

The Miami Conservancy District protects the region from flooding, preserves the quality and quantity of water, and promotes the enjoyment of our waterways.



Here in the Great Miami River Watershed, an abundant aquifer provides good quality water – for now. The key is preserving and protecting this invaluable resource.

Region rich with water

MCD working to protect and preserve water resources

Across the country, the availability of water is an issue – and growing into a crisis. According to the Associated Press, the water supply in Georgia is threatened by a severe drought, the Great Lakes are shrinking, and New York reservoirs are at record lows. Population growth and drought conditions in Phoenix and Las Vegas threaten future water supplies.

Here in the Great Miami River Watershed, an abundant aquifer provides good quality water – for now. The key is preserving and protecting this invaluable resource.

The Miami Conservancy District (MCD) established the Aquifer Preservation Subdistrict in the late 1990s to do just that. MCD monitors 109 groundwater level observation wells, researches and reports on the quality and quantity of water throughout the watershed, funds projects to protect our water resources, and educates citizens and policy makers about the importance of the aquifer and how to protect it.

Drinking Water Protection

In 2007, MCD began a program to fund community projects that will protect groundwater resources, which supply nearly all of the drinking water throughout the Miami Valley.

MCD requested funding proposals for projects within Shelby, Miami, Montgomery, Clark and Preble counties as well as the portions of Warren, Hamilton and Greene counties that are within the Great Miami River Watershed. Typical awards ranged from \$10,000 to \$50,000 with participating communities providing a 25 percent match. (See page 5 for more information.)

“Most of the drinking water in this region comes from groundwater and it’s vulnerable to contamination,” says Janet Bly, MCD general manager. “Cleaning up contamination or finding a new source of drinking water is complicated, costly, and sometimes impossible. Prevention is a much better alternative.”

Among the projects funded are land preservation in source water protection areas, inspection programs, groundwater monitoring services, emergency planning and response training, and helping communities develop source water protection plans.

Water Quality Credit Trading

The Water Quality Credit Trading program partners wastewater treatment plants and farmers to reduce nitrogen and phosphorus. After a second round of funding, the program now features 28 projects that are anticipated to eliminate more than 122 tons of pollutants.

US EPA Targeted Watershed Grant

Since 2003 a US EPA Targeted Watershed Grant has allowed MCD to fund projects throughout the watershed that protect water. Funded projects include developing wetlands and installing pervious parking areas. (See page 4 for more information.)

Test Your Well

MCD initiated the Test Your Well program in conjunction with area high school FFA (Future Farmers of America) groups. The event provides free nitrate testing of well water to residential well owners who bring in a water sample. (See page 5 for more information.)

PROTECTING

Maintaining the flood protection system a never-ending process



MOWING THE DAMS IS PART OF A COMPREHENSIVE MAINTENANCE PLAN TO ENSURE THE FLOOD PROTECTION SYSTEM WORKS PROPERLY DURING HIGH-WATER EVENTS.



When most people look at a rising river, they look at the force of the current or the swelling flow, but MCD caretakers like Dave Jones have a different perspective.

“People look out and just see the water, but I don’t,” says Jones, the Middletown caretaker and a 30-year MCD employee. “I see the levee, the electrical lines, the guide wires, things in the water that can get trapped at the bridge and affect the flood protection system.”

Field staff members are probably most visible to the public during high-water events when it’s a 24-hour-a-day job.

“As the water rises, each caretaker is checking the river stage and preparing to take certain actions based on the river’s rise,” says Jamie Johnson, field operations manager. As soon as it starts raining, caretakers are on alert. Each dam and feature has a designated “read stage,” the level when round-the-clock operations kick in.

“We have nearly 180 floodgates – some that have to be closed manually – that prevent the river water

from backing up into communities” he says. “Those gates have to be closed at just the right river level whether that’s 11 p.m. or 4 a.m.”

When the river reaches read stage, caretakers are out the door, measuring the river’s height every two hours, operating floodgates when the river levels dictate, and monitoring – and reacting to – a variety of conditions.

Reading river stages can be tricky – some have to be done by dropping a wire weight from a bridge. “You’re out there in the middle of the bridge, often in the dead of winter because that’s when we have many of our high-water events,” Jones says. “The rain is usually coming down pretty hard, the wind is whipping on your face and it’s really cold.”

