

**Managing Water Quality**

---



---

Ohio EPA and other state government departments are directed by the Ohio General Assembly to manage Ohio's water resources. The U.S. Environmental Protection Agency has also delegated to Ohio EPA the responsibility to administer certain federal programs in Ohio.

The functions of various water quality management programs are explained in this section, along with a description of some funding expenditures for water quality activities in Ohio. Some federal government programs are included. Local government programs and decisions (e.g., ordinances, planning, zoning) can have major impacts on water quality but are not described here.

## **C1. Program Summary – Surface Water**

The goal of Ohio EPA's Division of Surface Water (DSW) is to restore and maintain Ohio's water resources. This goal reflects the national water quality objective as contained in the Federal Clean Water Act (CWA), which is "... to restore and maintain the chemical, physical, and biological integrity of the Nation's waters"—often referred to as the "fishable/swimmable goal." Fishable/swimmable waters are resources that support stable, balanced populations of aquatic organisms that are ecologically "healthy" and provide safe water to the people of Ohio for public and industrial water supplies and recreation.

The Division of Surface Water has a full time staff of approximately 210 located in Columbus and the five Ohio EPA district offices. The division also employs approximately 50 interns during the summer to assist with biological and chemical water quality surveys. Funding for the division is comprised of federal monies, environmental protection funds generated through solid waste dumping fees, and annual discharge fees.

A watershed-based approach to assessments and delivery of services has been a program management objective within DSW for nearly two decades. In 1990, DSW initiated an organized, sequential approach to monitoring and assessment (the "Five-Year Basin Approach") to better coordinate the collection of ambient monitoring data so that information and reports would be available in time to support water quality management activities such as the issuance of NPDES permits and periodic revision of the Ohio water quality standards.

To establish the framework, the State was divided into twenty-five different areas that were aggregations of subbasins within major river basins. Each of the twenty-five areas were assigned to one of the five basin years, taking into account the need to appropriately distribute the monitoring workload among Ohio EPA's five district offices. The initial 1990 workload estimates and resource planning indicated that 5 years would be needed to complete the cycle of monitoring. However, the monitoring program has never been fully funded to meet those resource needs, and thus the monitoring cycle takes more than 10 years to complete.

The Five-Year Basin Approach and the core work of the biological and water quality monitoring program have gradually become the Division's assessment component within the Total Maximum Daily Load (TMDL) Program. Ohio's TMDL Program has been designed to be watershed-focused and to promote integration of other ongoing water program elements on a watershed basis.

---

## Biological and Water Quality Surveys

Ohio EPA routinely conducts biological and water quality surveys, or biosurveys, on a systematic basis throughout the state. A biosurvey is an interdisciplinary monitoring effort coordinated on a reach specific or watershed scale. Such efforts may involve a relatively simple setting focusing on one or two small streams, one or two principal stressors, and a handful of sampling sites or a much more complex effort including entire drainage basins, multiple and overlapping stressors, and tens of sites.

Each year Ohio EPA conducts biosurveys in five to six major watersheds in Ohio with an aggregate total of 400 to 450 sampling sites. Biological, chemical, and physical habitat monitoring and assessment techniques are employed in biosurveys in order to meet four major objectives:

- to provide a current and thorough assessment of water quality conditions in watersheds that are scheduled for TMDLs in the near future (1-3 years)
- to determine the extent to which use designations assigned in the Ohio Water Quality Standards (WQS) are either attained or not attained
- to determine if use designations assigned to a given water body are appropriate and attainable and recommend designations or changes where needed
- to determine if any changes in key ambient biological, chemical, or physical indicators have taken place over time, particularly before and after the implementation of point source pollution controls or best management practices.

The data gathered by a biosurvey is processed, evaluated, and synthesized in a biological and water quality report. The findings and conclusions of each biological and water quality study may factor into regulatory actions taken by Ohio EPA and are incorporated into the Ohio Water Quality Standards (OAC 3745-1), Water Quality Permit Support Documents (WQPSDs), State Water Quality Management Plans, the Ohio Nonpoint Source Assessment, and the aquatic life beneficial use analysis in the Ohio Integrated Water Quality Report (this report, prepared to meet the requirements of sections 305(b) and 303(d) of the Clean Water Act) and TMDLs.

Additional information on DSW's water quality monitoring and assessment program is available at the following web site: <http://www.epa.ohio.gov/dsw/bioassess/ohstrat.aspx>. An index with links to available biological and water quality reports can be found at the following web site: [http://www.epa.ohio.gov/dsw/document\\_index/psdindx.aspx](http://www.epa.ohio.gov/dsw/document_index/psdindx.aspx).

## Biosolids

Sewage sludge is the solid, semisolid or liquid untreated residue generated during the treatment of domestic sewage in a treatment facility. When treated and processed, sewage sludge becomes biosolids—nutrient-rich organic materials that can be safely recycled and applied as fertilizer. Only biosolids that meet the most stringent standards spelled out in the Federal and state rules can be approved for use as a fertilizer. Local governments make the decision whether to recycle the biosolids as a fertilizer, incinerate it or bury it in a landfill.

---

Ohio EPA received delegation to administer the Biosolids Program (Clean Water Act Section 503 Program) in 2005. In March 2000, House Bill 197 was passed by the Ohio General Assembly to provide the statutory authority for the Director of Ohio EPA to seek delegation of the program. HB 197 modified the Ohio Revised Code (ORC) to provide the Director of the Ohio EPA the authority to adopt, enforce, modify, and rescind rules necessary to implement the Biosolids Program. HB 197 also modified the ORC to include an annual sewage sludge fee in order to fund the program. Each dry ton of sewage sludge, treated or disposed in the State of Ohio, is assessed a fee, with a cap of six hundred thousand dollars per year on all monies collected.

Shortly after the passage of HB197, Ohio EPA began drafting rules that became effective in April 2002 as Ohio's Sewage Sludge Rules: Chapter 3745-40 of the Ohio Administrative Code (OAC). The purpose of Chapter 3745-40 of the OAC is to "establish standards applicable to the disposal, use, storage, or treatment of sewage sludge, which standards are intended to reasonably protect public health and the environment, encourage the beneficial reuse of sewage sludge, and minimize the creation of nuisance odors."

Funded by annual sludge fees, Ohio EPA hired employees to cover sewage sludge management duties in the field and office. These employees perform compliance evaluation inspections at POTWs that land-apply sewage sludge. They review monthly data submitted by POTWs to ensure compliance with pollutant limits, monitoring and reporting requirements, and perform authorization inspections at proposed land application sites. Field reconnaissance inspections are conducted at land application sites to verify compliance with site restrictions and management practices. These employees also review and recommend for approval the Sludge Management Plans and NPDES permits that regulate sludge generators.

Ohio EPA has also funded college interns through the annual sludge fees to track authorized sewage sludge application sites. The interns developed a Geographic Information System to add authorized sludge sites to a digital base map. Each authorized sludge site receives a unique identification number through the Surface Water Information Management System. The GIS project will be useful to manage the numerous land application sites and associated data such as cumulative pollutant loadings or proximity to source water protection areas for public drinking water supplies.

### **Combined Sewer Overflow Control Program**

Combined sewers were built to collect sanitary and industrial wastewater, as well as storm water runoff, and transport this combined wastewater to treatment facilities. During dry weather, they are designed to transport all flow to the treatment plant. When it rains, the volume of storm water and wastewater may exceed the capacity of the combined sewers or of the treatment plant. When this happens, the combined sewers are designed to allow a portion of the combined wastewater to overflow into the nearest ditch, stream, river or lake. This is a combined sewer overflow (CSO). Ohio has approximately 1036 known CSOs in 89 CSO communities (May 2013), ranging from small, rural villages to large metropolitan areas.

In 1994, U.S. EPA published the national CSO Control Policy. Working from the national policy, Ohio EPA issued its CSO Control Strategy in 1995. The primary goals of Ohio's Strategy are to control CSOs so that they do not significantly contribute to violations of water quality standards or impairment of designated uses and to minimize the total loading of pollutants discharged during wet weather. Ohio's Strategy

---

addresses several issues that aren't covered by the national Policy; for example, sanitary sewer extensions that occur up pipe of CSOs.

In 2000, Congress passed the Wet Weather Water Quality Act, which did two important things. It codified the 1994 national policy by making it part of the Clean Water Act and it required that all actions taken to implement CSO controls be consistent with the provisions of the national Policy.

Ohio EPA continues to implement CSO controls through provisions included in NPDES permits and using orders and consent agreements when appropriate. The NPDES permits for our CSO communities require them to implement the nine minimum control measures. Requirements to develop and implement Long Term Control Plans (LTCPs) are also included where appropriate. In 2007, U.S. EPA adopted a new definition for the Water Safe for Swimming Measure, which sets goals to address the water quality and human health impacts of CSOs. The new definition sets a goal of incorporating an implementation schedule of approved projects into an appropriate enforceable mechanism, including a permit or enforcement order, with specific dates and milestones for 75% of the nation's CSO communities. As of February 2013, 80 of Ohio's 89 CSO communities met this definition (90%), exceeding the U.S. EPA's Safe for Swimming Measure goal.

### **Compliance Program**

The Division of Surface Water staff works closely with the regulated community and local health departments to ensure that surface waters of the state are free of pollution. The regulated community with which DSW staff works includes wastewater facilities, both municipal and industrial, and small, unsewered communities experiencing problems with unsanitary conditions.

DSW staff provides technical assistance, conducts inspections of wastewater treatment plants, reviews operation reports, oversees land application of biosolids and manure from large concentrated animal feeding operations, and investigates complaints regarding malfunctioning wastewater treatment plants and violations of Ohio's Water Quality Standards. DSW strives to ensure that permitted facilities comply with their National Pollutant Discharge Elimination System (NPDES) permits. DSW also assists small communities with inadequate means of wastewater treatment seek alternatives to help abate pollution to waters of the state.

