

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 240 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 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>.

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 staff people to cover sewage sludge management duties in the field and office. These staffs 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 staffs 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 about 1,280 known CSOs in 89 remaining communities (February 2011), 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 2011, 75 of Ohio's 89 CSO communities met this definition (84%), bringing Ohio into compliance with U.S. EPA's 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 waste water 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 waste water 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 June 2011, the Agency has approved 569 Qualified Data Collectors and 64 study plans. Efforts are underway to train additional participants. 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), 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 Programs

The Ohio EPA Division of Surface Water participates in many Lake Erie and Great Lakes related issues and efforts. The two main programs, however, are: the development and 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 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 waterbodies. 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.

Ohio EPA is now 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 program will allow Ohio to establish baseline conditions and track progress of GLRI and other efforts along Lake Erie. This effort also ties into Annex 11 of the GLWQA, which calls for a comprehensive surveillance and monitoring program for the Great Lakes to evaluate water quality trends, assess the effectiveness of remedial programs, measure compliance with jurisdictional regulatory programs, identify emerging problems and support development of RAPs and LaMPs. The monitoring strategy was designed over a three-year cycle to define environmental conditions in the dynamic nearshore areas. Experience and data gathered will serve as the baseline to integrate annual Lake Erie monitoring into the State of Ohio's Water Quality Monitoring Strategy. The project will initially build on the 2010 National Coastal Condition Assessment framework by adding ambient sites and additional parameters, including plankton. Subsequent years will focus on harbors, bays and estuaries, as well as evaluation of biological communities at various trophic levels. Ohio EPA completed the first round of sampling in 2011 and will continue additional sampling rounds in 2012 and 2013. Results from the first two rounds of sampling will be summarized in Ohio EPA's 2014 Integrated Report.



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. The GLWQA lays out 14 beneficial use impairments (BUIs) that must be remediated in order to restore the AOCs. In many ways these BUIs reflect the same goals as represented in the Ohio water quality standards (WQS) for attainment of beneficial uses. 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. Ohio EPA has developed a guidance document that sets baseline targets for each of the BUIs based on existing Ohio WQS and other policies or procedures. The goal of the Great Lakes AOC Program is to delist the AOCs by restoring all beneficial uses to these rivers. Delisting is comparable to being in attainment, although there are a few differences.

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 very 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.