In between the readings, Jones is closing floodgates, driving along miles of levee, looking for anything out of the ordinary like standing muddy water behind the levee (indicating seepage) or a floodgate that isn’t completely sealed.

“Our people aren’t just looking at an area the size of a football field but miles and miles of levees,”

Johnson says. “It takes time to drive the levees and inspect for damage and potential problems.”

When high-water events continue for extended periods, a trained back-up relieves the caretaker. Several individuals are trained in the specific procedures at each location so they can take over while the caretaker gets some sleep.

But flood protection isn’t just about high-water events. Field staff work year-round to protect the communities.

“There’s always work to be done,” says Johnson.

Just 20 field employees maintain the flood protection system including five dry dams, 60 miles of levee and 180 floodgates located in communities along the Great Miami River from north of Piqua to Hamilton. Each of the dams is staffed by a caretaker as is each of the “features” – communities where MCD has constructed and maintains levees, floodwalls and floodgates.

Dry Time

Specific procedures are followed during dry times to ensure that the flood protection system functions properly during high water.

Earthen levees and dams require adequate sod cover. In spring, field staff reseed, fertilize and control weeds along acres and acres of levees. In summer and fall, it’s all about keeping the levees and dams mowed.

“The grass never stops growing,” Johnson says. “When you think you’re finished, it’s time to start again. If you let the grass grow, you can’t see the imperfections in the ground like a groundhog hole or holes by other burrowing animals. It’s much easier to inspect the area when it’s well-maintained.”

Staff is always visually inspecting the dams and levees, removing weeds that can cause concrete to crack and heave, repairing damage caused by burrowing animals in the earthen levees and dams, and making sure no one is digging near the levees.

“Groundhogs are the No. 1 danger to our levee system. So we are constantly on the watch for them, trapping them and filling their holes,” Johnson says.

After mowing season, field staff members begin inspecting and maintaining each of the 180 floodgates and spend time cutting trees, removing brush, and trimming limbs along the flood protection system. They also catch up on projects around their MCD facility.

Community events

MCD also puts extra resources and effort in preparing MCD river banks and levee tops that are used for special events.

MCD staff monitors the area during and after the event to make sure there is no damage to the flood protection system. Flood protection is always the first priority.

“We take our job very seriously,” Johnson says. “We know that people are counting on us to protect them, their families and their property. We know what’s at stake.”

International delegation studies MCD dams

A six-member delegation from Japan visited Dayton to study the MCD flood protection system last fall. The delegation also visited Rochester and Los Angeles to study their dry dams.

Japanese officials are planning to construct a flood control dam in the Masuda River in Western Japan.

“They were impressed with our system, especially by how large a flood MCD’s system is designed to handle,” says MCD engineer Chad Schroeder. MCD’s flood protection system is designed to protect against the 1913 Flood plus another 40-percent.



THIS DELEGATION OF JAPANESE OFFICIALS WILL USE RESEARCH OF MCD’S DAMS TO HELP CONSTRUCT A FLOOD CONTROL DAM IN WESTERN JAPAN.

MCD dams in good shape

Dam safety statistics across the country are frightening. According to the Association of State Dam Safety Officials, “Since 1998, the recorded number of deficient dams (those with structural or hydraulic deficiencies leaving them susceptible to failure) has risen by 85 percent – from 1,818 to 3,361.”

In the Miami Valley, however, it’s an entirely different story. In 1999, MCD began the Dam Safety Initiative (DSI) to upgrade the safety of its five flood protection dams. The DSI addresses underseepage, crest permeability, and concrete deterioration

Late last summer, three of MCD’s dams – Germantown, Englewood and Taylorsville – were inspected by the Dam Safety Section of the Division of Water, Ohio Department of Natural Resources. (ODNR) The inspection reports, overall, indicated that the dams are in good condition and well maintained.

“The Miami Conservancy District has an excellent inspection and maintenance program for their dams,” says Keith Banachowski, P.E., program manager, Dam Safety Engineering Program with ODNR.

Lockington and Huffman dams were inspected in 2006, and all of the dams were inspected in 2001.

