, and general uses within this segment are fully supported.

Monitoring within the North Sulphur River Watershed for fiscal year 2006 included one routine station sampled for E. coli bacteria, conventional parameters, flow, and field.





Sulphur River Watershed

The 956 square mile Sulphur River Watershed is the largest in the Basin, and occupies the northern half of the central region. This watershed is drained by the lower reach of Segment 0303, the Sulphur River from the confluence of the North and South Sulphur Rivers to the headwaters of Wright Patman Lake. The Sulphur River is perennial throughout this reach and is the major source of water for Wright Patman Lake. Major streams of the Sulphur River Watershed include Bassett, Cuthand, Boothe, Cedar, Dillard, Elm, Shawnee, Mustang and Little Mustang Creek. A United States Geological Survey streamflow gage station (USGS 07343200) is located on the Sulphur River near the City of Talco.

The Sulphur River Watershed is environmentally diverse, as evidenced by its location at the junction of four ecoregions. The eastern portion of the watershed lies in the South Central Plains, the western portion in the Texas Blackland Prairies, the central portion in the Central Oklahoma-Texas Plains, and the vicinity surrounding the Sulphur River in the southern portion in the East Central Texas Plains. Although land use in the Sulphur River Watershed is dominated by agricultural activities, forested land

occupies a significant proportion of the area. Population changes in the regions urban areas is lower than that of the other watersheds in the Basin.

Segment: 0303-Sulphur/South Sulphur River

Water Bodies: Although there are several small impoundments near the City of Clarksville, the largest body of water in the Sulphur River Watershed is River Crest Lake adjacent to the Sulphur River south of the City of Bogata.

Cities: Clarksville (pop. 3,883), Blossom (pop. 1,439), Bogata (pop. 1,396), Detroit (Pop. 714), Deport (pop. 718), and Talco (pop. 570).

Counties: Portions of Lamar, Red River, and Bowie Counties.

Land Use: Vegetation of the watershed can be described as Post Oak Woods with a mosaic of crops in the west, native/introduced grasslands in the east, and a Water Oak - Elm - Hackberry Forest on the Sulphur River floodplain and surrounding vicinity.

Soils: Soils of the bottomlands of the Sulphur River floodplain are primarily of the somewhat poorly drained, clayey Kaufman - Gladewater association. Upland soils of the watershed are typically, loamy Woodtell-Wrightsville-Annona association.

Permitted Discharges: Permitted dischargers in the Sulphur River Watershed include nine municipal dischargers and two industrial permitted dischargers.

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Sulphur River Watershed continued