### **Concentrated Animal Feeding Operations**

On December 14, 2000, Governor Taft signed a bill that started the process of transferring authority to regulate concentrated animal feeding facilities to the Ohio Department of Agriculture. The Ohio Department of Agriculture now regulates construction and operation of large concentrated animal feeding facilities under their Permit to Install (PTI) and Permit to Operate (PTO) Program. However, PTI authority for sewage treatment and disposal systems at animal feeding facilities and for animal feeding facilities that discharge to publicly owned treatment works remains with Ohio EPA.

Ohio EPA also retains authority for implementing the National Pollutant Discharge Elimination System (NPDES) Permit Program for animal feeding operations until the delegation agreement with U.S. EPA is revised by Ohio and approved by U.S. EPA. As a result of federal rule revisions and court decisions, only facilities that meet the definition of a concentrated animal feeding operation (CAFO) and actually discharge to waters of the state are required to apply to Ohio EPA for an NPDES permit.

---

The CAFO Program at Ohio EPA uses a watershed perspective to prioritize work to some degree. The changes in the federal rule resulting in CAFO NPDES permits being required only when a facility discharges limits our need and ability to prioritize permitting by watersheds. However, the status of the watershed is considered in making decisions about enforcement and compliance activities (e.g., supplemental environmental projects may be preferred over penalties; more technical assistance may be focused on TMDL watersheds).

### **Credible Data – Volunteer Monitoring Program**

The program's authorizing legislation was passed and signed by the Governor in 2003. Ohio EPA adopted rules in 2006 (OAC Chapter 3745-4) for the program's operation and revised those rules in 2011. The legislation and the rules are explicit in the desire to not only encourage the collection of water quality data by volunteers, but also to ensure that the data are valid and useful for their intended purpose. In other words, the data should be "credible." The rule package bears the name "Credible Data" because of this important feature, and because the enabling legislation was referred to as the credible data bill. Thus, the words "credible data" appear in the terminology applied to voluntary monitoring programs that choose to participate.

As envisioned by the legislation, any person with an interest in water quality should have a means to collect certain types of data useful for various inquiries about the quality of the water resource. Ohio EPA's role is to foster and broadly oversee the collection, analysis and use of data collected by such "volunteer" individuals and organizations. To promote scientific validity, Ohio EPA has established specific requirements to participate in the program and to collect data using approved study plans.

The law and the administrative regulations are the basis for establishing three broad categories or levels of data that will be deemed "credible" for distinctly different purposes. The overall premise is that there must be an increasing level of scientific rigor behind the sampling and analytical work as we progress from Level 1 to Level 2 to Level 3.

*Level 1's* purpose is primarily to promote public awareness and education about surface waters of the state. Level 1 may be appropriate for educators from Soil and Water Conservation Districts, Park Districts, Health Departments, schools, or anyone with an interest in Ohio water quality.

*Level 2* was designed with watershed groups in mind and may also be appropriate for Soil and Water Conservation Districts and Health Departments. Level 2 data can be used to evaluate the effectiveness of pollution controls, to conduct initial screening of water quality conditions, and to promote public awareness and education about surface waters of the state. Level 2 groups are often in the position to perform the valuable function of monitoring long-term surface water quality trends in a watershed (where Ohio EPA may not have the resources to frequently revisit a particular area).

*Level 3* provides the highest level of scientific rigor and methods are equivalent to those used by Ohio EPA personnel. The law limits the Director's use of data collected under the credible data program for certain regulatory applications (for example, setting water quality standards and evaluating attainment of those standards) to verified Level 3 data. In other words, data submitted under this program as Level 1 and Level 2 data cannot be used for those regulatory purposes.

As of May 2013, the Agency has approved over 800 Qualified Data Collectors and 80 study plans. Ohio EPA has created a web-based portal for data entry and data access (Credible Data Online Application,

---

[http://www.epa.ohio.gov/dsw/credibledata/submission\\_of\\_data.aspx](http://www.epa.ohio.gov/dsw/credibledata/submission_of_data.aspx)), available through Ohio EPA's eBusiness Center.

### **Enforcement Program**

Quarterly Non-Compliance Reports are prepared by all delegated states and contain instances of non-compliance, State or Federal enforcement responses to the instances of non-compliance, other actions being taken to address the violations, and current compliance statuses for major dischargers. In cases in which Ohio EPA is unable to resolve continuing water quality violations, DSW may recommend that enforcement action be taken. An enforcement action could be Director's Final Findings and Orders completed within the Ohio EPA or a court action through the Attorney General's Office. The enforcement and compliance staffs work with Ohio EPA attorneys, as well as the Attorney General's Office to resolve these cases. Where possible, an added emphasis and priority is given to actions in sensitive watersheds. All final enforcement orders are posted on the DSW web page.

### **Lake Erie Program**

The Ohio EPA Division of Surface Water participates in many Lake Erie and Great Lakes related issues and efforts. Two key program areas are the implementation of Remedial Action Plans (RAPs) for the Maumee, Black, Cuyahoga and Ashtabula river areas of concern and the development and implementation of a lakewide action and management plan (LAMP) for Lake Erie. Both of these efforts are focused on reducing the loadings of pollutants and restoring all beneficial uses to these water bodies. Both programs are described in the Great Lakes Water Quality Agreement (GLWQA) between Canada and the United States and are mandated under the Great Lakes Critical Programs Act amendment to the Clean Water Act. The GLWQA was most recently revised in 2012 and the agency will be directly involved in implementing the new goals and requirements contained in the agreement.

Ohio EPA is engaged in Lake Erie on a third front with the initiation of a *Comprehensive Nearshore Monitoring Program* in 2011. In 2010, Ohio EPA applied for and received funding under the Great Lakes Restoration Initiative (GLRI) to develop and implement a comprehensive nearshore monitoring program. This project builds on the 2010 U.S. EPA National Coastal Condition Assessment framework by adding ambient sites and additional parameters, including plankton and also focusing on harbors, bays and estuaries, as well as evaluating biological communities at various trophic levels. The three-year monitoring design will provide the baseline data needed to characterize conditions in the dynamic nearshore areas and ultimately lead to a more effective long-term monitoring design.



*Lake Erie Monitoring 2013*

Ohio EPA completed the three-year monitoring effort in 2013 and made adjustments during the project by increasing the frequency of ambient station monitoring to annually and adding several new stations to better characterize the Western Basin. Harbor and estuary surveys were completed in 2012. Results from the first two years of monitoring were evaluated in this Integrated Report while efforts are currently underway to summarize all three years of monitoring and use the results to design a long-term monitoring program in 2014.



*Ashtabula Harbor 2013*

This monitoring effort ties into Annex 2 of the GLWQA, which calls for development of nearshore monitoring to support an integrated nearshore framework. Annex 4 of the GLWQA addresses nutrients and OEPA's monitoring will support assessment of the lake ecosystem objectives identified in the agreement. Additionally, long-term monitoring will provide the data needed to evaluate water quality trends, assess the effectiveness of remedial and nutrient reduction programs, measure compliance with jurisdictional regulatory programs, identify emerging problems and support implements of RAPs.

Starting in 2012 and continuing in 2013, Ohio EPA expanded monitoring efforts to incorporate volunteer monitoring from the Lake Erie Charter Boat captains. This unique public private partnership engaged a key stakeholder that is directly impacted by the recent harmful algal blooms and declining conditions on the lake. In 2012, Ohio EPA led a pilot monitoring program with the captains and in 2013 provided funding to Ohio State University to continue the effort. In 2013, Ohio EPA also provided funding to Ohio State University to assist with additional sample collection in the Western and Sandusky Basins and gather additional water quality data and to investigate comparability between collection methods.

#### Remedial Action Plans

The Ohio Areas of Concern (AOCs) were initially identified in the early 1980s as the most environmentally degraded areas along Ohio's Lake Erie coast. Annex 1 of the GLWQA calls for restoration of beneficial uses that have become impaired due to local conditions at AOCs through development and implementation of Remedial Actions Plans (RAPs). In many ways these beneficial use impairments (BUIs) reflect the same general goals as represented in the Ohio water quality standards (WQS) but many have targets that differ from the WQS criteria. The BUIs include: 1) restrictions on fish and wildlife consumption; 2) tainting of fish and wildlife flavor; 3) degradation of fish and wildlife populations; 4) fish tumors or other deformities; 5) bird or animal deformities or reproductive problems; 6) degradation of benthos; 7) restrictions on dredging; 8) eutrophication or undesirable algae; 9) restrictions on drinking water or taste and odor problems; 10) beach closings; 11) degradation of aesthetics; 12) added costs to agriculture and industry; 13) degradation of phytoplankton and zooplankton populations; and 14) loss of fish and wildlife habitat.

Efforts to restore the AOCs require an ecosystem approach, remediation and habitat restoration as well as compliance with environmental regulations. It has taken years to complete the assessments and implement the actions needed for restoration. This has been done with the assistance of many partners from the state, federal and local governments as well as citizens, industries, businesses, special interest groups and researchers. The advantage of partnerships is the expanded availability of technical expertise and funding opportunities, as well as increased accountability and the potential for long-term stewardship. Ohio has been successful at leveraging funding under the Great Lakes Restoration Initiative (GLRI) and from other funding sources to complete assessment work and implement effective restoration projects in the state's four AOCs. Figure C-1 displays the AOCs and major tributaries to Lake Erie; a description of each AOC follows.