PRESERVING

Environmentally friendly design reduces costs and pollution

Industry no longer is the No. 1 source of pollution, nonpoint source pollution is. Agriculture, septic systems, construction and urban runoff all contribute to nonpoint source pollution. Urban runoff is the rainwater and snowmelt that's being polluted as it flows over pet waste in our yards; over parking lots with oil from our cars; and down our street gutters carrying grass clippings, fertilizers and other dirt and debris that flow straight into our wetlands, rivers and streams.

Across the nation, communities are using environmentally friendly design techniques to manage rainwater and reduce pollution. Tom McCoy of McCoy Homes is one of the first developers locally to use these innovative "low impact" designs (LID) at his Wenger Woods housing project in Brookville.

A 2003 U.S. EPA Targeted Watershed grant, awarded to MCD to improve water quality in the Great Miami River Watershed, funded the LID improvements at Wenger Woods.

McCoy is installing rain gardens and pervious pavers around each of his development's homes. Rain gardens feature attractive plants and flowers that soak up rainwater before it runs off into the street, while pervious pavers replace solid concrete, allowing water to seep through the ground, filter naturally, and replenish the aquifer.

Many developers are turning to LID not only because it helps communities comply with environmental regulations, but for the cost savings. These environmentally friendly techniques can cost less than conventional storm water management

systems. Space formerly set aside for storm water ponds can now be used to create larger housing lots or for more green space.

"This is a no-brainer," McCoy says. "These techniques help eliminate eyesores like detention ponds.

Along the same lines, the OKI – Ohio, Kentucky, Indiana – Regional Council of Governments installed pervious parking areas and rain gardens in Colerain Township's Heritage Park in Hamilton County.

Other projects funded by the grant

Hebble Creek/City of Fairborn

A storm water wetland along Hebble Creek slows floodwaters and filters pollutants so they don't run into the creek and drain to the Mad River.

The Ohio State University (OSU)/Loramie Creek

OSU, the Loramie Valley Alliance and MCD built an innovative drainage ditch designed to reduce soil erosion and fertilizer runoff from farmland.

Stillwater River/OSU

In a project managed by OSU, farmers received payments for efforts that reduce pollution from farmland runoff.

Great Miami River/Lighthouse Green Housing

Four "green" houses are being built on reclaimed vacant lots donated by the cities of Dayton, Kettering, West Carrollton and Harrison Township. The homes will feature state-of-the-art energy efficient technology and water conservation systems including rain gardens, pervious pavers, and rain barrels.

Butler County/Three Valley Conservation Trust

Working with Butler County and several townships, The Three Valley Conservation Trust helped develop a set of recommendations to conserve open space and enhance stream protection through zoning tools. Butler County successfully adopted new standards for conservation development and open space in its zoning code.

On-site Pollutant Removal

Two previously completed projects – at the Miami County Engineer's campus and a City of Dayton municipal parking lot – both proved to effectively stop pollutants from reaching the Great Miami and Mad rivers, respectively.

PERVIOUS PAVERS ALLOW WATER TO SEEP THROUGH THE GROUND, FILTER NATURALLY, AND REPLENISH THE AQUIFER.





CONSERVATION TILLAGE IS ONE OF THE PRACTICES THAT HAS BEEN FUNDED BY THE TRADING PROGRAM.

MCD remains flagship in trading program

As the concept of water quality credit trading grows, MCD's program remains the flagship for regional trading. Nearly 30 projects have been funded in the first two years of the Water Quality Credit Trading program. Together, those projects are expected to reduce nitrogen and phosphorus in our rivers, lakes and streams by more than 122 tons.

Water quality credit trading enables wastewater treatment plants to comply with environmental regulations by funding upstream agricultural practices that reduce the discharge of nitrogen and phosphorus. These nutrients often come from fertilizer and manure that can run off the land into rivers and streams in the watershed.

The current projects are located in Butler, Darke, Logan, Miami, Mercer, Montgomery, Preble, Shelby and Warren counties.

Funding for the trading program comes from the wastewater treatment plants and federal grants. Information on the Trading Program can now be viewed on a web-based interactive map at MCD's Web site, www.miamiconservancy.org.

