OhioEPA
State of Ohio Environmental Protection Agency

Fact Sheet

October 2009

Salt Creek Watershed TMDL Report

What are the essential facts?

- *Ohio EPA studied the Salt Creek watershed and found water quality problems at several locations.*
- *The watershed can make progress towards restoration with practical, economical actions.*
- *Improving the streams and lake depends on the participation of the watershed's residents.*

What is the significance of this report? *The Salt Creek Watershed TMDL Report is a tool to help improve and maintain water quality and habitat in the watershed.*

What is a watershed? *A watershed is the land area from which surface runoff drains into a specific body of water.*

Where is the Salt Creek watershed?

The Salt Creek watershed is located in southeast Ohio in portions of Fairfield, Pickaway, Hocking, Ross, Vinton, Pike and Jackson counties. It is a sub-watershed of the Scioto River, which has its headwaters in central Ohio. The watershed drains 555 square miles.

An estimated 31,000 citizens reside in the Salt Creek watershed, with nearly 6,200 people living in Jackson. Jisco and Hammertown Lakes provide drinking water for Jackson. Rose Lake provides drinking water for Hocking Hills State Park.

Overall, the land use in the Salt Creek watershed is 73 percent forest, 20 percent row crop and pasture land, and 6 percent urban/residential.

Hocking Hills State Park stretches throughout the north-eastern portion of the water-shed. Natural geologic formations within the area, including Old Man's Cave, Ash Cave, Cedar Falls, Conkle's Hollow, Cantwell Cliffs and Rock House, are unique in Ohio. These areas provide numerous recreational opportunities with scenic vistas, natural caves and gorges easily accessed by the public.

To focus its work, Ohio EPA divided the watershed into four areas: the headwaters of Salt Creek; lower Salt Creek; Middle Fork Salt Creek; and Salt Lick Creek (see map on page 2).

Salt Creek east of State Route 327

Salt Creek Watershed TMDL Report

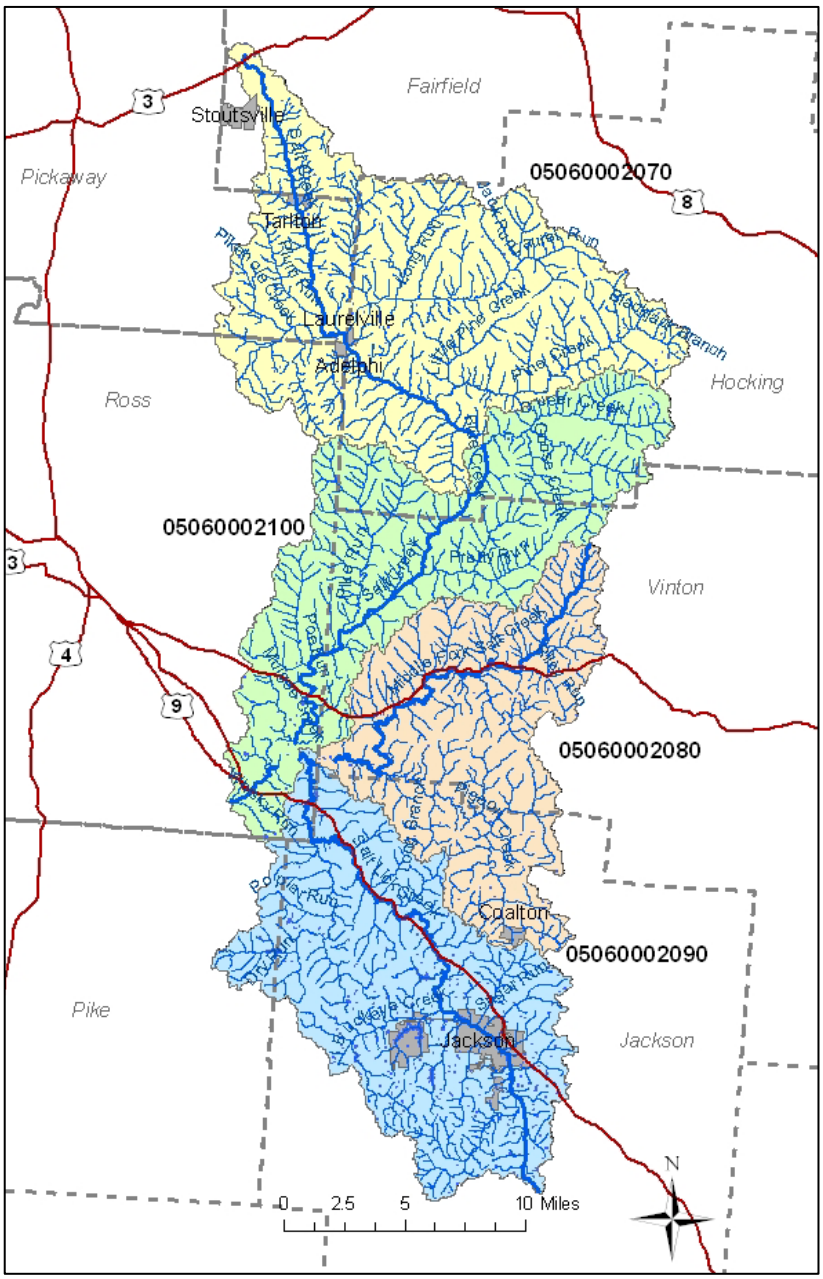
How does Ohio EPA measure water quality?