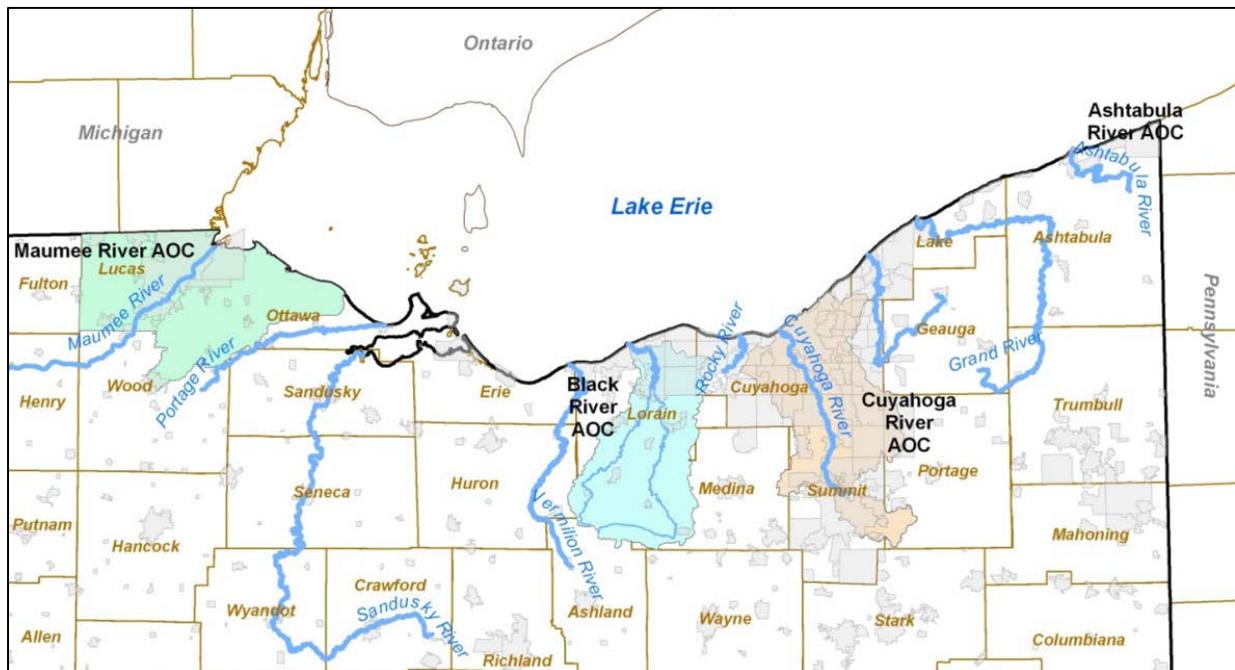


Figure C-1. Lake Erie areas of concern and major Lake Erie tributaries.

**Ashtabula River AOC.** The Ashtabula River from the upper turning basin to the 5<sup>th</sup> St. Bridge was dredged under the Great Lakes Legacy Act (GLLA) Program in 2006 and 2007. Approximately 500,000 cubic yards of sediments contaminated with polychlorinated biphenyls (PCBs), polyaromatic hydrocarbons (PAHs), heavy metals and a myriad of organochlorine compounds were removed and pumped upland to a confined disposal facility. The river from the 5<sup>th</sup> St. Bridge to the outer harbor was dredged under U.S. Army Corps of Engineers authorities in 2008 and additional dredging was completed in 2012 and 2013. Dredging of contaminated sediments from the river was needed to remove the BUIs for dredging and degradation of benthos, fish tumors and fish consumption restrictions. To address the remaining BUIs, Ohio EPA received a GLRI grant for a habitat restoration project on the 5½ Slip property and completed construction of over 1,400 feet of fish shelf habitat in September 2012. In 2013, Ohio EPA completed the final remediation action on the river with an additional GLLA project in the North Slip at Jacks Marine. It is anticipated that these projects will lead to the removal of four BUIs (degraded fish populations, degraded benthos, loss of fish habitat, and restrictions on dredging) in 2014. This represents a significant milestone for the Ashtabula AOC with completion of all management actions. Once monitoring indicates that the river has responded as anticipated and restoration targets have been achieved, the Ashtabula River will be delisted as an area of concern.



OEPA GLRI Restoration Project, Ashtabula River 2012

---

**Black River AOC.** Ohio EPA prioritized the Black River watershed assessment to assist the Black River RAP with evaluating BUIs and updating the water quality attainment status across the watershed. The assessment was completed in 2013 and the report will be available in 2014. The City of Lorain has continued significant remediation and restoration efforts along the lower Black River, including removal of over a million cubic yards of slag from riverbanks, bank stabilization, restoration of riparian habitat, and construction of thousands of feet of underwater habitat shelves. The next phase of restoration is currently underway with future projects in development. Ohio EPA was awarded a \$200,000 GLRI grant in 2012 to conduct additional assessment and characterization at the former Coke Works Property which will provide the necessary site information to conduct future restoration projects in that area. The City was also successful at securing a \$925,000 “challenge grant” from NOAA to remove invasive plant along six miles of the Black River. Lorain County has made progress in the upper watershed with development of watershed action plans for the French Creek and West Branch sub-basins. Lorain County also initiated a project to identify home sewage treatment system hotspots in the watershed in 2013.

**Cuyahoga River AOC.** Reduction and elimination of the discharge of toxic chemicals and sewage has greatly improved the quality of the Cuyahoga River AOC. Federally funded GLLA sediment characterizations were completed in 2012 at the old channel near the mouth of the Cuyahoga River and at the Gorge Dam pool at the southern end of the AOC. Efforts are underway to develop a sediment management plan for the Gorge Dam sediments and determine the feasibility of dam removal. The Scranton Road Peninsula Project habitat restoration project was completed in 2013 and the two debris harvesters constructed with GLRI funding in 2012 and are now effectively removing floating debris in the shipping channel and greatly improving the aesthetic conditions. A major restoration project was completed in 2013 near the mouth of Euclid Creek under GLRI funding and various other 319 and Ohio EPA SWIF funding was successfully targeted on restoration projects within the watershed. Fish and benthos populations are in attainment for all but a small portion of the mainstem segment of the AOC. A significant milestone was reached in 2013 when two small dams just upstream from the AOC were removed, leaving only two dams impeding the Cuyahoga River flow for the lower 59 miles down to Lake Erie. Efforts to secure the funding and complete the necessary surveys and reports to remove the Route 82 (Brecksville) and Gorge Dams are currently underway.

**Maumee River AOC.** Ohio EPA was awarded funding to completed development of a Data Management and Delisting System (DMDS) to update the Stage 2 Report and provide a tool to assist the RAP with identifying the potential projects and prioritizing the critical path for delisting. Ohio EPA prioritized the Maumee River watershed assessment to assist the Maumee RAP with evaluating BUIs and updating the water quality attainment status across the watershed. The assessment was completed in 2013 and the report will be available in 2014. A major habitat restoration project was completed in 2013 on the Ottawa River at Camp Miakonda by Ohio EPA’s RAP partner, Partners for Clean Streams. GLLA site characterization projects were completed in the Swan Creek and the Maumee River with additional site characterizations in planning. A large habitat restoration project on the upper portion of the Ottawa River received GLRI funding and construction will begin in 2012. Other GLLRA site characterization work was conducted in 2011 and additional work is planned, laying the groundwork for future sediment remediation efforts. Partners for Clean Streams was also successful at securing a “challenge grant” from NOAA to remove invasive plant within the AOC.

**Statewide AOC Projects.** Ohio EPA received GLRI funding in 2011 to conduct a survey of fish tumors and other deformities in the Cuyahoga, Black and Maumee AOCs. Field work was completed in 2013 and the final report and assessment BUI4 (Fish Tumors and Other Deformities) should be available in 2014. Ohio

---

EPA is currently revising a state guidance document that sets baseline targets for each of the BUIs and provides clarification on the process for BUI removal and AOC delisting. Revision to the guidance document will assure that the restoration targets are measurable and reflect the objectives of the AOC program.

#### Lake Erie Lakewide Management Plan (LAMP, formerly LaMP)

Annex 2 of the GLWQA addresses lakewide management and specifies that the Lakewide Action and Management Plans (LAMP) for each of the Great Lakes shall document and coordinate the management actions required in the Annex. Specifically, the annex calls for the following management actions:

- establishment of Lake Ecosystem Objectives;
- assemble, assess and report on existing scientific information;
- identify research, monitoring and other science priorities and priorities to support management actions;
- conduct surveys, inventories, studies and outreach efforts to support the required assessments;
- identify the need for further action by governments and the public to address priority threats to water quality and the achievement of Lake Ecosystem objectives;
- develop and implement lake specific binational strategies;
- develop (by 2015) an integrated nearshore framework to be implemented collaboratively

The LAMPs also serve as the principle mechanism for coordinating development and implementation of the lakewide habitat and species protection and conservation strategies as required in Annex 7 (Habitat and Species) of the GLWQA. The Lake Erie LaMP was originally intended to focus on reducing loadings of toxic chemical pollutants to the lake but now also addresses nutrient loadings, land use, invasive species, and exploitation of the lake's resources. The Lake Erie LAMP should be viewed as a framework to define the management intervention needed to bring Lake Erie back to chemical, physical and biological integrity, and to further define Ohio EPA commitments to those actions.

Over the last fifteen years, the Lake Erie ecosystem has undergone changes that have significantly altered the internal dynamics of the lake. Water quality monitoring indicates that the amount of dissolved (biologically available) phosphorus that is being loaded into the lake is increasing. Algal blooms of cyanobacteria and *Cladophora* are reappearing at levels comparable to the blooms of the 1960s and 1970s. *Microcystis* in particular has been causing extensive blooms that seem to get worse in each subsequent year. In 2011, Lake Erie experienced one of the largest cyanobacteria blooms in decades and unlike recent years, the bloom extended outside of the Western Basin and into the Central Basin, affecting the waters near the Cleveland metropolitan area. Additional information about harmful algal blooms and Ohio's response is described in Section I4 of this report.

Nutrients, particularly phosphorus, appear to be the basis for the deteriorating conditions in Lake Erie. Several approaches have been initiated to address the growing problem with algal blooms in the lake. In 2013, the Lake Erie LAMP published a bi-national nutrient management strategy for the lake (available at [http://www.epa.gov/lakeerie/binational\\_nutrient\\_management.pdf](http://www.epa.gov/lakeerie/binational_nutrient_management.pdf)).