About 40 percent of Ohio's rivers and streams don't meet state goals for fishing, swimming and other designated uses. As a result, new regulations will require wastewater treatment plants to reduce even more pollutants. The treatment plants have made great strides in reducing pollutants, and even a slight reduction at the plant can cost millions of additional dollars. On the other hand, by funding an agricultural project upstream, a treatment plant can do more to improve water quality at a significantly lower cost – saving the plant and its customers money and producing better environmental results.

Communities work to protect drinking water

Every day, most of us turn on the tap and expect to see a strong flow of clean water.

MCD has begun a grant program to help communities develop source water protection plans and to fund projects that protect and preserve groundwater.

Last fall, MCD announced awards totaling \$200,000 in first-time grants to area communities to help protect their sources of drinking water.

Each of the communities is providing at least a 25-percent funding match.

The communities to receive source water protection grants are:

- **Tipp City** – \$50,000 to evaluate groundwater quality and remove several sources of pollution.
- **City of Carlisle** – \$50,000 to acquire and eliminate a potential pollution source.
- **City of Oxford** – \$49,000 to acquire property to protect an existing drinking water production well and allow for its expansion.
- **Village of Gratis** – \$37,328 to develop a source water protection plan including potential pollution sources.
- **City of Dayton** – \$9,000 to monitor an area of groundwater contamination and measure the effectiveness of a proposed remediation system.
- **City of Springboro** – \$4,207 to conduct emergency response training and notification, and to install signs identifying the source water protection area.

“These are important projects,” says Mike Ekberg, manager of water resources monitoring and analysis. “Abundant, quality water is a precious commodity especially today when so many states are struggling with water shortages. But our groundwater is vulnerable to being contaminated, so we have to do what we can to protect it.”



Water Works

When a region is as flush with water as the Miami Valley is, it's easy to take water for granted. MCD's outreach team develops activities and projects to help communities comply with water regulations and help residents learn more about the value of water.

In 2007:

■ More than 400 private well owners took advantage of free nitrate screenings in the new Test Your Well program initiated by MCD with several counties and local FFA (Future Farmers of America) high school chapters. The format allowed homeowners to bring their well water sample to the event, held at the local high school. While their sample was being tested, well owners were able to browse displays and interactive models, learn how to find their own well log on the Ohio Department of Natural Resources Web site and talk with staff from various local and state agencies. Test Your Well events were held in Clark, Greene, Miami, Preble, and Shelby counties. Test Your Well is a program of the Groundwater Foundation.

■ MCD participated in and/or sponsored several water festivals and environmental activities within the watershed.

■ MCD planned a day-long event to help nearly 70 community officials learn to navigate – and comply with – the Ohio EPA's expectations for the next five-year permit cycle for storm water regulations beginning in 2008.

■ MCD organized – with the Miami Valley Regional Planning Commission – quarterly meetings of the Great Miami River Network, a group of professional and private citizens interested in improving the health of the Great Miami River Watershed.

PROMOTING

Great Miami River Trail

What began as an 8-mile loop in downtown Dayton has become a strong regional amenity allowing cities along the trail to showcase their shops, events and activities. The Miami Conservancy District (MCD) owns and/or maintains 34 miles of trail in the region and continuously works to help communities complete the additional miles of trail.

Your guide to things great and small on the trail

Here's a different vacation idea and it will cost a lot less than \$3 a gallon. Try biking the Miami Valley. Plan your trip – where to eat, where to stay, what to see – at www.drivelesslivemore.org and click on “plan a bike trip.”

The interactive map features the Great Miami River Trail and lets you turn on and off “layers” that include attractions, lodging, food and restrooms. You can plan an overnight trip and take in a variety of charming communities with antiquing, history, museums and more.

“It's one thing to take a bike ride on the trail, which is a lot of fun. But we wanted to take that experience one step further,” says Janet Bly, MCD general manager. “With the interactive map, you can decide

where you'll stop to eat, what sites and stores you'll visit and where you'll stay overnight.

When the Great Miami River Trail is complete, it will stretch from the city of Sidney in Shelby County to the city of Fairfield in Butler County, linking 14 cities with a total population of 500,000 people.

You are “here”

A wayfinding system is ready to be installed beginning this spring. Regional recreation trail signs will show you which trail you're on, where restrooms are and how far you are from the next major city along the trail. MCD – along with several political subdivisions – have collaborated on the regional trail sign program. About 100 signs will be placed throughout Montgomery, Greene and Miami counties.

