



Improving Water Quality in Sam Rayburn Reservoir Evaluating the Aquatic Life Use

In 2000, data indicated that conditions were not optimal for aquatic life in six areas of the reservoir (brown dots on map) because of low dissolved oxygen concentrations. One area of the reservoir (purple dot) had aluminum concentrations that were sometimes too high to provide healthy conditions for aquatic life. And in one area of the reservoir (green dot), the pH was occasionally too high or too low.

In response to these conditions, the Texas Commission on Environmental Quality (TCEQ) initiated a project to determine the extent of the impairment in the affected segments (Sam Rayburn Reservoir, Segment 0610, and Angelina River/Sam Rayburn Reservoir, Segment 0615).

Oxygen, which dissolves in water, is essential for the survival of aquatic life. While the amount of dissolved oxygen in water fluctuates naturally, various human activities can cause unusually or chronically low dissolved oxygen levels.

Learn more about water quality standards, monitoring, and TMDLs by reading [Preserving and Improving Water Quality](#),¹ available on our website and in print.

The Sam Rayburn Reservoir Watershed

At the time of this project, Sam Rayburn Reservoir consisted of two classified segments: Sam Rayburn Reservoir (0610) and Angelina River/Sam Rayburn Reservoir (0615).

Segment 0610 stretched from Sam Rayburn Dam in Jasper County to a point 3.5 miles upstream of Marion's Ferry on the Angelina River Arm in Angelina and Nacogdoches counties and to a point 2.4 miles downstream of Curry Creek on the Attoyac Bayou Arm in Nacogdoches and San Augustine counties, up to the normal pool elevation of 164 feet (except on the Angelina River Arm). Sam Rayburn Reservoir impounds water from the Angelina River and Attoyac Bayou.

Segment 0615 was formerly part of Segment 610; it is the riverine portion of Sam Rayburn Reservoir from a point 3.5 miles upstream of Marion's Ferry to the aqueduct crossing 0.6 miles upstream of the confluence of Paper Mill Creek.



Sam Rayburn Reservoir was created in 1965 to control floods, generate hydroelectric power, and conserve water for municipal, industrial, agricultural, and recreational uses. The lake is located in the eastern part of the state and was created by impounding the Angelina River. It holds 114,500 acres of water and has 560 miles of shoreline. Its maximum depth is 90 feet and its average depth is 12 feet. The reservoir's watershed drains approximately 1,385 square miles.

The watershed includes portions of the following political jurisdictions:

Counties: Angelina, Cherokee, Jasper, Newton, Nacogdoches, Sabine, San Augustine, Smith, Rusk

Cities: Appleby, Broadus, Bronson, Browndell, Chireno, Garrison, Huntington, Jacksonville, Lufkin, Nacogdoches, Pineland, San Augustine, Tyler, Zavalla

Project Development

TCEQ contracted with TetraTech to develop technical aspects of the project, which was initiated in July 2002

¹ <https://www.tceq.texas.gov/publications/gi/gi-351>

and completed in May 2003. It began with an evaluation of all existing sampling data, including those used to develop the draft 2002 list of impaired waters. Based on this study, TCEQ determined that no total maximum daily loads (TMDLs) were required for dissolved oxygen, pH, or aluminum.

Public Participation

TCEQ staff worked with the Angelina-Neches River Authority and the Lower Neches Valley Authority of the Clean Rivers Program to inform the public about this project.

For More Information

E-mail us at tmdl@tceq.texas.gov or call us at 512-239-6682. Or visit the project webpage at:

www.tceq.texas.gov/waterquality/tmdl/36-samray-burn.html.

Project Dates

Start Date: Spring 2002

End Date: May 2003

Project Highlights

- Project staff completed the survey of existing data to produce the report “Historical Data Review,” which is posted on the project webpage.
- A public meeting was conducted on May 15, 2003. Summaries of the information presented at the meeting are available on the project webpage.
- After extensive evaluation, the TMDL Program determined that no TMDLs were needed for aluminum, dissolved oxygen, and pH in the reservoir.

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