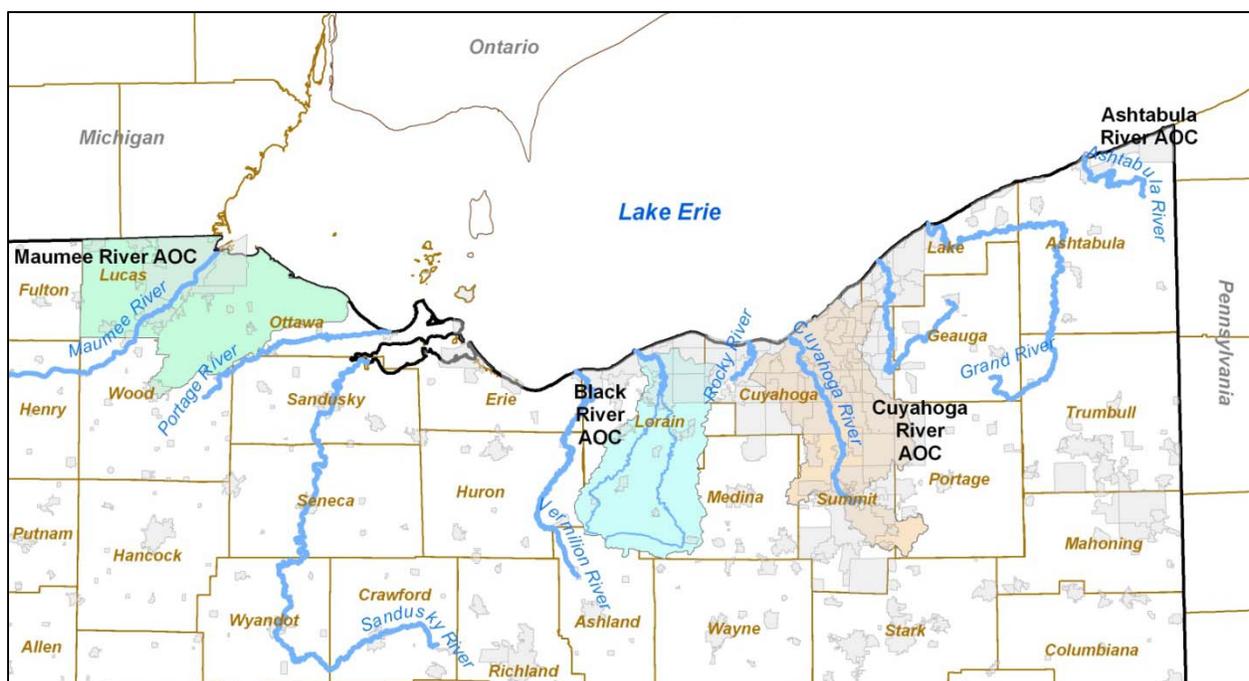


Figure C-1. Lake Erie areas of concern and major Lake Erie tributaries.

Ashtabula River AOC. The Ashtabula River from the upper turning basin to the 5th St. Bridge was dredged under the Great Lakes Legacy Act 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 built specifically to contain the river dredgings. The river from the 5th St. Bridge to the outer harbor was dredged under U.S. Army Corps of Engineers authorities in 2008 and additional dredging is planned for 2011-2012. Removal of contaminated sediments from the river is needed to delist the BUI 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 5 ½ Slip property and began construction of over 1,400 feet of fish shelf habitat in September 2011. The project is scheduled for completion in mid-2012. It is anticipated that this restoration project will lead to the removal of three BUIs (degraded fish populations, degraded benthos and loss of fish habitat). Successful completion of the habitat project and proposed dredging would represent a significant milestone for this AOC where all management actions have been completed. 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.

Black River AOC. The incidence of fish tumors and deformities in Black River brown bullheads, as well as the deformities, fin erosions, lesions and tumors (DELTA) percentage for all fish, has decreased significantly, prompting the lifting of a contact advisory and the re-designation of the tumor BUI as being “in recovery.” A review of recent sediment data in the lower river allowed the Corps of Engineers and Ohio EPA to approve open lake disposal for most of the material dredged from the federal navigation channel in 2009. In 2008, RAP members and other local stakeholders, including the City of Elyria, developed the Lower Black River Ecological Restoration Master Plan. The City of Lorain has been very successful in securing funding for significant remediation and restoration efforts along the lower Black River, including removal of over a million cubic yards of slag from riverbanks, restoration of more than 50 acres of riparian habitat and construction of thousands of feet of underwater habitat shelves. Lorain County has also made progress in the upper watershed with development of watershed action plans for the French Creek and West Branch sub-basins.

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 sediment characterizations are currently underway at two locations in the Cuyahoga River AOC under the Great Lakes Legacy Reauthorization Act (GLLRA). Funding was received locally in 2010 under GLRI to complete a habitat restoration project in the ship channel area and construction will begin on the Scranton Road Peninsula Project in 2012. GLRI funding was also awarded in 2011 for construction of a debris harvester to remove floating debris in the shipping channel. Fish and benthos populations are in attainment for all but a small portion of the mainstem segment of the AOC. Efforts to remove two small dams just upstream from the AOC have been successful, leaving only two dams impeding the Cuyahoga River flow for the lower 59 miles down to Lake Erie.

Maumee River AOC. In the Maumee AOC, GLLRA and Natural Resource Damage (NRD) remediation and restoration projects were completed on the Ottawa River. This included the removal of contaminated sediment and implementation of habitat restoration projects. A dam was modified on Swan Creek to allow fish passage and improve stream flow. In coordination with the Maumee RAP, a Balanced Growth Plan has been developed for Swan Creek. 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. In conjunction with the Ottawa River TMDL, Ohio EPA expanded water quality monitoring in 2011 to assess the current condition of the lacustrine influenced portion, including fish tissue and sediment sampling conducted to re-evaluate the current fish consumption and contact advisories.

