

May 2005

# Big Darby Creek Watershed Draft TMDL Report

## What is the Big Darby Creek watershed?

A watershed is the land area from which surface runoff drains into a specific body of water. The Big Darby Creek watershed covers 555 square miles of Central Ohio just west of the Columbus metropolitan area. Big Darby Creek originates in Logan County and flows more than 80 miles before joining the Scioto River near Circleville. Land use is mostly row crop agricultural, except for the watershed's suburbanizing eastern edges along the border of Madison and Franklin counties.

Big and Little Darby creeks are designated as State and National Scenic Rivers. The watershed contains among the most biologically diverse streams of their size in the Midwest. It also provides habitat for several state and federally listed endangered species.

Landscape features left by glacial activity play an important role in water quality in portions of this watershed. Cool ground water feeds numerous tributaries in Logan and Champaign counties, helping reduce nutrient levels and flush out sediments.

Ohio EPA divides this watershed into four sub watersheds for evaluation: upper Big Darby Creek, middle Big Darby Creek, Little Darby Creek and lower Big Darby Creek.

## 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 macroinvertebrates living in the water. Chemicals are also measured. Ohio EPA conducted its most comprehensive physical, chemical and biological survey of the

Big Darby Creek watershed in 2001-2002. Field work to measure physical and chemical conditions in key stream segments was done in 2004.

## What is the condition of the Big Darby Creek watershed?

Many streams in the watershed meet their standards for aquatic life quality. However, the upper and middle segments of both Big and Little Darby creeks, and a number of tributaries, do not meet standards. There is a slightly elevated risk of contracting waterborne illnesses while swimming or canoeing in these streams due to pathogens. Mercury and PCBs were detected in channel catfish, carp and freshwater drum. A fish consumption advisory issued in 2004 warns against eating more than one meal per month of these species caught in Big Darby Creek.

Pollution in the Big Darby Creek watershed is caused by excess nutrients (nitrogen and phosphorus), low dissolved oxygen, too much sediment and habitat destruction. Sources of the pollution vary but are most often associated with sewage treatment plants; agricultural runoff or agricultural practices; industrial activity; and urbanization.

Among the most visible future threats to the Big Darby Creek watershed is conversion of farm land to suburban and commercial land uses through poorly planned growth patterns.

## How will water quality get better?

The Big Darby 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. The TMDL report specifies how much pollution needs to be reduced from various sources and recommends specific actions to achieve those reductions.

Chapters 3 and 4 of the Big Darby Creek TMDL report provide the specific numeric goals for reducing pollutants, including phosphorus, pathogens and sediment. Ohio EPA can address some of the Darby's pollution problems through regulatory actions, such as permit limits for wastewater and storm water dischargers. Other actions, such as committing to adequately sized stream corridors and flood plains, will be up to local authorities and private property owners.

## What are the recommended actions?

A key objective in the Darby watershed is to balance human needs with the natural ecosystem. Managing pollutants during peak flows is especially critical. Chapter 5 of the TMDL outlines how to achieve the pollutant reduction goals stated in Chapters 3 and 4. The implementation mechanisms are briefly summarized here.

**Storm Water Control** – If not managed properly, storm water carries large amounts of sediment into water bodies. Ohio EPA regulates storm water through discharge permits.

- Ohio EPA will evaluate issuing general permits for runoff associated with construction activity that are specific to the Big Darby



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Creek watershed. These would most likely be developed for the Hellbranch Run watershed, the Big Darby Creek headwaters areas, and the rest of the Big Darby Creek watershed.

- Each general storm water permit will be evaluated to ensure pollution loading targets in the TMDL are achieved. Permits will include management practices and discharge limits designed to reduce sediment runoff and protect sensitive aquatic life uses in the watershed.
- Ohio EPA will continue to consider construction companies as co-permittees on storm water permits. They will share responsibility with the developer for complying with permit conditions.
- Developers will be expected to evaluate their project's effect on volume of flow and provide stream buffers that reduce sediment runoff.
- Federal storm water regulations call for municipalities to obtain storm water permits. When Ohio EPA issues these permits to local jurisdictions in the Big Darby Creek watershed, they will contain pollution limits consistent with the pollution reduction targets in the TMDL report. Ohio EPA may designate additional smaller municipalities to be part of this program.
- In the upper Big Darby Creek area, there is an impact that may be associated with Honda that has not been clearly defined, but is not due to violations of any existing permit conditions by Honda. Ohio EPA will continue to work with Honda to identify sources of pollutants that may be contributing to this impairment and to determine appropriate

corrective action upon completion of further studies.

**Point Source Dischargers** – Sources that discharge wastewater from a pipe need individual permits from Ohio EPA.

- In the coming year, all such permits in the Big Darby Creek watershed will be reviewed for compliance with the targets for phosphorus, ammonia and bacteria set in the TMDL report. They also must ensure that sufficient dissolved oxygen is present in the stream. Permits will be modified if the limits need to be revised.
- Ohio EPA expects all facilities in the watershed that are not complying with their wastewater discharge permit limits will come into compliance or be on an enforceable compliance schedule by October 1, 2005.