This spring, MCD will be installing six kiosks displaying the new regional trail map developed by the Miami Valley Regional Planning Commission. Print copies of the map can be requested at www.miamiconservancy.org.

Trail repairs, improvements, and extentions

MCD continues to work on the trails – improving and repairing them and working with communities to complete the more than 90-mile trail.

MCD Projects

Montgomery County

Cracked and bumpy trails are merely a memory for trail users along the Great Miami Recreation Trail in parts of Montgomery County. MCD totally reconstructed nearly 1 mile of trail south from Linden Avenue in Miamisburg and .4 of the Stillwater Trail in Dayton. Two other sections – Dayton/Moraine and West Carrollton – were repaired in 2005 and 2006.

(continued next page)



Play It Safe!

Whether you're a new or experienced kayaker or canoeist, MCD's *Play It Safe!* maps can make your next outing fun and safe. The *Play It Safe!* campaign features river recreation maps for the Great Miami, Stillwater and Mad rivers. Each map contains access points to the rivers, river miles, hazards to be aware of and a variety of safety information – from avoiding hypothermia to boating etiquette. The Great Miami and Stillwater maps have been updated and reprinted since their introductions. Go to www.miamiconservancy.org to order free maps.



RECREATION TRAIL SIGNS WILL GUIDE USERS TO RESTROOMS, INFORMATION AND MORE.



Warren County

Winter storms hammered sections of the newly completed Great Miami River Recreation Trail through Franklin. Six progressively larger high water events from October 2006 to March 2007 washed out material along both sides of the trail and buckled the trail itself.

“The good news was that the Ohio Department of Transportation (ODOT) approved use of remaining grant money to help pay for the roughly \$90,000 in repairs,” says MCD engineer Chad Schroeder.

The erosion repairs were completed and the trail was reopened on May 25, 2007. The project passed ODOT’s final inspection on June 11, 2007.

In other news

The City of Troy built one-half mile of new trail along the river bottom from Riverside Drive to the Market Street bridge. Five Rivers MetroParks completed 2.6 miles of trail from Triangle Park to Chuck Wagner Lane along the Stillwater River in Dayton.

MCD supports continued development of the river corridor trail network in a variety of ways including providing trail easements on MCD land, and preparing applications and letters of support for grant funding.

LIVE A LITTLE – MORE

MCD partners with area agencies to promote alternative transportation

Maybe, just maybe, America’s love affair with the automobile is slowing. During the *Drive Less, Live More* (DLLM) campaign last summer, more than 750 people participated in events and activities that promoted biking, walking, carpooling and the bus.

“Cars are certainly an important part of transportation in the Miami Valley, but they don’t have to be used for *every* trip,” says Janet Bly, general manager of MCD, one of the four sponsoring agencies of the campaign.

Following the kick-off event that featured going “car-free” or “car-light,” a variety of events and contests allowed drivers to explore their transportation options.

- One Less Trip contest – Participants recorded trips where they substituted walking, biking, carpooling, combining trips or taking the bus in place of driving. For every four trips not driven, participants’ names were entered for the grand prize trip to Mackinac Island in Michigan.

- Explore Dayton with the RTA – Participants registered for a passport and free bus tokens. To compete for prizes, they explored the Dayton area, visiting four destinations by bus.

- River Ride – The 12-mile ride along the Great Miami and Mad rivers featured five destination points showing riders the trails are great for transportation as well as recreation.

- Bike to Work Day – Riders to downtown Dayton received free *Drive Less, Live More* T-shirts, a



pancake breakfast and some self-satisfaction. To encourage first-time riders, guided rides were offered from three different locations along the recreation trails.

All of the campaign information – and online registration for contests – was available via the drivelesslivemore.org website. A special feature of the site allowed users to “Compute Your Commute” to determine the true cost of driving their cars.

During the One Less Trip contest, about 200 people saved almost 30,000 miles and more than 1,500 gallons of gas. And while those numbers are impressive, campaign officials hope the *Drive Less, Live More* effort will lead to long-term changes. For one family it already has.