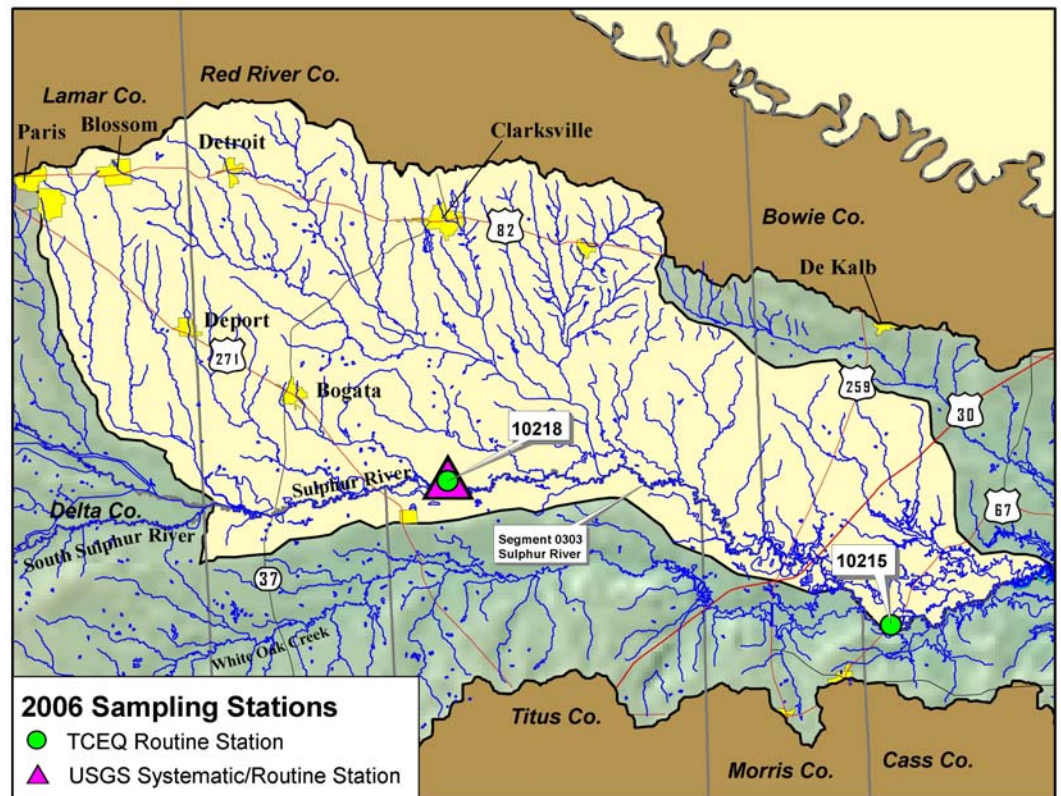
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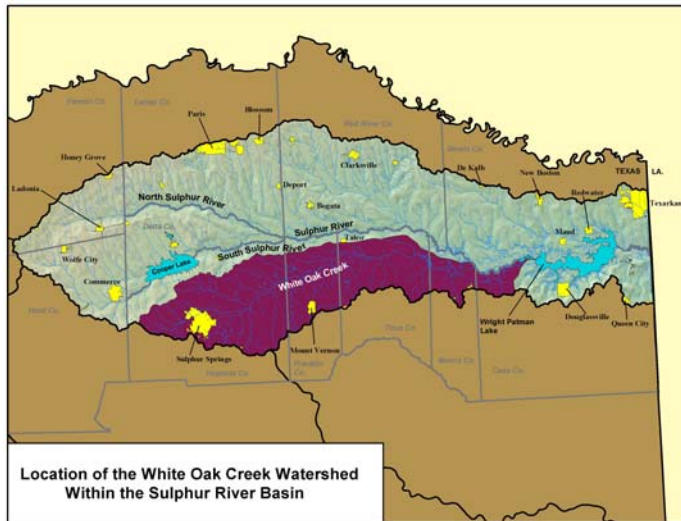
Segment 0303—Sulphur/South Sulphur River

The Sulphur River exhibits moderate conductivity and dissolved solids levels. Average concentrations of chloride and sulfate increase from upstream to downstream stations, and pH values tend to be alkaline.

The lower 25 miles of Sulphur River Segment 0303 was included in the *Draft 2002 Water Quality Inventory* due to an aquatic life use concern based on depressed dissolved oxygen concentrations. The aquatic life, contact recreation, fish consumption and general use are all fully supported in this segment.

Sampling in this watershed during fiscal year 2006 included two routine stations and one systematic station.





White Oak Creek Watershed

The White Oak Creek Watershed, an unclassified tributary of Segment 0303, is the second largest watershed in the Basin and occupies much of the south central region. Smaller streams of the watershed are drained by White Oak Creek, which is perennial from its origin near Lake Sulphur Springs to its confluence with the Sulphur River (Segment 0303). Major tributaries of White Oak Creek include North and East Caney Creek, Wolfpen Creek, Mitchell Creek, Stouts Creek, Big Creek, Ripley Creek, Piney Creek, Stinking Creek, Snake Creek, Lacy Creek and House Creek. A USGS streamflow gage station (USGS 07343500) is located on White Oak Creek near the City of Talco.

The White Oak Creek Watershed spans three ecoregions. The eastern third lies in the south central plains; the central third is in the northernmost reach of the East Central Texas Plains; and the western third lies in the Texas Blackland Prairies. Texas Parks and Wildlife classifies the vegetation of the watershed as primarily a mosaic of Post Oak Woods and native/introduced grasses. The central portion, northwest of Mount Pleasant, is considered a Pine-Hardwood forest vegetational region. The bottomlands of the White Oak Creek floodplain lie in a Water Oak - Elm - Hackberry Forest vegetation region.

Land use in the White Oak Creek Watershed is more heavily utilized by confined animal feeding operations (CAFOs), such as cattle feedlots and dairy farms, than the other watersheds. Urban concentrations in the watershed are primarily located in the cities of Sulphur Springs and Mount Vernon.