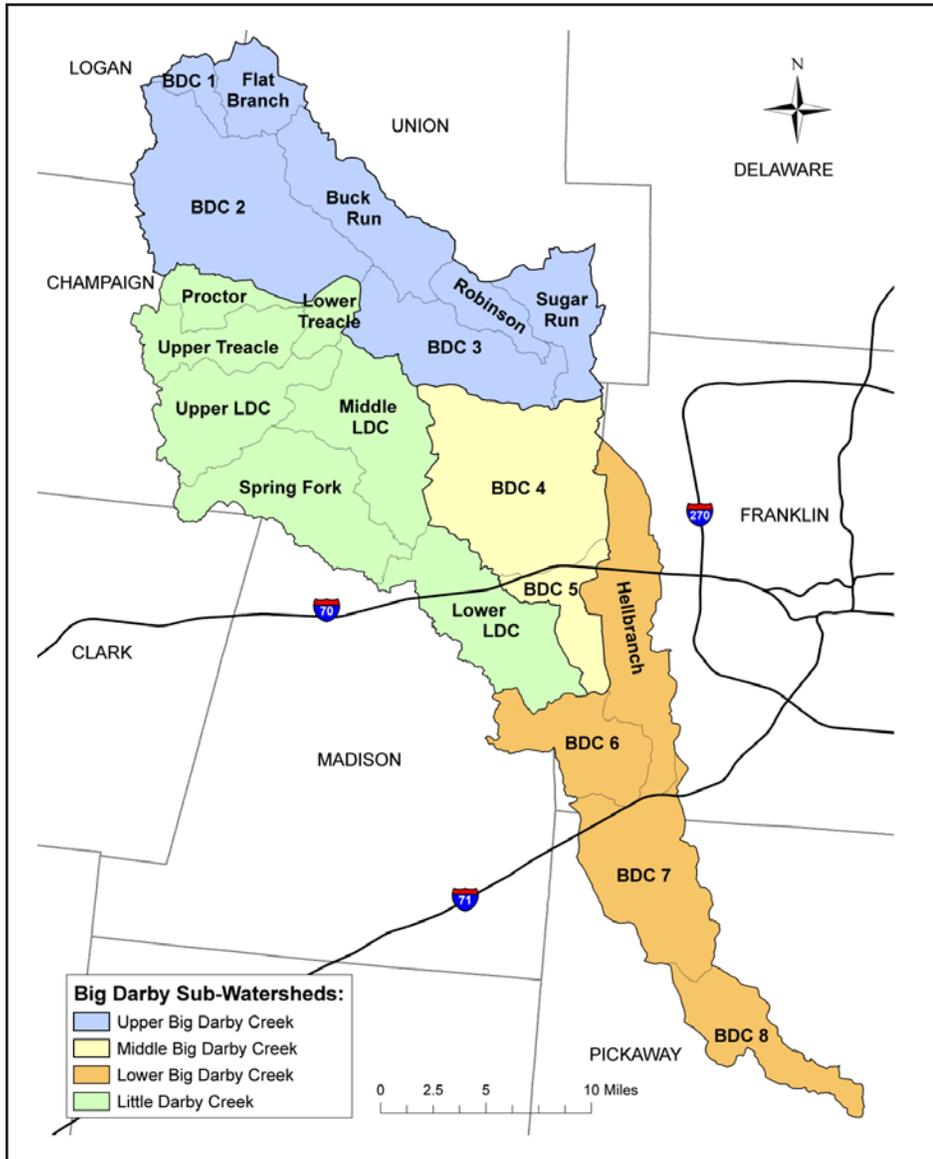
### **Drainage, Erosion and Flood**

**Reduction** – Improved management of agricultural drainage needs, stream bank erosion control and flood reduction projects are needed for the long term health of Big Darby Creek. These actions will increase the natural filtering of pollutants, provide instream habitat and shading, increase the capacity of the system to handle pollutants, and provide a flood plain to reduce the impact of sediment and stream flow energy.

- When Ohio EPA reviews applications for permits and certifications involving dredging or placement of fill in this watershed, it will consider water quality targets established in the TMDL report and seek mitigation downstream, so the benefits of flood control and filtering are not lost.

- Many small dredge-and-fill projects are regulated under nationwide permits issued by the U.S. Army Corps of Engineers; Ohio EPA does not conduct a site-specific review. Ohio EPA intends to evaluate removing projects in the Big Darby Creek watershed from eligibility for a nationwide permit. This would ensure continued progress toward meeting sediment, habitat and flood plain width targets in the TMDL report.
- Ohio EPA will consider developing a general permit for routine ditch maintenance work to minimize exposed soil during the construction period and reduce sediment reaching the channel at peak flows.
- The Big Darby Creek watershed action plan will allow a tailored approach to improving conditions in each subwatershed. Petition ditch maintenance and privately maintained drainage projects should use best management practices. Conversion of traditional ditch design and maintenance to innovative channel design features and flood plain excavation that more closely mimic natural features is encouraged.
- Local jurisdictions, through their authority to enact zoning and flood plain regulations, can protect existing flood plains and make wooded riparian corridors a preferential land use in those areas. By preventing land use and structures that are incompatible with frequent flooding, local jurisdictions are protected from having to spend public funds to address flood damage. The TMDL report recommends flood plain widths ranging from 10 to 1,000 feet, depending on the stream segment.