Lake Erie Lakewide Management Plan (LaMP)

The Lake Erie LaMP was originally intended to focus on reducing loadings of toxic chemical pollutants to the lake. However, the early participants in the LaMP process felt that other issues were as important as, or more important than, toxics. Therefore, the Lake Erie LaMP also looks at 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. These changes have largely been influenced by the influx of zebra and quagga mussels, round gobies and other invasive species. 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. Of additional concern are the toxins produced by the cyanobacteria that are potentially toxic to humans and animals. The benthic mat forming cyanobacterium *Lyngbya wollei* began growing profusely in Maumee Bay in 2006 and has now created a nuisance condition in part of the western basin. 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 2009, the Lake Erie LaMP Management Committee identified indicator endpoints for total phosphorus in surface water. In 2010, the Lake Erie LaMP published *Status of Nutrients in the Lake Erie Basin*; it is available online at http://www.epa.gov/lakeerie/erie_nutrient_2010.pdf. The Committee is also finalizing a bi-national nutrient management strategy for the lake that should be publically available soon. Total phosphorus targets for the open lake, nearshore area and tributaries have been proposed by the LaMP based on recent research and the Great Lakes Water Quality Agreement. Government agencies and other applicable organizations will be asked to commit to implementing actions that will reduce the phosphorus loads and concentrations in the lake.

Ohio EPA created an Ohio Lake Erie Phosphorus Task Force in 2007 to investigate the changes that have occurred in the watershed since the mid-1990s that may have led to increases in dissolved reactive phosphorus. It also examined conditions that may have altered the internal recycling of nutrients within the lake and published an executive summary and final report available at <http://www.epa.ohio.gov/dsw/lakeerie/ptaskforce/index.aspx>. Ohio EPA was awarded GLRI funding in 2011 to continue with Phase 2 of the Phosphorus Task Force and the

effort will begin in early 2012. This taskforce will coordinate with other nutrient efforts currently underway by the State.

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 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 (NPS) program is detailed in Ohio's Nonpoint Source Management Program. In September 2005, a revised plan – "Getting to the Point on Nonpoint" – was developed in conjunction with a multitude of nonpoint source management partners convened as a work group under the Ohio Water Resources Council. The revised plan provides an aggressive framework for implementing nonpoint source management program activities through 2010. This plan represents a solid foundation for progress, built upon the many lessons that Ohio has learned during previous years.

Ohio's NPS Management Program relies heavily upon TMDL development and local watershed planning, during which the nature, extent and cause of water quality impairments caused by nonpoint source pollutants are identified. Program strategies are then designed to most effectively address identified NPS causes of impairment to Ohio's surface waters. An important revision to Ohio's Nonpoint Source Management Plan is the incorporation of identified local

strategies from TMDL studies and state endorsed local watershed plans. Once such strategies are incorporated into Ohio's NPS Plan, Ohio EPA and other state funding partners mobilize programs and resources designed to result in measurable improvements to water quality throughout Ohio. For example, since 2002 Ohio EPA has awarded nearly \$25 million in Section 319(h) implementation grants to watersheds with completed TMDL studies and/or state endorsed watershed plans. Section 319(h) base funding also provides significant support for staff biologists, modelers and others involved in the TMDL and watershed planning processes.

An important component of Ohio's NPS Management Program involves effectively communicating all of the activities that are underway to address NPS impairments within Ohio's watersheds. Additionally, these educational and outreach efforts are designed to inform Ohioans of the actions they can undertake to contribute to solving NPS impairments.

Success in minimizing the impacts of NPS pollution depends heavily upon local implementation of restoration and NPS pollution prevention projects and programs. Progress in addressing a problem as ubiquitous as nonpoint source pollution requires creativity, collaboration and a commitment to quality and effective project implementation. Ohio's NPS Management Program embraces all of these characteristics and reflects an ongoing determination to implement programs, projects and activities that result in meaningful and measurable improvements to Ohio's rivers, streams, lakes and ground water supplies.