Ohio is one of the few states that measures the health of its streams by examining the number and types of fish and aquatic insects in the water. An abundance of fish and insects that tolerate pollution is an indicator of an unhealthy stream. A large number of insects and fish that are sensitive to pollution indicate a healthy stream. In 2004 and 2005, comprehensive biological, chemical, and physical data were collected by Ohio EPA scientists and the Midwest Biodiversity Institute. Additional water chemistry data were collected in 2006 at selected locations and at varying steam flows during the winter and spring to support the load reduction models.

The watershed's conditions were compared with state water quality goals to determine which stream segments were impaired and how much needed to be done to restore good stream habitat and water quality.

What is the condition of the Salt Creek watershed?

Ohio EPA's study of 80 sites on 41 streams in the watershed showed that biological problems are scattered throughout the watershed, though much of it is in good or excellent condition. Nearly all of the sites on Salt Creek meet their goals. Of the sites on streams that flow into Salt Creek (its tributaries), about 69 percent of the sites fully meet the goals associated with healthy warmwater and exceptional warmwater habitat streams; 21 percent of sites partially meet the goals; and 10 percent of sites do not meet goals.



Most of the sites in the watershed that did not meet or partially met water quality goals were impaired because of physical changes to the land and too many nutrients.

Stream channelization, livestock access to streams, and loss of floodplains and streamside vegetation have degraded the creeks. When streams are widened and deepened for agricultural drainage, they contribute excess soil to the stream, which destroys habitat for fish and other aquatic life.

When trees along the stream banks are removed, the lack of shade allows the water temperature to increase, which decreases the amount of dissolved oxygen available for aquatic organisms. This is worsened by manure runoff and untreated sewage flowing from failing home septic systems and

small communities without any wastewater collection or treatment.

Lack of water in small headwater streams, especially in the summer, makes it hard for pollutants to be absorbed and treated by the natural stream ecology. Agricultural drainage improvements such as tiling and routine dredging contribute to uneven and unsustainable water flow in these small streams, making it difficult to support good aquatic life communities.

Urban runoff can also cause issues with streams because impervious surfaces such as roofs and parking lots increase the rate at which water reaches streams and is carried away. The overland flow in urban areas frequently contains pollutants such as metals and oils that can contaminate streams and impact biology.

How will water quality get better?

The Salt Creek watershed is included on Ohio's list of impaired waters. Under the Clean Water Act, a cleanup plan is required for each impaired watershed. This cleanup plan, known as a total maximum daily load (TMDL) report, calculates the maximum amount of pollutants a water body can receive and still meet standards (goals). The TMDL report specifies how much pollution must be reduced from various sources and recommends specific actions to achieve these reductions.

The TMDL report provides specific numeric goals for improving habitat and sediment. An analysis is provided for nutrients in several locations, but reductions were not obvious because the nutrients were bound up in algae. Reductions at those locations would still be advisable, however.

What are the three most important "fixes" in the watershed?