Ohio EPA was awarded GLRI funding in 2011 to continue with Phase 2 of the Ohio Lake Erie Phosphorus Task Force. Ohio EPA, in partnership with the Ohio Lake Erie Commission, the Ohio Department of Agriculture, and the Ohio Department of Natural Resources reconvened the group to 1) develop reduction targets for total and dissolved reactive phosphorus that can be used to track future progress,

---

and 2) develop policy and management recommendations based upon new and emerging data and information. The final report explores current research and recommends actions in a set of 20 recommendations contained in the Task Force's October 2013 report.

### **National Pollutant Discharge Elimination System (NPDES) Permits**

To protect Ohio's water resources, Ohio EPA issues National Pollutant Discharge Elimination System (NPDES) permits. These permits authorize the discharge of substances at levels that meet the more stringent of technology or water quality based effluent limits and establish other conditions related to issues such as combined sewer overflows, pretreatment and sludge disposal. This is an overview of the process for issuing individual NPDES permits. The series of steps for a particular permit may vary somewhat depending on the size, nature, and complexity of the discharge.

The first step in developing an NPDES permit is acquisition of chemical, physical, and biological data from the field and laboratory. In-stream chemical data are collected to determine the effect of the discharge on receiving water and sediment quality. Biological data are collected to determine if the discharge is having an impact on the fish and macroinvertebrate organisms that live in the receiving water. Effluent chemical data are also obtained to establish an accurate portrayal of current discharge conditions. In-stream chemical data and stream physical data, such as cross section measurements and flow, are necessary for conducting water quality modeling.

As part of developing effluent limits and monitoring requirements, the water quality standards that apply to the receiving water are determined, and federal effluent guidelines are consulted for applicability. Permit conditions are developed to protect the designated use and associated chemical criteria of the receiving stream as well as any applicable technology requirements. Permits are also based on the applicable regulatory requirements to address issues such as new or expanded discharges, combined sewer overflows, sludge disposal, and industrial pretreatment programs.

Since the early 1990s, Ohio EPA has moved to issuing permits on a watershed basis. Ohio EPA has built on this watershed approach in recent years by integrating the NPDES renewals with the TMDL process. Permit writers are included on the TMDL teams and work with permittees and the TMDL team on permit language necessary to implement the TMDL. This allows concurrent development of the TMDL and renewal of NPDES permits.

### **Nonpoint Source Program**

The framework for Ohio's nonpoint source program is provided in the recently updated "Ohio Nonpoint Source Management Plan (NSMP)." The updated NSMP, which outlines strategies and objectives for Ohio's NPS program for the next five (5) years, was forwarded to U.S. EPA Region 5 on December 31, 2013. The updated plan includes a description of Ohio's NPS grant funding sources which include: Section 319(h) grants and Ohio's Surface Water Improvement Fund (SWIF). The NSMP also includes a listing of State, Federal and Local partners—those with whom we rely on to best implements the strategies outlined in the updated plan.

The NSMP plan provides four (4) sections where one can easily understand the strategic vision along with aggressive (yet reasonable) goals and objectives of Ohio's NPS program over the next five years. These sections include:

- 
1. Urban Sediment and Nutrient Reduction Strategies—including recommended practices
  2. Altered Stream and Habitat Restoration Strategies—including recommended practices
  3. Nonpoint Source Reduction Strategies—including practices and management actions to reduce silt, sediment and nutrient losses from agricultural lands
  4. High Quality Waters Protection Strategies

Ohio's Nonpoint Source Program currently is administering various Great Lakes Restoration Initiative (GLRI) including Cuyahoga and Lucas County (county specific) Stormwater Demonstration grants, where matching SWIF dollars helped to leverage approximately twenty-two (22) projects in the past several years. There are also three (3) currently active GLRI grants relating to targeting (at the HUC12 scale) and improving agricultural practice adoption, installation and implementation. These projects, which also include outreach, and home sewage system deliverables) are focused in these watersheds:

- Loss Creek, Sandusky River Watershed (Crawford County, Ohio)
- Lye Creek, Blanchard River Watershed (Hancock County, Ohio)
- Powell Creek, Auglaize River Watershed (Defiance County and Putnam County, Ohio)

Ohio NPS program also oversees several other important programs and initiatives. The Ohio Inland Lakes Program is designed to assess, evaluate and protect or restore Ohio's inland lakes. The updated NSMP includes 5-year goals and objectives for the Inland lakes Program. The Ohio NPS program oversees the Healthy Waters Initiative, which implements activities based upon the findings of TMDL reports and action items provided in endorsed watershed action plans. The Ohio NPS program oversees the Ohio Watershed program. Thirteen years after it was established, the Ohio Watershed Program is in a state of transition. Simply put, over the next five (5) years Ohio's Watershed Program will be much more focused on implementing practices identified in TMDLs and endorsed watershed action plans and tracking progress.

Ohio's NPS program is now also overseeing Ohio's Lake Erie Program. This program tracks implementation of Remedial Action Plans on Lake Erie Tributaries designated as "Areas of Concern," supports Lake Erie Nearshore Monitoring, and participates in the development and implementation of the Lakewide Action and Management Plan (LAMP), which is a document that outlines and helps coordinate management actions to protect and restore Lake Erie. The updated NSMP includes 5-year goals and objectives for Ohio's Lake Erie Program.

Most of Ohio's population is located in urban areas and, likewise, are located near major rivers that are impacted by hydromodification, riparian corridor losses, and inputs from storm sewer. Ohio's NPS program is committed to partner with communities; to provide leadership and funding for communities; and to use a well-defined hierarchy that prioritizes projects, so that high magnitude causes of impairment are eliminated and impaired streams segments in urban areas are incrementally restored. Progress toward achievement of Ohio's §319 grants program goals will continue to be measured as part of Ohio's NPS Monitoring and Assessment Initiative. For the past five (5) years, Ohio EPA staff conducts all monitoring (physical, chemical, and biological), beginning with baseline monitoring through project completion to determine the effectiveness of §319 (h) and SWIF funded nonpoint source projects. This initiative not only provides cost savings and improved data quality, but also relieves grant recipients of a task which was often difficult for them to do properly. This initiative also serves as a very important environmental measure: Are NPS-funded projects improving water quality or not? For example, one environmental program measure that Ohio EPA will be using is the number of SP-12 watersheds that

---

have shown improvement and the number SP-10 Success Stories Ohio will submit during the programming period.

### **Pretreatment**

The State of Ohio received authorization to administer the Pretreatment Program on July 27, 1983. Ohio has approved 108 local pretreatment programs. Many of these programs, such as Cincinnati's Metropolitan Sewer District and Cleveland's Northeast Ohio Regional Sewer District, are national leaders and are regarded as very strong pretreatment programs.

A goal of Ohio EPA's Pretreatment Program is to permit 100% of significant industrial users (SIUs) with control mechanisms to implement applicable pretreatment standards and requirements. The Ohio EPA permit framework is designed to ensure that all SIUs within the state, regardless of the publicly-owned treatment works' (POTW) pretreatment program approval status, are issued permits. Those SIUs in approved pretreatment program POTWs are identified by industrial user surveys. All of the State's 1,318 SIUs discharging to POTWs with approved programs, and all 152 (known) SIUs that discharge into pretreatment POTWs without approved pretreatment programs have control mechanisms, for a total of 1,470 known SIUs in Ohio.

A highlight of Ohio's program is the strong indirect discharge permit program. The Ohio Indirect Discharge Permit (IDP) program permits, monitors, inspects, and provides enforcement to the SIUs that discharge into pretreatment POTWs without approved pretreatment programs. By this program, Ohio EPA prevents toxic discharges to these smaller POTWs and thereby reduces the potential of severe environmental harm from these facilities.

### **Section 208 Plans and State Water Quality Management Plan**

Ohio EPA oversees the State Water Quality Management (WQM) Plan. The State WQM Plan is a requirement of Section 303 of the Clean Water Act and must include nine (9) discrete elements:

1. Total maximum daily loads (TMDLs)
2. Effluent limits
3. Municipal and industrial waste treatment
4. Nonpoint source management and control
5. Management agencies
6. Implementation measures
7. Dredge and fill program
8. Basin plans
9. Ground water

In layperson terms, the State WQM Plan is an encyclopedia of information used to plot and direct actions that abate pollution and preserve clean water. A wide variety of issues is addressed and framed within the context of applicable law and regulations. For some issues and locales, information about local communities may be covered in the plan. Other issues are covered only at a statewide level. Many of the topics or issues overlap with planning requirements of CWA Section 208 (items 3-9 above). The State WQM Plan includes, through references to separate documents, all 208 plans in the State.

Local governments typically conduct planning to meet the sewage disposal needs of the community. Ohio EPA has established guidelines for planning that are useful in the context of Section 208 and the

---

State Water Quality Management Plan. Local governments that follow these guidelines are more likely to have the results of their planning work incorporated into the State 208 plan prepared by Ohio EPA. The Areawide Planning Agencies have established their own operating protocols, committees and processes to involve local governments in shaping their 208 plans.

Under Section 208 of the federal Clean Water Act, States may designate regional planning agencies to prepare, maintain and implement water quality management plans. All six Areawide Planning Agencies were able to update their 208 plans in 2011 because of increased funding through ARRA and the State's biennium budget. These updates were certified by the Governor and approved by U.S. EPA in 2012. Additional updates occur on an ongoing basis.

### **Section 401 Permits**

The Federal Clean Water Act requires anyone who wishes to discharge dredged or fill material into the waters of the United States, regardless of whether on private or public property, to obtain a Section 404 permit from the U.S. Army Corps of Engineers and a Section 401 Water Quality Certification from the state. Ohio EPA is responsible for administering the Section 401 water quality certification process in Ohio.

Rules governing the 401 review process are currently found in Section 3745-1-5 Stream Antidegradation, 3745-01-50 through 54 (Wetland Water Quality Standards), and 3745-32-1 through 7 (Water Quality certification) of the Ohio Administrative Code. Under Ohio's Antidegradation Review, the director may authorize the lowering of water quality resulting from the discharge of dredged or fill material only after conducting 1) an alternatives analysis, 2) intergovernmental coordination with other state and federal resource agencies, and 3) a public involvement process, and after determining that the lowering of water quality will not result in the violation of state water quality standards.

