



Improving Water Quality in Martin Creek Reservoir

Assessing the Fish Consumption Use

In 1992, the Texas Department of State Health Services (DSHS) issued an advisory restricting the consumption of fish from the reservoir due to elevated concentrations of selenium in fish. DSHS advisory included all species of fish found in the reservoir. Selenium first became a concern in the late 1970s when elevated levels of selenium in fish tissue were thought to be the cause of a series of fish kills.

In response, the Total Maximum Daily Load (TMDL) Program completed a project to determine whether the consumption of fish from the reservoir still posed a threat to human health. TCEQ worked with DSHS to collect fish samples, conduct laboratory analyses, and prepare a characterization of the risks to consumers from all contaminants found in fish tissue samples.

Selenium is a naturally occurring element that is widely but unevenly distributed in the earth's crust. It is also an essential dietary element that prevents damage to tissues by oxygen. However, when consumed in amounts higher than the recommended daily allowance (RDA), selenium is toxic to humans and animals.

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

Fish Are Now Safe to Eat

After assessing all the data collected and characterizing the risks associated with all the contaminants found in fish tissue, DSHS concluded that consumption of fish from Martin Creek Reservoir does not pose a threat to human health. The fish consumption advisory was rescinded on October 14, 2004.

The impairment "selenium in fish tissue" was proposed for delisting on the 2004 303(d) List. The schedule of special monitoring and analysis of Martin Creek Reservoir fish is concluded.

Martin Creek Reservoir Watershed

Martin Creek Reservoir is an impoundment of Martin Creek, located five miles southwest of Tatum (population 1,310). It was constructed in 1974 to serve as a cooling reservoir for a steam-electric power plant. The western shore of the reservoir forms a portion of the county line between Rusk and Panola Counties.



This primarily rural watershed is in the Sabine River basin, and drains an area of 130 square acres in northeast Rusk and northwest Panola Counties. Vegetation consists of mixed pine and hardwood forests. Lumber, farm, and dairy enterprises are the main sources of income for residents. Recreation is also important to the local economy, with boating and fishing attracting large numbers of people to the watershed each year.

Public Participation

TCEQ communicated the progress of this project through the Sabine River Basin Steering Committee created by the Texas Clean Rivers Program. The project was a collaborative effort involving TCEQ, DSHS, the Texas Parks and Wildlife Department (TPWD), and the Sabine River Authority (SRA).

For More Information

Send us an email at tmdl@tceq.texas.gov or call us at 512-239-6682.

Or visit the project webpage at:

www.tceq.texas.gov/waterquality/tmdl/12-martin-creekreservoir.html.

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

Project Dates

Start Date: May 2001

End Date: October 2003

Project Highlights

- TCEQ staff compiled data related to selenium concentrations in fish tissue and historical discharge records.
- At a meeting held September 2001 with representatives from DSHS, TPWD, and TCEQ, staff decided that the human health risks associated with consumption of fish from Martin Creek Reservoir should be reassessed.
- TCEQ and the DSHS worked together to conduct the risk assessment. Work included fish sampling and the subsequent analysis of fish specimens for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), pesticides, and a suite of metals that included arsenic (As), cadmium (Cd), copper (Cu), lead (Pb), selenium (Se), zinc (Zn), and mercury (Hg). Project staff prepared conclusions and recommendations based on the analysis.
- Thirty fish samples were collected from Martin Creek Reservoir in November 2002, on which laboratory analyses were performed.
- DSHS completed its risk characterization and concluded that consumption of fish from Martin Creek Reservoir does not pose a threat to human health. The fish consumption advisory was rescinded on October 14, 2004. The impairment for selenium in fish tissue for the reservoir was removed from the state's list of impaired waters in 2004.

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