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Ohio EPA Releases Study Detailing First Segment of Great Miami River Study
Results Show 64 Percent of Upper Great Miami Basin Sites Meet Water Quality Standards

Ohio EPA will share results from a biological and water quality [study](#) of the upper Great Miami River (GMR) watershed at a meeting on May 19, 2011. The meeting will take place at 6:30 p.m. in the Shelby County Ag Service Center, 810 Fair Road, Sidney.

The Great Miami River watershed begins in northwestern Ohio, as far north as Logan and Shelby counties and runs to its confluence with the Ohio River. The study evaluated water quality in streams that include portions of Auglaize, Mercer, Logan, Shelby, Champaign and Darke counties. The study, based on field sampling conducted in 2008, [shows](#) an abundance of high quality streams but also significant areas of impairment.

Ohio EPA evaluates streams based on habitat conditions and the quality of the fish and macroinvertebrate communities (aquatic insects, crayfish, clams and snails). Quality may vary as different species of fish and insects tolerate different levels of chemical pollution, oxygen depletion and habitat disturbance. At each site, the habitat and biology are rated on a scale from very poor to exceptional and the data, along with other factors, are used to assign an appropriate aquatic life use designation. The designation is a realistic measure of stream potential and defines a level of biological performance needed to meet water quality standards.

Once the quality of both fish and insect communities match the use designation performance standards, the stream is in full attainment of its aquatic life use. Partial attainment means one organism group does not meet standards and nonattainment means both fish and insects do not meet standards.

Streams also are evaluated for bacteria levels to determine suitability for human recreation. Bacteriological impairment was pervasive throughout the upper watershed. Seventy three percent of the sites tested for bacteria were not at acceptable levels.

Out of 78 biological sampling sites in the GMR watershed, 64 percent fully attained their designated aquatic life use; 26 percent partially attained and 10 percent did not meet water quality standards. Some areas showed significant improvement over earlier studies; Bluejacket Creek, which is below the Bellefontaine wastewater treatment plant, fully meets water quality standards for the first time.

Habitat alteration, siltation and nutrient enrichment from channelization and agricultural runoff caused most of the biological impairments in the watershed. Other sources of impacts include: wastewater treatment systems, dams and a toxic spill following aerial pesticide spraying of crops.

Ohio EPA scientists noted there were many sites that showed negative effects of runoff and channelization. In addition, wastewater treatment plants significantly contributed to reduced stream quality in portions of the watershed. Most notable were:

- stretches of lower Loramie Creek below the villages of Minster and Fort Loramie;
- Jackson Center Creek below Jackson Center;
- the Great Miami mainstem below Russells Point; and
- Upper Loramie Creek below the Botkins wastewater plant.

In most of these instances, work has already begun to address specific problems.

The federal Clean Water Act requires Ohio to identify streams that do not meet water quality standards and determine what is needed to bring the affected waters into compliance. This is done through the Total Maximum Daily Load (TMDL) process.

The TMDL process generally determines the maximum load of pollutants a water body can receive on a daily basis without violating water quality standards. This water quality study serves as a technical support document for the larger TMDL.

The program also can improve the quality of a stream by taking a comprehensive look at all pollution sources. This includes point sources such as wastewater treatment plants and industrial facilities, as well as nonpoint sources, including runoff from urban areas and agricultural areas.

While Ohio EPA can address some of the water quality problems through regulatory actions like permitting, other actions (i.e. proper maintenance of home sewage systems and appropriate manure management) require voluntary actions of local residents and landowners. The Agency will work with local communities to achieve continued improvements within the watershed.