Applicants must develop three alternatives for each development: preferred, minimal degradation, and non-degradation alternatives. The alternatives analysis is intended to walk applicants through a deliberate process to avoid and minimize impacts to aquatic resources while still achieving the project's purpose and need. Applicants must provide compensatory mitigation for any unavoidable impacts to streams or wetlands. The program emphasizes evaluation of physical habitat and bio-criteria to determine potential impacts to water quality and to evaluate potential mitigation sites.

Ohio EPA strongly encourages applicants to engage in pre-application coordination early in the development phase to help identify high quality resources, discuss potential alternatives, and identify mitigation obligations. Under state law, the 401 application must contain 10 specific items in order for the technical review to begin. When the application is formally considered complete, Ohio EPA has 180 days to conduct its technical review and either approve or deny the project. An applicant may withdraw the application. All projects are subject to minimum 30 day public comment period. Controversial projects may also require a public hearing.

Ohio EPA certified many of the nationwide permits on July 5, 2007 (subject to conditions). The nationwide permits must be renewed every 5 years. Nationwide permits are certain types of projects that are similar in nature and cause minimal degradation to waters of the State.

401 staff are assigned a specific region of the state based on Ohio EPA districts. In addition, Ohio EPA has staff dedicated specifically to the review of coal mining and ODOT projects, as well as the review of

---

stream and wetland mitigation project compliance. Additional staff is dedicated to wetland research in support of the 401 permitting program.

### **Semi-Public Disposal System Inspection Contracts (HB 110)**

Annually, Ohio EPA issues hundreds of permits for the installation and operation of small, commercial/industrial wastewater treatment and/or disposal systems. These may be onsite soil dissipation systems or discharging systems under the NPDES permit program for the treatment and disposal of sewage generated within the operation. To date, there are thousands of these small systems operating in Ohio. These “semi-public” systems may include apartment complexes, small businesses, industrial parks, etc. and, by definition, are basically any system that treats sewage from human activities up to a capacity of 25,000 gallons per day. Because of the magnitude and resources available, many of these systems have the potential of going without regular inspections to determine if they are complying with state rules, laws and regulations and ultimately protecting water quality.

As an aid to support this program, the Ohio General Assembly created Ohio EPA's HB110 Program. The program is a contractual partnership between Local Health Districts (LHDs) and Ohio EPA, whereby LHDs conduct, on behalf of the Agency, inspection and enforcement services for commercial sanitary waste treatment/disposal systems discharging between 0-25,000 gallons per day (semi-publics).

Ohio EPA operates the HB110 Program to better protect the public health and welfare and to protect the environment. Ohio EPA believes that because of the proximity, the multitude of facilities, and the availability of resources, oversight of operations for sanitary waste disposal at semi-publics may best be accomplished locally by qualified personnel.

To offset costs of local oversight, State law (Revised Code 3709.085) authorizes LHDs to charge fees for inspection services to be paid by semi-publics.

#### Inspection Program

In accordance with Ohio EPA's HB110 contracts, LHDs regularly inspect sanitary facilities at semi-publics for compliance with Ohio's water pollution control laws and regulations. Investigations of complaints regarding waste disposal by semi-publics are also accomplished locally.

Ohio EPA also consults with LHDs on the approval of plans and issuance of permits-to-install (PTIs) for semi-publics. Installation inspections may be performed locally to ensure compliance with Ohio EPA's PTI conditions.

#### Enforcement Activities

In coordination with Ohio EPA, LHDs may notify entities of noncompliance with Ohio's water pollution control regulations. LHDs are also instrumental in identifying semi-publics installed without PTIs, of which Ohio EPA may not be aware.

Where noncompliance notification and informal requests fail to correct violations, entities may be referred to Ohio EPA for enforcement or the County Prosecutor may bring an action under local nuisance ordinances. All discharges of pollutants in a location where they cause pollution of waters of the state that are unpermitted or in excess of permitted amounts are statutory nuisances under Revised Code 6111.04.

---

### Training Program

Ohio EPA intends to provide periodic training for LHDs. Training programs will focus on sanitary waste disposal for Semi-Public facilities, technical assistance, inspection issues, and enforcement case development.

### Summary

The HB110 Program is a unique opportunity for Ohio EPA and LHDs to assist one another in achieving the mutual goal of protecting public health and welfare. Through responsible regulation of Semi-Public facilities, the local community will benefit from decreased health risks and the State as a whole will benefit from improvements in water quality. Ohio EPA welcomes the participation of all LHDs.

### **Storm Water Permit Program**

Ohio EPA implements the federal regulations for storm water dischargers. Dischargers currently covered include certain municipalities (Phases I and II of the program) with separate storm sewer systems (MS4s) and those facilities that meet the definition of industrial activity, including construction, in the federal regulations.

Ohio EPA initially issued two storm water general permits: one for construction activity and the other for all remaining categories of industrial activity in 1992. The strategy was to permit the majority of storm water dischargers with these baseline general permits (33 USC § 1342; OAC 3745-38). It is estimated that over 38,000 storm water discharges have been granted general permit coverage since that time. The industrial permit has been renewed four times. The construction permit was renewed in April 2013 for the third time and addresses large and small construction sites. The application form is one-page and called a Notice of Intent (NOI). Ohio EPA responds to NOIs with approval letters for coverage under one of the general permits or, in limited instances, instructions to apply for an individual permit.

After the baseline general permits were issued, Ohio EPA directed its efforts towards further permitting, compliance and enforcement activities, education and technical assistance. Inspections and complaint investigations for compliance and enforcement have been handled at the district level as resources allow. Best management practices (BMPs) and pollution prevention has been the major thrust of education and technical assistance activities.

On the municipal side of permitting, five large and medium municipalities in Ohio submitted applications between November 1991 and November 1993. A work group was formed with the cities to draft acceptable permit language for the municipal permits. Best management practices included in a city-wide storm water management plan was the primary focus of the permits. The cities of Dayton, Toledo and Akron received their original permits in 1997. Exceptions for Cleveland and Cincinnati were also processed. Columbus received its initial permit in 2000. Permits for Columbus, Toledo, and Akron have been renewed twice. Dayton's permit has been renewed three times.

Additional categories of discharges, both public and privately owned, were included in Phase II. U.S. EPA issued Phase II regulations in December of 1999. The Phase II storm water regulations required a general permit for small MS4s be issued by December of 2002, and required applications by March of 2003. Ohio EPA issued two general permits for small MS4s during 2002. One is a baseline permit and the second is for MS4s in rapidly developing watersheds. This latter permit accelerated construction and post-construction measures to protect surface waters from the impacts of high density land use development. Federal regulations allowed small MS4s to apply for individual NPDES permits in lieu of

---

general permit coverage. No small MS4 within Ohio chose the individual permit option. The Small MS4 general permit was renewed on January 30, 2009.

On the construction side of permitting, Ohio EPA has begun to develop and issue watershed specific construction permits if recommended by a TMDL. On September 12, 2006, Ohio EPA issued a watershed specific construction permit for the Big Darby Creek watershed and this permit was renewed on October 1, 2012. On January 23, 2009 Ohio EPA issued a watershed specific construction permit for portions of the Olentangy River watershed. These permits contain conditions/requirements that differ from the standard construction permit and each other. Ohio EPA anticipates developing additional watershed specific permits when recommended by TMDLs.

### **Total Maximum Daily Load Program**

The Total Maximum Daily Load (TMDL) Program identifies and restores polluted waters. TMDLs can be viewed simply as problem solving: investigate the problem, decide on a solution, implement the solution, and check back to make sure the solution worked. By integrating programs and aligning resources, Ohio is pursuing TMDLs as a powerful tool to develop watershed-specific prescriptions to improve impaired waters.

Ohio uses three key enhancements to the basic federal TMDL requirements to increase the chances that real, measurable improvements in Ohio's water resources will result:

- an initial, in-depth watershed assessment to obtain recent data for analysis of problems and discussion of alternatives
- implementation actions identified as part of the TMDL with follow-through in permitting and incentive programs such as 319 and loan funds
- involving others – citizens, landowners, officials, natural resource professionals – in the process.

In particular, involving others is critical to restoring waters. Working watershed by watershed, Ohio EPA meets with citizens and landowners to explain the findings of our water quality studies and to identify workable solutions to the problems Ohio EPA has found. Ohio EPA includes other agencies that can improve water resources either by exercising their authority in new ways or through relationships they have already established with critical decision makers. After solutions are identified and recommendations are made, Ohio EPA follows through with meetings with consultants, elected officials, and others to ensure that projects continue to completion.

Ohio's TMDL Program approach has been endorsed by an external advisory group of Ohio citizens, businesses, and interest groups. The program incorporates many of the recommendations of the National Research Council 2001 study.

TMDLs are active in about 75% of Ohio's watershed units, as shown in the "Ohio TMDL Program Progress" map in Section K. By the end of 2013, more than 60 TMDL projects had been approved by U.S. EPA and nearly 40 others are currently being developed. The approved projects include two federal TMDLs completed by U.S. EPA Region 5 (Wabash River (05120101 101 and 040) and Mahoning River (05030103 050 and 080)). All of these TMDLs are available on Ohio EPA's TMDL web page at <http://www.epa.ohio.gov/dsw/tmdl/index.aspx>.

---

## Water Quality Standards

Our water quality is constantly threatened by many different sources and types of pollution. Under the Clean Water Act, every state must adopt water quality standards to protect, maintain and improve the quality of the nation's surface waters. These standards represent a level of water quality that will support the goal of “swimmable/fishable” waters. Water quality standards are ambient standards as opposed to discharge-type standards. These ambient standards, through a process of back calculation procedures known as total maximum daily loads or wasteload allocations form the basis of water quality based permit limitations that regulate the discharge of pollutants into surface waters under the National Pollutant Discharge Elimination System (NPDES) permit program. The key components of Ohio’s WQS (OAC Chapter 3745-1) are described below.