Segment: 0303B (White Oak Creek—unclassified water body)

Water Bodies: Lake Sulphur Springs and Century Lake which are impoundments of White Oak Creek, northwest of Sulphur Springs.

Cities: Sulphur Springs (pop. 14,551), Mount Vernon (pop. 2,286), and Naples (pop. 1,410).

Counties: Portions of Hopkins, Franklin, Titus, Morris, and Cass Counties.

Land Use: Agricultural land uses occupy over one half of the area, while forest occupies almost another third.

Soils: Soils of the floodplain and bottomlands of White Oak Creek and its tributaries are primarily poorly drained, loamy, Nahatche and Estes soils. Upland soils in the eastern half of the watershed are typically moderately well drained and slowly permeable loamy Woodtell-Freestone soil associations. Upland soils of the upper western portion of the watershed are moderately well drained and very slowly permeable, loamy Crockett soils.

Permitted Discharges: The White Oak Creek Watershed contains thirty permits for CAFO's, four industrial discharge permits, and two municipal discharge permits.

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White Oak Creek Watershed continued

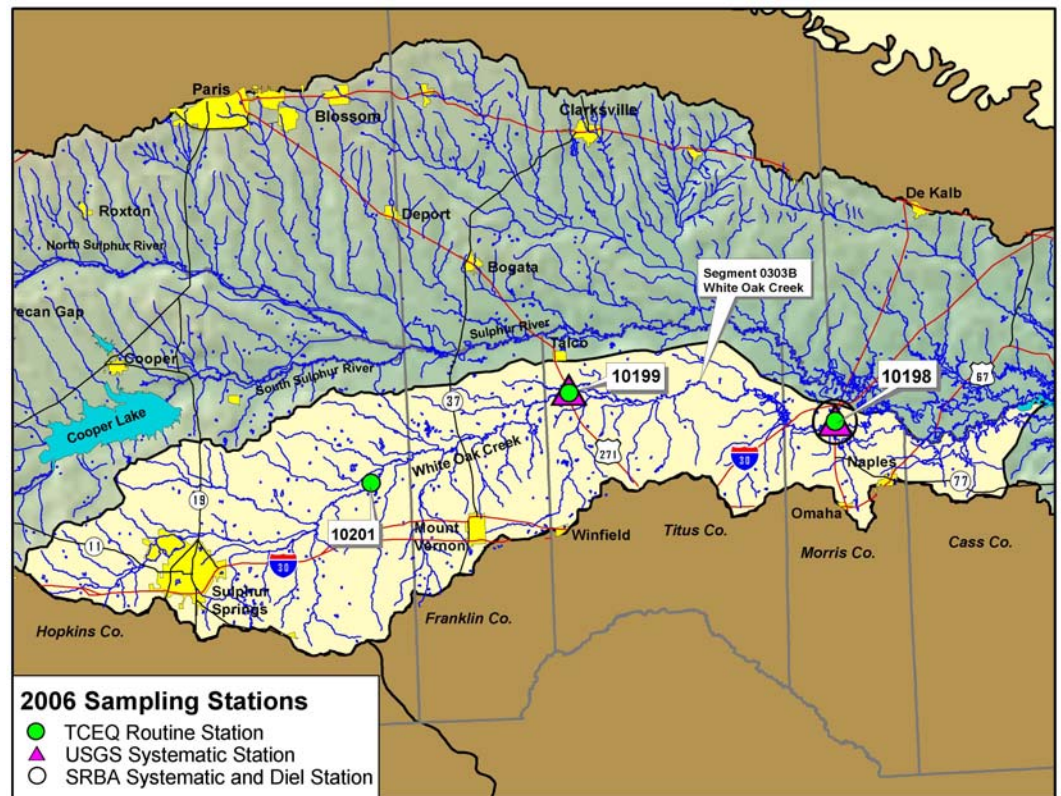
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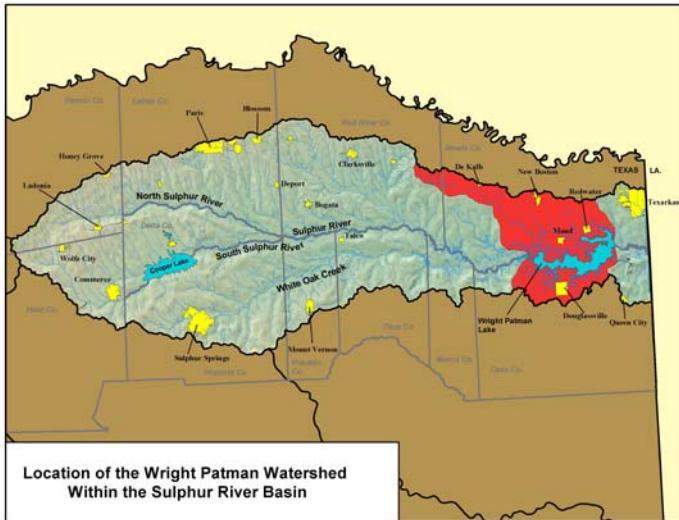
Segment 0303B—White Oak Creek