“We sold one of our cars,” says Liz Enge of Lebanon, Ohio, whose husband Chris commutes to Dayton for work. “It feels terrific. I don’t miss the car. I haven’t even thought about it. With just a little bit of effort it’s easy to do.”

Go to www.drivelesslivemore.org for 2008 campaign details.

Low dam safety improvements being studied

Many people have a love-hate relationship with low dams. They love the pool of water they create for recreation and improved aesthetics, but they hate the dangers associated with them.

MCD is trying to get the best of both worlds and has hired a consultant to identify ways to:

- Make the dams safer for boaters and swimmers by removing the re-circulating hydraulic at the downstream toe of the dams.
- Provide a safe portage route around each dam for hand-carried watercraft.
- Provide safe boating passages through the dams.
- Provide recreational “play spots” for kayakers.

The dams being studied are the Dayton low dam in downtown Dayton, Tait Station low dam in Moraine, South Montgomery County low dam in West Carrollton and the Hamilton low dam.

The report will include construction plans and specs for the Dayton Low Dam as well as cost estimates. The consultant also will provide preliminary plans for the other three dams.

Conservancy Court

MCD is governed by a Conservancy Court comprised of one common pleas court judge from each of the counties within the Conservancy District boundaries. The Conservancy Court appoints MCD's Board of Directors and Board of Appraisers, and approves their plans. The Honorable John W. Kessler of Montgomery County and the Honorable Richard A. Niehaus both retired from the bench in 2007.

2008 Conservancy Court

Butler County
Honorable Keith M. Spaeth

Clark County
Honorable Richard J. O'Neill

Greene County
Honorable J. Timothy Campbell

Hamilton County
Honorable Robert P. Ruhlman

Miami County
Honorable Robert J. Lindeman

Montgomery County
Honorable Barbara P. Gorman

Preble County
Honorable David N. Abruzzo

Shelby County
Honorable James F. Stevenson

Warren County
Honorable Neal Bronson

Board of Directors



Gayle B. Price, Jr.
President



William E. Lukens
Vice President



Thomas B. Rentschler
Member

Board of Appraisers

David K. Galbreath, Jr.
Realtor, Troy, OH

Robert Harris
Appraiser, Dayton, OH

James E. Sherron
Attorney, Middletown, OH



A message from the general manager

Could abundant water supply give region competitive edge?

"When the well is dry, we learn the worth of water." – Benjamin Franklin

When most people think of all of the great reasons to live in the Dayton region they think of housing, shopping, sports, the arts and outdoor recreation. One of the last things that comes to mind is water. But water is one of our region's greatest assets and puts us at a competitive advantage compared to many areas of the country.

In other regions, cities are learning the worth of water as lakes and reservoirs are drying up, as cities are limiting watering of lawns, and governors are drawing up agreements to share water resources.

Even something as simple as the pleasure of drinking clean water from the tap, or taking a long, hot shower is taken for granted in the Dayton region while it is a luxury in other areas of the country.

Many industries need water for production processes. But water is more than an industrial issue, it's a quality of life issue. Boating, fishing and other recreational activities are being affected.

For more than 100 years, water was a threat to Dayton region communities, with repeated flooding including the devastating 1913 flood. Today, however, these same communities along the river are protected from flooding, and instead can enjoy the benefits of the abundant, high quality water.

Here in the Miami Valley, our rivers and streams flow with water for fishing and paddling, and we have an abundant aquifer with good quality water that provides about 97 percent of our drinking water. Our water supplies in the buried valley aquifer provide 312 million gallons of water per day. With such a valuable resource at stake, we must continue our efforts to protect and preserve it.

Sunshine and the ocean have lured business and people to California, and the mountains have

done the same for Colorado. It makes sense to promote the quality and abundance of our water supply when marketing the Dayton region. With the right effort, maybe we can bring jobs and people to our region for our many wonderful assets – including water.

Janet M. Bly
General Manager

To contact us...

By phone: (937) 223-1271

By fax: (937) 223-4730

By e-mail: bgibson@miamiconservancy.org

Internet: www.miamiconservancy.org

Presorted
Standard
U.S. Postage
PAID
Dayton, Ohio
Permit 45



38 E. Monument Avenue
Dayton, Ohio 45402-1265