*Beneficial use designations* describe existing or potential uses of water bodies. They take into consideration the use and value of water for public water supplies, protection and propagation of aquatic life, recreation in and on the water, agricultural, industrial and other purposes. Ohio EPA assigns beneficial use designations to water bodies in the state. There may be more than one use designation assigned to a water body. Examples of beneficial use designations include: public water supply, primary contact recreation, and aquatic life uses (warmwater habitat, exceptional warmwater habitat, etc.).

*Numeric criteria* are estimations of concentrations of chemicals and degree of aquatic life toxicity allowable in a water body without adversely impacting its beneficial uses. Although numeric criteria are applied to water bodies, they primarily are used to regulate dischargers through NPDES permits. To ensure protection of those beneficial uses, Ohio EPA determines maximum acceptable concentrations for over 100 chemicals.

*Narrative criteria* are general water quality criteria that apply to all surface waters. These criteria state that all waters shall be free from sludge, floating debris, oil and scum, color and odor producing materials, substances that are harmful to human, animal or aquatic life, and nutrients in concentrations that may cause algal blooms. Much of Ohio EPA's present strategy regarding water quality based permitting is based upon the narrative free from, “no toxics in toxic amounts.” Ohio EPA developed its strategy based on an evaluation of the potential for significant toxic impacts within the receiving waters. Other components of this evaluation are the biological survey program and the biological criteria used to judge aquatic life use attainment.

*Biological criteria* are based on aquatic community characteristics that are measured both structurally and functionally. These criteria are used to evaluate the attainment of aquatic life uses. The data collected in these assessments are used to characterize aquatic life impairment and to help diagnose the cause of this impairment. The principal biological evaluation tools used by Ohio EPA are the Index of Biotic Integrity (IBI), the Modified Index of Well-Being (MIwb) and the Invertebrate Community Index (ICI). These three indices are based on species richness, trophic composition, diversity, presence of pollution-tolerant individuals or species, abundance of biomass, and the presence of diseased or abnormal organisms. The IBI and the MIwb apply to fish; the ICI applies to macroinvertebrates. Ohio EPA uses the results of sampling reference sites to set minimum criteria index scores for use designations in water quality standards.

*Antidegradation policy* aims to keep clean waters clean if possible. The policy is adopted in rule (OAC 3745-1-05) and describes the conditions under which water quality may be lowered in surface waters. Existing beneficial uses must be maintained and protected. Further, water quality better than that

---

needed to protect existing beneficial uses must be maintained unless lower quality is deemed necessary to allow important economic or social development (existing beneficial uses must still be protected).

*Public participation* is mandated and encouraged in all administrative rule makings including the WQS. Any interested individuals are afforded an opportunity to participate in the process of developing water quality standards. Ohio EPA reviews and, as appropriate, revises water quality standards at least once every three years. When water quality standards revisions are proposed, the public is notified of these revisions. A public hearing is held to gather input and comments.

### **Wetland Bioassessment Program**

Numerous grants from U.S. EPA over many years have funded work that is advancing the science of wetland assessment methodologies in Ohio. Published work includes an amphibian index of biotic integrity (AmphIBI) for wetlands, a vegetation index of biotic integrity (VIBI) for wetlands, and a comparison of natural and mitigation (constructed) wetlands. More recently, reports on an assessment of the condition of wetlands in the Cuyahoga River watershed, a study on the condition and functions of urban wetlands, a comparison of the ecological condition of 25 randomly selected mitigation wetlands from around the state with results from Ohio's natural wetlands, and the development of a GIS tool to identify potential vernal pool habitat restoration areas have become available on the Division of Surface Water web page: [http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection\\_reports.aspx](http://www.epa.ohio.gov/dsw/wetlands/WetlandEcologySection_reports.aspx). Studies currently in progress include an in-depth analysis of the association between stream and wetland condition and functions in the Big Run Scioto River watershed and incorporating wetland information with data from other surface water resources to develop a total maximum daily load analysis of a watershed. DSW recently received a grant from the federal government to assess the ecological condition of 50 randomly selected natural wetlands located across Ohio in order to generate a "scorecard" of wetland condition. This grant "intensifies" data collected as part of U.S. EPA's National Wetland Condition Assessment conducted across the United States in 2011. Future studies will include a detailed study of hydrologic functioning within natural and constructed wetlands and continued investigations of various taxonomic groups (e.g., birds, bryophytes, algae, etc.) to determine their potential use in new and improved wetland assessment techniques.

### **Wetland Protection Program**

Ohio's Wetland Water Quality Standards (OAC 3745-1-50 to -54) contain definitions, beneficial use designations, narrative criteria and antidegradation provisions that guide Ohio EPA's review of projects in which applicants are seeking authorization to discharge dredged or fill material into wetlands. Ohio Administrative Code 3745-1-53 gives all wetlands the "wetland" designated beneficial aquatic life use. However, wetlands are further defined as Category 1, 2, or 3 based on the wetland's relative functions and values, sensitivity to disturbance, rarity, and potential to be adequately compensated for by wetland mitigation.

Category 1, 2, and 3 wetlands demonstrate minimal, moderate and superior wetland functions, respectively. Category 1 wetlands are typified by low species diversity, a predominance of non-native species, no significant habitat or wildlife use, and limited potential to achieve beneficial wetland functions. Category 2 wetlands may be typified by wetlands dominated by native species but generally without the presence of, or habitat for, rare, threatened or endangered species, as well as wetlands that are degraded but have a reasonable potential for reestablishing lost wetland functions. Category 3 wetlands typically possess high levels of diversity, a high proportion of native species, high functional

---

values and may contain the presence of, or habitat for rare, threatened and endangered species. Wetlands that are scarce, either regionally or statewide, form a subcategory of Category 3 wetlands for which, when allowable, only short-term disturbances may be authorized.

The rigor of the Antidegradation Review conducted under 3745-1-50 through 54 is based on the wetland category of the wetlands proposed to be impacted. Category 1 wetlands are classified as Limited Quality Waters and may be impacted after examining avoidance and minimization measures and determining that no significant impacts to water quality will result from the impacts. Category 2 and 3 wetlands are classified as General High Quality Waters, and may be impacted only after a formal examination of alternatives and a determination that the lowering of water quality is necessary to accommodate social and economic development. In addition, an applicant must demonstrate that “public need” is achieved in order to receive authorization to impact Category 3 wetlands. Compensatory mitigation ratios are based on wetland category, vegetation class, and proximity of the mitigation to the impact site.

## **C2. Program Summary – Environmental and Financial Assistance**

The Division of Environmental and Financial Assistance (DEFA) provides incentive financing, supports the development of effective projects, and encourages environmentally proactive behaviors through two main programs: the Ohio Water Pollution Control Loan Fund and the Water Supply Revolving Loan Account. In addition, the Division reviews Ohio Power Siting Board applications to identify potential environmental impacts from proposed projects, as well as measures to mitigate these impacts to acceptable levels.

### *Water Pollution Control Loan Fund*

In calendar year 2012, the Water Pollution Control Loan Fund (WPCLF) financed a number of municipal wastewater treatment needs, as well as nonpoint source pollution control needs, as enumerated below. Through this program, \$309,424,237 in financing was provided for 102 projects, of which 70 projects were for municipal point sources, and 32 projects assisted nonpoint source controls.

The WPCLF financed implementation of 70 municipal wastewater treatment projects costing \$297,444,176. These projects directly addressed sources of impairment for Ohio water resources. Forty-four (44) of these 70 loans (totaling \$64,602,169) were made to communities with a service population of less than 5,000 people.

During calendar year 2012, nonpoint source pollution was addressed through three programs of the WPCLF. A total of \$11,980,061 was awarded for nonpoint source pollution control projects in 2012. The Water Resource Restoration Sponsor Program (WRRSP) financed eight (8) projects for \$9,461,600 to protect and restore stream and wetland aquatic habitats. The WPCLF linked deposit program provided interest rate reductions for twelve (12) loans totaling \$839,461 to private agricultural producers for the implementation of best management practices to control nonpoint water source water pollution, and to individuals for septic system improvements. Lastly, direct (principal forgiveness) loans were awarded to 12 entities (totaling \$1,679,000) for the correction of failing home sewage treatment systems to economically distressed individuals.

---

### *Water Supply Revolving Loan Account*

The Water Supply Revolving Loan Account focuses on drinking water supplies. In SFY 2012, the fund made 44 loans totaling \$68,630,102, which included \$40,272,850 to economically disadvantaged communities.

### *Ohio Power Siting Board*

Recent years have brought several shifts in the types of applications submitted to the Ohio Power Siting Board. For several years, wind power applications dominated the scene, with two major wind farms operational, while several others are awaiting the start of construction, and a few more are currently under development or being formally reviewed for approval by the Board. Aside from wind power, there is now renewed interest in gas-fired electric generation facilities, based on the low cost and abundance of natural gas sources, with at least two major generation plants being moved through the review process and towards construction. Overall, the number of OPSB projects has been steadily increasing, due largely to a major increase in electric transmission line upgrades, replacements, and entirely new systems. And, while OPSB jurisdictional pipeline projects have been relatively few lately, there has been a huge increase in gas product pipelines associated with Marcellus and Utica shale drilling activities, which are outside the OPSB approval process, but still represent potential major sources of impacts to Ohio's water resources. Typical issues encountered as part of DEFA's review work on most of these projects include stream and wetland crossings and restoration work; stream, wetland, and woodland protection; threatened/endangered species; and headwater stream protection.

## **C3. Program Summary – Drinking and Ground Waters**

The Ohio EPA Division of Drinking and Ground Waters (DDAGW) mission is to "Protect human health by characterizing and protecting ground water quality and ensuring that Ohio's public water systems provide adequate supplies of safe water". The division has several programs in place to achieve this mission.