White Oak Creek stations generally exhibit moderate to high conductivities and dissolved solids concentrations, including chloride and sulfate levels, making them somewhat higher than in the adjacent Sulphur River Watershed. The average pH in White Oak Creek is near neutral (7.0), but values may range from a minimum of 6.0 to a maximum of 7.5.

White Oak Creek (Segment 303B), is included on the 2004 Texas §303(d) List as a result of depressed dissolved oxygen concentrations along its entire length. In addition, the 2004 Water Quality Inventory lists this creek as partially supporting for aquatic life use due to depressed dissolved oxygen. There is also a use concern (not fully assessed due to limited data) as a result of elevated dissolved aluminum concentrations in the lower 25 miles of the segment, and an aquatic life use concern for depressed dissolved oxygen in the lower and middle 25 miles of the segment.

Sampling in this segment during fiscal year 2006 included three systematic stations, two routine stations, and one diel station.





Wright Patman Lake Watershed

The 598 square mile Wright Patman Lake Watershed occupies much of the eastern third of the Basin, including Wright Patman Lake (Segment 0302) and its direct tributaries. Major tributaries of the Wright Patman Lake Watershed include a small part of Segment 0303 of the Sulphur River, Anderson Creek, Big Creek, and Elliot Creek. A USGS streamflow gage station, (USGS 07344000), is located below Wright Patman Lake near Darden. The Wright Patman Lake Watershed is located in the South Central Plains Ecoregion.

Segments: 0302—Wright Patman Lake, and a small portion of 0303—Sulphur/South Sulphur River.

Water Bodies: Wright Patman Lake

Cities: New Boston (pop. 4,808), De Kalb (pop. 1,769), Maud (pop. 1,028), Redwater (Pop. 872), and Douglassville (pop. 175).

Counties: Bowie and Cass Counties.

Land Use: Land use in the Wright Patman Lake Watershed is dominated by forest, with agricultural land uses occupying only a third of the area. Vegetation of the watershed includes a pine-hardwood region in the east and a native/introduced grasses region in the west. The Anderson Creek and Sulphur River bottomlands upstream and downstream of Wright Patman Lake contain portions of willow and water oak forest.

Soils: Soils of the bottomlands of the major tributaries and Sulphur River floodplains are primarily Gladewater-Kaufman clayey soils. Upland soils are typically loamy Sawyer-Eylan-Woodtell soils.

Permitted Discharges: There are six industrial, four municipal, and four confined animal feeding operations permits in this watershed. There is a federal superfund site, Lone Star Army Ammunition Plant, located near Elliott Creek in the northeast portion of the watershed.

Water Quality Issues:

Segment 0302—Wright Patman Lake

Wright Patman Lake was initially constructed for flood control. Additional benefits include its use as a water supply by Texarkana and surrounding communities, and lake recreation which has increasingly become a major component. Although development has occurred along the lake shore in many areas, some portions of the upper reaches of Wright Patman Lake are considered swamp-like. Urban concentrations in the watershed are primarily located in the cities of New Boston and DeKalb.