- ***Manage surface runoff to reduce nutrients***
  - *Develop and improve nutrient management plans to address site-specific problems*
  - *Follow proper procedures for winter application of manure (NRCS practice 633)*
  - *Plant winter cover crops to provide manure application sites*
- ***Improve sediment control and habitat in all areas***
  - *Practice conservation tillage on row crop farms*
  - *Install filter strips along <u>all</u> agricultural tributaries*
  - *Plant trees and shrubs along stream banks to provide shade and habitat for fish and insects as well as stability to stream banks to reduce erosion*
  - *Allow streams to form natural channels where channels have been straightened*
- ***Improve treatment at the City of Jackson WWTP***
  - *Implement permit limit of 1.0 mg/l for total phosphorus by August 1, 2009*
  - *Eliminate sanitary sewer overflows and sewer by-passes*
  - *Improve operation and maintenance at the WWTP*

Ohio EPA can address some of the Salt Creek problems through regulatory actions, such as permits for wastewater and storm water dischargers. Other actions, such as committing to proper manure management and reduced home sewage system failures, will be up to local residents.

What actions are needed to improve water quality?

Because there are several reasons why streams in the Salt Creek watershed fail to meet water quality goals, several actions are required to improve the current condition and protect the watershed in the future. The recommendations should focus on reducing pollutant loads and/or increasing the capacity of the streams to handle the remaining pollutant loads.

Maintaining a natural flow regime is important for protecting water quality and aquatic biological communities. The basic principles of providing floodplain connectivity, stable stream morphology and watershed hydrology that approximates natural conditions are applicable to all areas of the watershed. Likewise, stream buffers are appropriate for all land use types in the watershed. Other actions include:

- The City of Jackson wastewater treatment plant will be required to meet a limit of 1.0 mg/l total phosphorus in its discharge. The Village of Coalton will be required to monitor for total phosphorus and nitrogen at its WWTP.
- Home sewage treatment systems (HSTSs) should be addressed in rural, urban and developing areas by the county health departments.

- Sediment flowing into streams is a concern in all areas. Controls include reducing erosion with cover crops or conservation tillage; providing buffers along stream banks; identifying concentrated flow paths from agricultural fields and implementing site-specific practices to reduce sources of sediment and nutrient load; and adopting measures that maintain stream stability during land disturbance activities such as construction.

- Nutrient loading from agricultural fertilizers would be abated by conservation and management practices promoted by the USDA Natural Resource Conservation Service. Suggestions include adoption of phosphorus index and nitrogen index strategies to address nitrogen leaching and the phosphorus concentration buildup on agricultural land in the watershed.

- Livestock producers are encouraged to develop alternative water supplies for livestock and restrict access to streams. Livestock entering and exiting streams can erode the banks severely, causing excess sediments to enter the stream. In addition, direct defecation into streams can increase bacteria and nutrient problems in the water. Implementation of manure management plans would also reduce bacteria and nutrient inputs to the streams.

Salt Creek at Narrows Road

- Both in-stream gravel mining and using the streams as tracks for all-terrain vehicles cause severe disturbance to the in-stream habitat. This in turn increases turbidity and is detrimental to biology.

- Residential, commercial and other urban areas can reduce overland loading of nutrients by practicing better timing and rate of fertilizer application.

Who is responsible for taking action?

Implementation of this report's recommendations will be accomplished by state and local partners, including the voluntary efforts of landowners.

There is no local watershed interest or action group. Should one form in the future, it would be an ideal venue for discussing local decisions about watershed zoning and voluntary actions that might restore and protect the high water quality of the Salt Creek watershed.

Are any actions already underway?

Few actions are currently underway in the watershed. Ohio EPA recommends utilizing resources such as local soil and water conservation districts, Ohio State University Agricultural Extension, and the National Forest Service to educate the public and implement some of the actions recommended in this report.

Where can I learn more? *The Ohio EPA report containing the findings of the watershed survey, as well as general information on TMDLs, water quality standards, 208 planning, permitting and other Ohio EPA programs, is available at http://www.epa.ohio.gov/dsw/Home.aspx.*

The draft Salt Creek TMDL report was available for public comment from April 13 through May 15, 2009. The final TMDL report was approved by U.S. EPA on August 12, 2009. The final report is available at http://www.epa.ohio.gov/dsw/tmdl/index.aspx.

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