### **Drinking Water Program**

Every Ohioan relies on a safe source of drinking water. The DDAGW Drinking Water Program has jurisdiction over 5,000 public water systems that are required to ensure a safe and adequate supply of drinking water to over 11 million Ohioans.

The Drinking Water Program's functions include overseeing the design and construction of drinking water treatment facilities through plan approval; conducting sanitary survey inspections; administering an operator certification program and a drinking water revolving loan fund; managing compliance monitoring for bacteriological and chemical contaminants; working with public water systems to implement corrective actions when significant deficiencies are identified; developing state rules and guidance for implementing new federal drinking water regulations; and sharing public water system information with the public on the Division web site.

### **Ground Water Program**

The DDAGW's Ground Water Program maintains a statewide ambient ground water quality monitoring program; shares ground water quality data on the division web site; conducts ground water quality

---

investigations; provides technical support to other Ohio EPA programs by providing technical expertise on local hydrogeology and ground water quality; and protects ground water resources through the regulation of waste fluid disposal in its Underground Injection Program for Class I, IV and V wells.

### **Source Water Protection Program**

Several programs are in place or are being implemented to help protect Ohio's water resources. The Source Water Assessment and Protection Program protects aquifers and surface water bodies that are used by public water systems. A public water supply beneficial use assessment methodology has been developed in conjunction with the Division of Surface Water and it is being implemented. In addition, significant interdivision and interagency efforts are being expended to implement Ohio's Harmful Algal Bloom Response Strategy.

## **C4. Program Summary – Environmental Services**

For Ohio EPA to protect public health and the environment, Agency staff depends on scientific data to make well-informed decisions. The Division of Environmental Services (DES), Ohio EPA's laboratory, provides most of this data. DES analyzes environmental samples for more than 300 parameters. The laboratory provides chemical and microbiological analyses of drinking, surface, and ground water; wastewater effluent, sediment; soil; sludge; manure; air filters and air canisters; and fish tissue. Annually DES processes approximately 10,000 samples, generating approximately 139,500 inorganic and 91,000 organic data points. DES also is responsible for administering U.S EPA's Discharge Monitoring Report-Quality Assurance Study Program, inspects drinking water and waste water laboratories and provides technical assistance to Ohio EPA divisions as well as state and local agencies.

## **C5. Cooperation among State Agencies and Departments**

### **Ohio Water Resources Council**

The Ohio Water Resources Council (OWRC), established in statute in 2001, is a forum for policy development, collaboration and coordination for one of Ohio's most important natural resources—water. The OWRC membership is comprised of an Executive Assistant to the Governor and the directors of the following nine state agencies and commissions:

- Ohio Environmental Protection Agency
- Ohio Department of Natural Resources
- Ohio Department of Health
- Ohio Water Development Authority
- Ohio Public Works Commission
- Ohio Department of Transportation
- Public Utilities Commission of Ohio
- Ohio Department of Agriculture
- Ohio Department of Development

---

Members of the OWRC meet regularly to work on initiatives and projects that will advance Ohio's strategic goals for water resource management. The OWRC continues to work with a multi-stakeholder group to advise the OWRC. Additional information is available online at: [www.ohiodnr.com/owrc/](http://www.ohiodnr.com/owrc/).

### **Ohio Lake Erie Commission**

The Ohio Lake Erie Commission is comprised of the directors of the Ohio EPA and the Ohio departments of natural resources, transportation, development, health and agriculture. The role of the Commission is to preserve Lake Erie's natural resources, to protect the quality of its waters and ecosystem, and to promote economic development of the region. The Commission administers Ohio's Lake Erie Protection Fund, which was established to finance research and implementation projects aimed at protecting, preserving and restoring Lake Erie and its watershed. Since its inception in 1993, the Commission has awarded over 11.5 million dollars for projects that lead to better management decisions for both environmental and economic development, and further the goals of the *Lake Erie Protection and Restoration Plan*. The Fund is supported through donation or purchase of a Lake Erie license plate displaying the Marblehead Lighthouse or the Lake Erie life ring design. Additional information is available online at <http://lakeerie.ohio.gov/>.

## **C6. Funding Sources for Pollution Controls**

Several sources that provide funding for water quality improvement projects exist. An Ohio EPA publication titled "State and Federal Funding for Drinking Water and Wastewater Systems" details some of the State of Ohio funding sources. A few of the entities with funding available in Ohio include: Ohio EPA, the Ohio Public Works Commission, the Ohio Water Development Authority, and the Rural Development Administration. Additional funds from the federal government, as well as the investment in water pollution control measures made by municipal and county governments and the private sector, are the reason for dramatic improvements in water quality in Ohio since the inception of the Clean Water Act in 1972.

A summary of funding sources, amounts and trends is presented here. The summary is not exhaustive. Efforts have been made to include funding sources not traditionally associated strictly with water quality improvement but that nevertheless have the potential to positively impact Ohio's water resources.

It is beyond the means of this report to place a dollar value on the environmental improvements gained to date. However, Ohio EPA has documented the recovery of numerous major river segments including the Cuyahoga River, Licking River, Paint Creek and Scioto River. The latter is a featured success story on the Division's web page (<http://epa.ohio.gov/dsw/bioassess/BeneficialUseGoals.aspx>). The most successful restoration efforts in Ohio have been those that have combined one or more of the following sources to reach their water resource goals. Different funding sources are directed towards many different facets of water resource management, so there is always a challenge to pursue and coordinate the different programs at one time. Such coordination takes time and administrative effort to be successful.

## Clean Ohio Fund

Although not tied directly to measures of water resource improvement, a major Ohio bond fund provides funds for projects that should positively impact water quality in the state. The Clean Ohio Fund, created in November 2000, provides \$400 million over four years for “Brownfield” environmental cleanup projects and “Greenfield” open space and conservation preservation projects. Placed before Ohio's voters as Issue 2 in 2008, the ballot initiative was overwhelmingly approved in all 88 counties, which extended the Fund with another \$400 million bond program. The Fund consists of four competitive funding programs, as described below.

Clean Ohio Program	Purpose	Administered by	Funding/year
Clean Ohio Green Space Conservation Program	funds preservation of open spaces, sensitive ecological areas, and stream corridors	Ohio Public Works Commission	\$37,500,000
Clean Ohio Agricultural Easement Purchase Program	supports the permanent preservation of Ohio's most valuable farmland through the purchase of development rights	Department of Agriculture	\$6,250,000
The Clean Ohio Trails Fund	improve outdoor recreational opportunities by funding trails for outdoor pursuits of all kinds	Ohio Department of Natural Resources	\$6,250,000
The Clean Ohio Revitalization Fund	cleanup of polluted properties so that they can be restored to productive uses	Ohio Department of Development and the Ohio EPA	\$50,000,000

## Ohio Water Development Authority

The Ohio Water Development Authority (OWDA) offers financial assistance for a number of project types, either alone or in conjunction with a state agency (including Ohio EPA). In addition to solid waste, brownfields, and emergency programs, OWDA oversees the Fresh Water Fund. The Fresh Water Fund is a market rate program that mirrors the below-market financing available through the Water Supply Revolving Loan Account Fund and the Ohio Water Pollution Control Loan Fund (see below). The OWDA 2012 annual report provides an overall summary of loan expenditures for all State of Ohio water and wastewater programs in 2012 (OWDA 2013). More information about the OWDA can be found at <http://www.owda.org/owda0001.asp?PgID=homepage>.

Project Type	2012		2011		% of 2011
	Number	Amount (mil \$)	Number	Amount (mil \$)	
Planning					
Water	27	7.2	18	4.5	162.6
Wastewater	67	46.9	70	93.5	50.1
Subtotal	94	54.1	88	98.0	55.6
Construction					
Water	77	148.2	73	102.8	144.1
Wastewater	78	401.2	115	429.9	93.3
Subtotal	155	549.4	188	532.8	103.2
Total	249	603.5	276	630.7	95.8

---

## **Water Supply Revolving Loan Account Fund**

The Ohio Water Supply Revolving Loan Account (WSRLA) provides an opportunity for mutually beneficial partnerships between Ohio EPA and Ohio's public water systems to assure a safe and adequate supply of drinking water for all the citizens of Ohio. This is accomplished primarily by providing below-market interest rates for compliance related improvements to community (public) water systems and non-profit non-community public water systems. Additionally, the WSRLA can provide technical assistance to public water systems in a variety of areas from the planning, design and construction of improvements to enhancing the technical, managerial and financial capacity of these systems.

The WSRLA is administered by Ohio EPA's Division of Drinking and Ground Waters (DDAGW) and the Division of Environmental and Financial Assistance (DEFA). Certain financial management services are also provided by the Ohio Water Development Authority. More information can be found at <http://www.epa.ohio.gov/defa/Home.aspx>.

## **Water Pollution Control Loan Fund**

Municipal wastewater treatment improvements—sewage treatment facilities, interceptor sewers, sewage collection systems and storm sewer separation projects—and nonpoint pollution control projects are eligible for financing under the Ohio Water Pollution Control Loan Fund (WPCLF). This state revolving fund, jointly administered by the Ohio EPA and OWDA, was established in 1989 to replace the Construction Grants Program. Construction loans from the WPCLF are available at a number of interest rates: a standard rate which is below market rates, a small community interest rate which is below the standard interest rate, and 1 percent and 0 percent interest rate loans for hardship communities. Planning and design loans are available at a short-term interest rate. Applications for WPCLF loans are made to the Ohio EPA Division of Environmental and Financial Assistance. Eligible activities include:

- improvements to and/or expansions of wastewater treatment facilities
- improvement or replacement of on-lot wastewater treatment systems
- brownfield/contaminated site remediation
- agricultural runoff control and best management practices
- urban storm water runoff
- septage receiving facilities
- landfill closure
- septic system improvement
- development of best management practices
- forestry best management practices.