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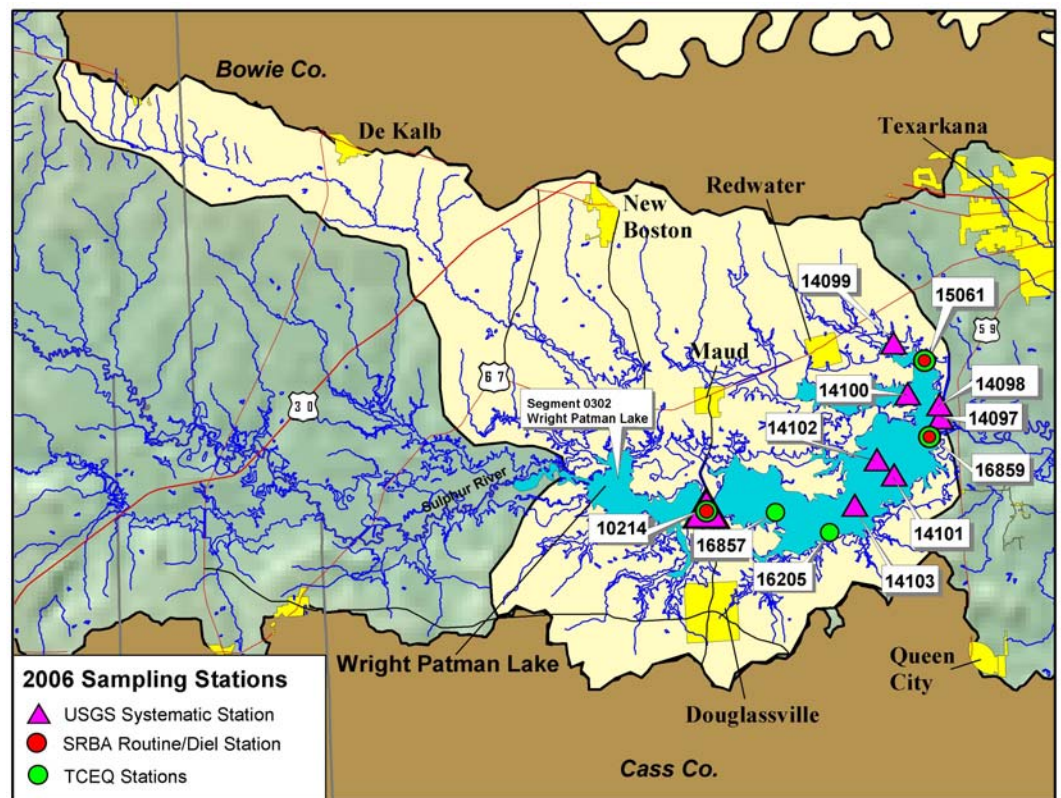
Wright Patman Lake Watershed continued

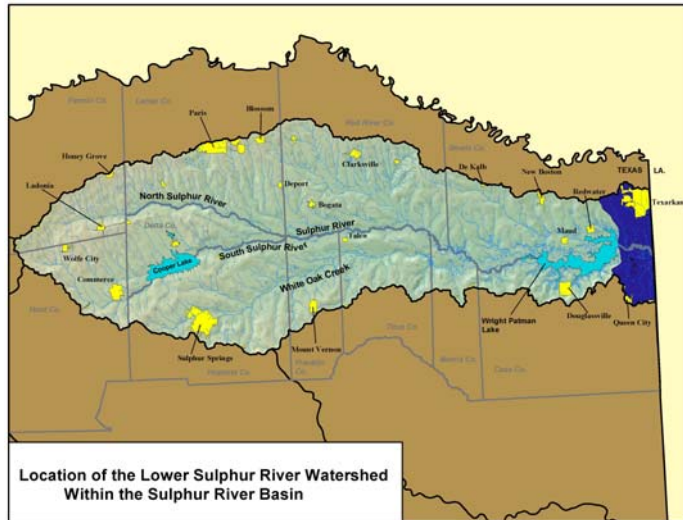
Wright Patman Lake is included in the 2004 *Water Quality Inventory* due to partial support of the aquatic life use near the International Paper intake, and non-support in the Sulphur River arm as a result of low dissolved oxygen concentrations. High pH levels result in partial support of general uses near the Wright Patman Dam and non-support in the northeast corner of the reservoir. Wright Patman Lake is also included on the *Draft 2004 §303(d) List* as a result of these same problems. In addition, concerns with high total phosphorus concentrations in the Sulphur River arm and excessive algal growth in the northeast corner of the reservoir are expressed in the 2004 *Water Quality Inventory*.

