

Lake Mary Regional Total Maximum Daily Load

WHAT IS A TMDL?

Total Maximum Daily Load (TMDL) is a term used to describe the amount of a pollutant that a stream or lake can receive and still meet water quality standards. A TMDL study identifies sources of pollution and potential reductions needed to attain standards. **Point sources** (such as municipal or industrial discharges) and **nonpoint sources** (such as runoff from urban or agricultural lands, and natural background) are considered in calculating the TMDL. The study must also account for seasonal variation and include a margin of safety.

WHY DO WE PREPARE A TMDL?

The objective of the federal Clean Water Act is to restore and maintain the chemical, physical, and biological integrity of the nation's waters. To fulfill this objective, states assess their surface waters and identify which waters do not meet state surface water quality standards. A TMDL must be completed for each pollutant "impairing" (or not meeting surface water quality standards) these water bodies.

TMDL STUDY AND IMPLEMENTATION

The TMDL study will examine the source and the extent of the water quality impairment, providing the appropriate information necessary for planning implementation actions designed to achieve surface water quality standards. Whereas the TMDL study establishes a pollution budget for an impaired surface water, the accompanying TMDL implementation plan provides an action plan outlining the affordable, efficient, and effective alternatives to restore water quality.

During both the TMDL study and implementation planning processes, the Arizona Department of Environmental Quality (ADEQ) involves stakeholders by coordinating public meetings and encouraging comments and input. Additionally, ADEQ will help stakeholders identify funding sources (such as Water Quality Improvement Grants) that can help pay for water quality improvements.

LAKE MARY REGIONAL TMDL BACKGROUND

Mercury is a naturally occurring metallic element. Mercury has many everyday uses and applications ranging

from the manufacture of industrial chemicals and electronic applications to historic dental uses. Although a useful substance, mercury is highly toxic and lasts a long time in the environment.

The primary way that humans are exposed to mercury is by the consumption of fish that have elevated concentrations of mercury in their tissue. The accumulation of mercury in fish is a well-recognized and documented environmental problem throughout the United States.

Water quality standards have been established in Arizona and around the country to protect both human health and aquatic and wildlife communities. Most mercury exceedances are found not in water samples but in fish tissue samples, posing a threat to people who consume these fish. This means that these waters may be safe to swim in, but consumption of fish must be restricted or limited to specific guidelines. ADEQ has identified five lakes in the Lake Mary region, including Upper and Lower Lake Mary, Soldier's, Soldier's Annex, and Long Lake where mercury levels within certain species of fish are high enough to threaten human health. ADEQ and the Arizona Game and Fish Department (AZGFD) issued fish advisories for Upper and Lower Lake Mary in May 2002, with additional fish advisories for Soldier's, Soldier's Annex, and Long Lake in July 2003. Please refer to the fish consumption advisories via AZGFD's Web site for more information:

www.azgfd.gov/artman/publish/cat_index_23.shtml#61

Waters that are not supporting any one of their designated uses, including the fish consumption use, are placed on Arizona's 303(d) list of impaired waters. Assessment of fish tissue data prompted Upper and Lower Lake Mary to be placed on the 2002 303(d) list of impaired waters due to mercury exceedances in fish tissue. Subsequently, Soldier's, Soldier's Annex, and Long Lake were placed on the 303(d) list in 2004.

ADEQ is required to analyze the mercury impairments associated with these lakes in a TMDL study to determine the total daily maximum amount (load) the lakes can carry without exceeding their water quality standards. The *Lake Mary Regional TMDL* began in 2004 and the investigation is ongoing to date.

FOR MORE INFORMATION

ADEQ encourages interest and involvement in the *Lake Mary Regional TMDL*. For more information on TMDL studies, please refer to the ADEQ Web site: www.azdeq.gov/environment/water/assessment/tmdl.html

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