## **Section 319 Grants Program**

Ohio EPA receives federal Section 319(h) funding to implement a statewide nonpoint source program, including offering grants to implement local projects to reduce the impacts of nonpoint sources of pollution. Annual funding for local sub grant awards typically averages \$3 million. Section 319(h) grants are awarded for projects such as lowhead dam removal, natural stream channel reconstruction, urban storm water infrastructure retrofits, wetland restoration, or other projects designed to restore impaired waters. Projects identified in watersheds with TMDLs and/or with endorsed watershed action plans that

are aimed at eliminating identified sources of impairment or restoring impaired waters are most likely to receive funding. Other eligible activities include lake management projects and demonstration projects focused on agricultural best management practices that are not typically funded under Farm Bill programs. Nearly all successful grant applications are from watersheds that have either completed an endorsed local watershed action plan or in watersheds where TMDL studies have been completed.

### Federal Farm Bill Funding in Ohio

Among funding sources from the federal government, those connected to the “Food, Conservation, and Energy Act of 2008” legislation are notable. Administered by the U.S. Department of Agriculture (USDA), several programs provide cost share, technical assistance, and economic incentives to install and/or implement nonpoint source pollution management practices. In fiscal year (FY) 2012, the total obligation to carry out environmentally related programs was approximately \$24,200,000. This includes obligations for the Environmental Quality Incentives Program (EQIP), the Wetland Restoration Program (WRP) and easement acquisition.

#### Fiscal Year 2012 Enrollment for Ohio EPA

Source: *Natural Resources Conservation Service (October 2012)*

Program	Number of Contracts/Agreements	Acres Enrolled	Dollars Obligated
WRP	17	1,122	> \$3.5 million in easement purchases
EQIP	1,122	71,327	\$20,711,824

Set-aside types of programs such as the Conservation Reserve Program (CRP) and the Conservation Reserve Enhancement Program (CREP) are the most popular of available conservation programs available in Ohio. Targeted acreage through these programs is intended to be environmentally sensitive or land that can have a particularly deleterious impact on natural resources when farmed. Examples include highly erodible land, land near waterways, land that was formerly wetland, and lands that can serve as habitat critical to declining wildlife populations. As of April 30, 2013, there are 318,559 acres enrolled in the CRP program in Ohio. Enrollment, however, is currently in decline. By the end of September 2013, contracts for more than one-sixth, or 54,628, of the acres currently enrolled will expire. Even though payments for soil rental (i.e., reimbursement for land removed from production) are being raised to match pace with near-record crop prices, it is expected that as many as half of those expiring CRP acres will not be re-enrolled and will revert back into crop production.

#### Ohio FSA-Conservation Reserve Enhancement Program

CREP Project	Area Addressed	Total Acres (as of 9/30/13)	Acreage Goal
Lake Erie	Maumee River, Portage River, Sandusky River, Huron River, Vermilion River, and Black River watersheds, Lake Erie direct drainages	44,978	67,000 acres
Upper Big Walnut Creek (to be combined with Scioto River CREP)	Upstream from Hoover Reservoir	539	3,500 acres
Scioto River	Scioto River watershed	67,497	70,000 acres

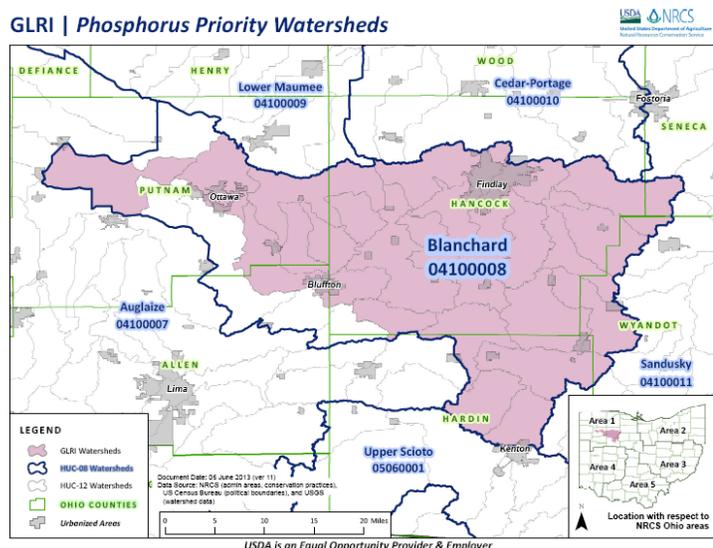
The Conservation Reserve Enhancement Program (CREP) is a federal-state conservation partnership program that is intended to remove environmentally sensitive cropland from production and to convert it to native grasses, trees and other vegetation. The CREP program uses financial incentives to encourage farmers and ranchers to enroll in contracts of 10 to 15 years. In return, participants are incentivized annually 150-175% of crop rental rates, depending on the type of vegetation planted. Ohio is one of two states in the nation to have three CREP watersheds. Most existing CRP and CREP land retirement program acres involve stream-side grass strips that are not specifically designed to treat agricultural runoff generated from contributing cropland acreage. There are opportunities to further expand acreage under these programs to include practices that better reduce rate and amount of agricultural runoff. These practices include filter areas, wooded riparian corridors, and/or wetlands designed to trap, retain, intercept, distribute, store and/or treat runoff from cropland.

The Environmental Quality Incentives Program (EQIP) is another widely used, well-funded program coming out of the Farm Bill. EQIP is designed to improve management practices and facilities on working farms to achieve environmental quality goals, of which protecting water resources is a high priority. Several specific practices are eligible for funding through EQIP that cover broad categories such as nutrient and pesticide management and storage, manure management and storage, livestock fencing, conservation tillage, cover cropping, conservation crop rotation and drainage water management, among others. Funding can include cost-share dollars and/or incentive payments. In federal FY 2012, 2,076 contracts were awarded to Ohio farmers totaling \$23,000,000. Historically, most EQIP-funded practices in Ohio have gone toward installation of tangible items (e.g., fencing, access roads and manure storage units). Recognizing that nonpoint source pollution from agriculture is largely related to management (e.g., crop rotations and tillage management, or fertilizer application timing, method, rate, and form), Ohio U.S. Department of Agriculture-Natural Resources Conservation Service (NRCS) offered incentive payments to farming operations to adopt a suite of management practices, including conservation tillage, nutrient management plan implementation and cover crops.

The Grand Lake Saint Marys watershed has been the location for special EQIP funding from 2010-2012. Ohio-NRCS spent approximately \$7.4 million to implement a variety of nutrient management practices, with the majority (approximately \$6.5 million) going toward manure storage facilities, covered feedlots, and manure and waste transfer practices (see [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/oh/programs/?cid=nrcs144p2\\_029521](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/oh/programs/?cid=nrcs144p2_029521)).

This past year included a Great Lakes Restoration Initiative-focused effort in the Blanchard River watershed (see map), a Phosphorus Priority Area. \$2.6 million were made available to spend to focus specifically on those practices that have the highest benefit for reducing water quality degradation from agricultural runoff.

The Conservation Stewardship Program (CSP) is a voluntary program that encourages agricultural producers to improve conservation systems by improving, maintaining and managing



---

existing conservation activities and undertaking additional conservation activities. NRCS administers this program and provides financial and technical assistance to eligible producers. CSP offers participants two possible types of payments: annual payment for installing and adopting additional activities and improving, maintaining, and managing existing activities; and supplemental payment for the adoption of resource-conserving crop rotations. Such rotations are those that reduce erosion, improve soil fertility and tilth and include at least one resource conserving crop (e.g., perennial grass, legume, or grass/legume grown for use as forage, seed for planting, or green manure). This past year, eighty-two applications were received by Ohio-NRCS. Five year contracts are not to exceed \$40,000 annually per person or entity.

Funding through the Wildlife Habitat Incentives Program (WHIP) can be applied towards both farm and non-farm lands. This program provides cost share dollars only and is intended to enhance habitats for both aquatic and terrestrial wildlife populations.

More information on the Food, Conservation, and Energy Act of 2008 and related programs in Ohio is available at <http://www.nrcs.usda.gov/wps/portal/nrcs/site/oh/home/> and <http://www.fsa.usda.gov/FSA/stateoffapp?mystate=oh&area=home&subject=prog&topic=landing>.

### **Surface Water Improvement Fund**

The nonpoint source program continues to administer of the Surface Water Improvement Fund (SWIF) grants program. The SWIF program enhances Ohio EPA's nonpoint source improvement efforts by providing \$1 million to \$3 million in additional funding for locally implemented nonpoint source, stream restoration and innovative storm water management projects. The initial SWIF cycle in 2010 resulted in awarding a total of \$3.45 million to fund thirty-two (32) individual SWIF projects. These grants were provided for projects such as storm water demonstration, stream and wetland restoration, agricultural BMPs and inland lake protection. The SWIF program's popularity among local implementers such as municipalities, counties, townships, park districts and others prompted a second SWIF grant cycle in fiscal year 2012. As a result, sixteen more statewide SWIF project grants totaling almost \$1.03 million were awarded in the fiscal year 2012 cycle.

SWIF grant funds were also used in fiscal year 2012 to match federal Great Lakes Restoration Initiative (GLRI) funds to implement a GLRI SWIF project with specific focus in Cuyahoga County (including Cleveland and its metropolitan area) where seventeen projects were awarded grants totaling \$2.05 million. Another similar project, the Lucas County SWIF, is just getting underway in Lucas County (including Toledo and its metropolitan area). Meanwhile, contributions and payments into the SWIF fund by external parties continue to grow. Available funding in the SWIF currently exceeds \$3 million.

### **Great Lakes Restoration Initiative**

In addition to the GLRI SWIF projects described above, Ohio EPA's nonpoint source program is also administering three targeted watershed GLRI subgrants. These projects include:

- Lake Erie Nutrient Reduction Project (Loss Creek watershed – Crawford County, Ohio)
- Watershed Improvements in Lye Creek in the Upper Blanchard River Watershed (Lye Creek subwatershed – Hancock County, Ohio)
- Powell Creek Nutrient Reduction Project (North, Upper, and Lower Powell Creek subwatersheds – Defiance and Putnam Counties, Ohio).