Segment 0303—Sulphur/South Sulphur River

A small portion of the South Sulphur River is impounded by Wright Patman Lake. There are no concerns listed in either the 2004 *§303(d) or Water Quality Inventory Lists* for this portion of the river.

Sampling in the Wright Patman Lake Watershed in fiscal year 2006 included three routine stations and eight systematic stations.





Lower Sulphur River Watershed

The portion of the Sulphur River from Wright Patman Lake to the Arkansas border (Segment 0301), and its tributaries constitute the Lower Sulphur River Watershed. Days Creek (Segment 0304), the watershed's largest tributary, merges with the Lower Sulphur River in Arkansas. The proportion of urban land is substantially higher in the Lower Sulphur River drainage area than in the other portions of the Sulphur River Basin. The Lower Sulphur River drainage is located in the South Central Plains Ecoregion, which Texas Parks and Wildlife classifies as primarily a Pine-Hardwood Forest vegetational region. A large urban zone is centered on the City of Texarkana and surrounding communities. There are no USGS gage stations in this watershed.

Segments: 0301-Sulphur River below Wright Patman Lake, 0304-Days Creek, 0304B-Cowhorn Creek (unclassified water body).

Water Bodies: Although there are numerous small impoundments on Days Creek and its tributaries, there are no large reservoirs in the Lower Sulphur River Watershed.

Cities: Texarkana (pop. 34,782), Queen City (pop. 1,613).

Counties: Portions of Bowie and Cass Counties.

Land Use: Land use is dominated by rural land uses except in the vicinity of Texarkana.

Soils: Soils of the watershed are typically of the moderately well drained, moderately slowly to very slowly permeable, loamy Sawyer-Eylan-Woodtell soil association.

Permitted Discharges: The Lower Sulphur River Watershed contains seven permitted industrial dischargers, three municipal dischargers, and one confined animal feeding operation. In addition, there are two Federal superfund sites located in this watershed near the City of Texarkana, Texarkana Wood Preservers and Koppers. These superfund sites are both wood treatment facilities.

Water Quality Issues:

Segment 0301—Sulphur River below Wright Patman Lake

The reach of the Sulphur River from Wright Patman Lake to the Arkansas border (Segment 0301) and its tributaries constitute this drainage area.

The *DRAFT 2004 Texas Water Quality Inventory* lists segment 0301 having a concern for excessive algal growth in the lower nine miles. The aquatic life and general use in this segment are fully supported.

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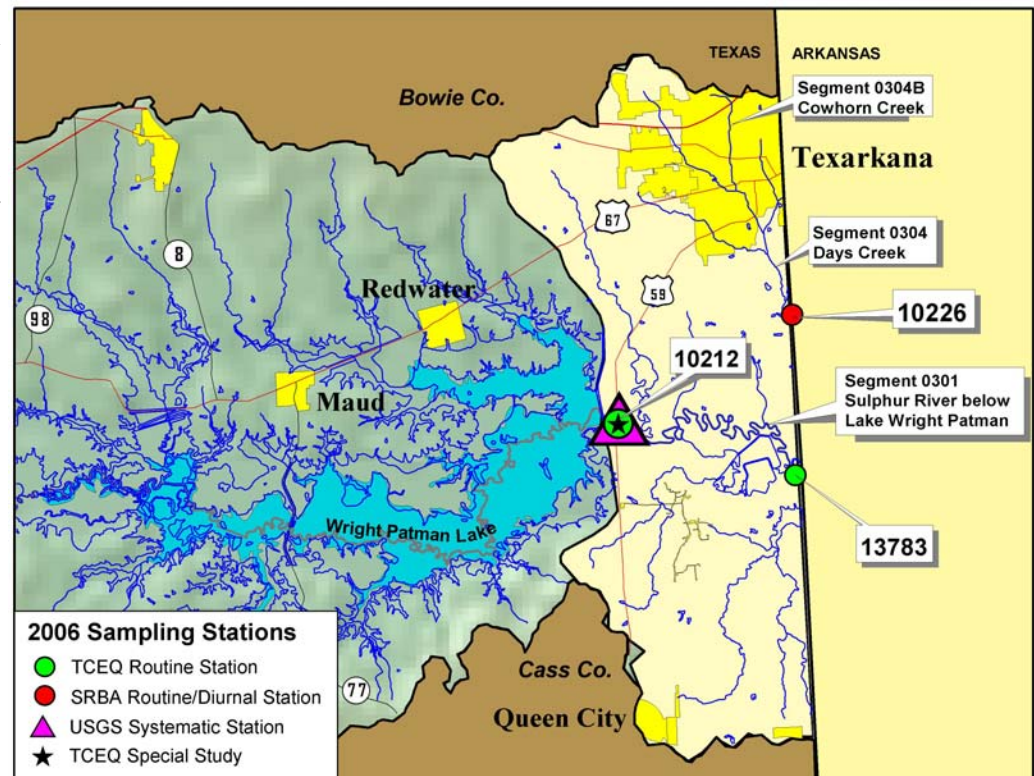
Wright Patman Lake Watershed continued