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loading of these pollutants by 60 to 85 percent. One key to sediment reduction in this watershed is managing erosion at high flows.

- Agricultural practices that reduce loads for phosphorus and sediment should be emphasized. Funding is available for some of these voluntary measures.
- Continued efforts by local soil and water conservation districts and Natural Resource Conservation Service staff are critical. They provide key support to landowners who wish to control the environmental impacts from their operations through the use of voluntary best management practices.
- With respect to animal feeding operations, Ohio EPA will continue to investigate operations where discharges are alleged and will require individual discharge permits to closely regulate the production area and land application of waste. Most of these operators will be required to attend training on water quality and manure management as a condition of their permit.
- All animal feeding operations should have updated manure management plans and avoid land application of manure during wet weather and winter.

- Since upstream transport of juvenile Clubshell mussels (an endangered species) is often dependant upon fish populations, structures that inhibit fish migration, such as dams, have potential to impact endangered species distributions. Ohio EPA strongly discourages the addition of any dams in the Big Darby Creek watershed. In addition, structures that currently exist should be

evaluated for removal to improve aquatic life habitat and reduce owner liability due to the known public safety hazards that dams present.

**Agricultural Management Practices** – Agricultural drainage is important to many in this watershed, yet improving water quality in the Big Darby Creek watershed depends on reducing phosphorus and sediment runoff. The TMDL report recommends reducing

**Home Sewage Systems** – Local health departments have a clear and direct role in determining how to reduce pollution loads from home sewage treatment systems. Pathogens and phosphorus need to be reduced to meet the targets set in the TMDL report.

- Local health departments need to identify the areas where phosphorus, sediment and pathogen problems are the greatest, and determine how to meet the

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reduction targets established in the TMDL report. This may be through sewerage or improved operation and maintenance.

- Local health authorities should evaluate forming a general home sewage district, which has authority to collect fees for operation and maintenance of home sewage systems.
- Home owners need to ensure that their treatment systems are operating effectively and upgrade if necessary to achieve pollution reduction targets.

## How can endangered species be protected?

To protect endangered species such as the Clubshell mussel, sediment runoff into the streams must be reduced. This can be achieved by maintaining the recommended stream setbacks and protecting intact, wooded corridors along the streams. Removal of dams may also help protect these species.

## How does this report fit into long-term water quality planning?

Water quality management plans are authorized under Section 208 of the Clean Water Act. These plans provide the framework to develop a comprehensive approach for the treatment of wastewater and for controlling water pollution from all point and nonpoint sources in a given area.

The 208 plan for the central Scioto River Basin currently covers parts of the Big Darby Creek watershed. Eleven counties in central Ohio – including the remainder of the Darby

watershed – have been targeted for more in-depth examination of current and future sewage collection and treatment needs. These counties were selected because of their population and projected growth, and the sensitive nature of the local water resource.

Ohio EPA will consider the TMDL findings and recommendations of the external advisory group for the Environmentally Sensitive Development Area (Hellbranch Run and other portions of western Franklin County) when updating the 208 plan in 2005. Recommendations in the 208 plan will need to be implemented to secure Ohio EPA approval of central sewer projects.

## Who is responsible for taking action?

Implementation of the recommendations in this report will be accomplished by state and local partners, including the voluntary efforts of landowners. State efforts will be accomplished through discharge permit limits, storm water permits and an updated Section 208 plan for the Central Scioto River.

Locally, a watershed action plan is being developed through the Darby Creek Joint Board of Supervisors and the Big Darby Creek watershed coordinator. The Hellbranch Watershed Forum is addressing development pressures in that subwatershed. Columbus, Franklin County and numerous other local jurisdictions in the Darby Accord have embarked on a joint land use planning effort that will take into account the pollution reductions required by this TMDL. Continued support and commitment from these many partners is essential to protecting the Big Darby Creek watershed.

## Where can I learn more?

The draft Big Darby Creek watershed TMDL report can be viewed on the Web at <http://www.epa.state.oh.us/dsw/index.html>.

To obtain a copy of the document or related information, make an appointment to review related files or request to be notified when Ohio EPA submits the document to U.S. EPA, please contact Mike Gallaway at Ohio EPA, Central District Office, 3232 Alum Creek Drive, Columbus, Ohio 43207, (614) 728-3843.

## How can I comment on the draft report?

On June 16, 2005, the public can ask questions and offer feedback on the draft Big Darby Creek TMDL document at an Ohio EPA public meeting. The meeting is at the Madison County Engineers Office, 825 U.S. 42 N.E., London, Ohio, at 6:30 P.M.

Ohio EPA will accept input on the draft report through July 15, 2005. Comments should be mailed to Mike Gallaway at the address above, or e-mailed to [mike.gallaway@epa.state.oh.us](mailto:mike.gallaway@epa.state.oh.us).

After considering comments, Ohio EPA will submit the document to U.S. EPA for approval.