Segment 0304—Days Creek

Days Creek (Segment 0304) is the largest tributary of the Lower Sulphur River, intersecting with the main portion of the river in Lafayette County, Arkansas. The Days Creek drainage occupies the far northeastern corner of the Basin in the area surrounding the City of Texarkana. Days Creek is channelized with a streambed substrate primarily composed of sand and silt. Disturbance of the stream bottom often results in the release of an oily sheen, which has initiated concern regarding sediment contamination in this area. The urbanized area of Texarkana occupies approximately half the Lower Sulphur River watershed, which also drains the communities of Wake Village and Nash.

Classified stations found in Segment 0304 of the Lower Sulphur River Watershed are listed on the *2004 Texas Water Quality Inventory* as having a concern for contact recreation use due to the low number of samples for bacteria available for assessment. Unclassified tributary stations on Cowhorn Creek, Waggoner Creek, and Swampoodle Creek have no listed concerns in the *2004 Water Quality Inventory*.

Sampling in fiscal year 2006 within the Lower Sulphur River Watershed included three routine stations and one systematic station. In addition, the TCEQ is conducting water color analysis sampling above and below the International Paper location. This sampling focuses on the aesthetic appearance of the stream water color which can be affected by the discharge from International Paper. A summary of the special study for sediment contaminants conducted on Days Creek was completed in 2006 and is available on the SRBA website.



Public Outreach and Webpage

The main focus of the Cypress Creek Basin public outreach effort is the encouragement of public involvement concerning the Clean Rivers Program (CRP) and other Basin activities. This involvement is important to the development of support for the program as a means of gathering recommendations and concerns from the public. The public can get involved through either the steering committee meetings or volunteer activities.

Website:

The primary purpose of our website www.sulphurr.org is to provide a focus for the Sulphur River Basin and its water quality issues. It provides the citizens of our Basin and other interested parties with a useful tool which focuses our specific area. The Texas Commission on Environmental Quality (TCEQ), which manages the statewide Clean Rivers Program, has as its partner in the Sulphur River Basin the Sulphur River Basin Authority (SRBA). Within the guidelines of this program, the SRBA has accepted a portion of the responsibility for monitoring the water quality and ecosystem health in the rivers and lakes of the Basin. As the primary source of information used by those responsible for managing water quality this monitoring is critical to understanding our waterways.

The SRBA main webpage contains links to information concerning the CRP and specifics concerning activities within the Basin. Some of the links available include:

- Basin Monitoring Schedule
- Monitoring Stations Maps
- Reports
- Steering Committee Members, Schedules, and Meeting Minutes
- Program Partners
- Contact Information
- Quality Assurance Project Plan (QAPP)
- Work Plan and Special Study Information

Our goal is to provide a readily available source of information about local environmental issues to the public, which we hope will encourage citizens of our Basin to get involved. Questions or comments concerning any information found on the website are always welcome.

Public Outreach:

Volunteer monitoring activities, events, newsletters, special studies activities, and meeting dates with agendas are posted regularly on the public outreach webpage. Increased public involvement can result in more public awareness and a larger sense of community responsibility. More volunteerism in our basin is another important goal. Organizations such as Texas Watch and TCEQ host statewide and regional meetings, partner certification training, special events and projects that are designed to aid in increasing public awareness and involvement. Contact information for these events is found on the www.sulphurr.org site map.

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Sulphur River Basin Authority