Pretreatment

The State of Ohio received authorization to administer the Pretreatment Program on July 27, 1983. Ohio has approved 106 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 1,387 SIUs discharging to POTWs with approved programs, and all 153 (known) SIUs that discharge into pretreatment POTWs without approved pretreatment programs have control mechanisms, for a total of 1,540 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

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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 will be undergoing the certification and approval steps in the first calendar quarter of 2012.

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 thru 54 (Wetland Water Quality Standards), and 3745-32-1 thru 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 a state water quality standards.

Applicants must develop three alternatives for each development, a 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 specific watersheds in order to better understand the issues and concerns that are unique to any particular watershed. In addition, Ohio EPA has staff dedicated to the review of coal mining, ODOT projects, and the review of stream and wetland mitigation projects. Ohio EPA also has a Wetland Ecology Group that conducts detailed and rigorous studies of various wetland issues 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 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 (Phase 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 2008 for the third time. It addresses large and small constructions 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. 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 2011, 50 TMDL projects (many including more than one unit) had been approved by U.S. EPA and about 30 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.

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 US-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 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 hydrologic isolation, 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 and 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 thru 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 State Fiscal Year 2010 (SFY 2010), 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, \$554,405,738 in financing

was provided for 423 projects, of which \$206,021,920 (265 projects) was associated with American Recovery and Reinvestment Act (ARRA) federal stimulus funding for infrastructure improvements.

The WPCLF financed implementation of 286 municipal wastewater treatment projects costing \$510,451,127. The projects directly addressed sources of impairment for Ohio water resources. Loans totaling \$130,082,001 were made to 138 small, economically-challenged (i.e., hardship) communities, including \$80,605,289 in ARRA money to 128 of those communities.

Nonpoint source pollution is addressed through two programs of the WPCLF. The Water Resource Restoration Sponsor Program (WRRSP) financed five projects for over \$9.5 million to protect and restore stream and wetland aquatic habitats. The WPCLF linked deposit program provided interest rate reductions for 213 loans totaling \$9,865,445 to private agricultural producers and loggers for implementation of best management practices to control nonpoint water source water pollution, and to individuals for septic system improvements.

Water Supply Revolving Loan Account

The Water Supply Revolving Loan Account focuses on drinking water supplies. In SFY 2010, the fund made 72 loans totaling \$133,631,815, which included \$58,460,000 in ARRA funding.

Ohio Power Siting Board

Recent years have brought another dramatic shift in applications to the Ohio Power Siting Board for construction of new generation facilities. Wind power applications currently dominate the scene, with several wind farms under construction, while dozens of others are under development or being formally reviewed for approval by the Board. Aside from wind power, some limited solar power development is occurring, and a handful of co-generation (waste heat) facilities are still in the works. Overall, the number of OPSB projects has been steadily increasing. Besides wind projects, many of these involved new or replacement natural gas or electric transmission lines, including initial interest in gas product pipelines associated with Marcellus shale drilling activities. Typical issues encountered as part of DEFA's review work on 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 Programs 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 new 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 these data. DES analyzes environmental samples for more than 300 parameters. DES also inspects laboratories and provides technical assistance to Ohio EPA divisions as well as state and local agencies. 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. In state fiscal year 2010, DES processed over 10,500 samples and generated approximately 139,500 inorganic and 91,000 organic data points.

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

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: <http://www.dnr.state.oh.us/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 commission was established to preserve Lake Erie's natural resources, water quality and ecosystem. It also promotes economic development in the region. The commission oversees the Ohio Lake Erie Protection Fund (LEPF). Since its inception, the commission has raised nearly \$9.3 million through the sale of Lake Erie license plates and other small funding sources. This money is used to fund LEPF grants that focus on improving the quality of Lake Erie and to furthering the goals laid out in the Lake Erie Protection and Restoration Plan. Additional information is available online at <http://www.lakeerie.ohio.gov/Home.aspx>.

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://www.epa.ohio.gov/dsw/bioassess/AquaticLifeGoal.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 2010 annual report provides an overall summary of loan expenditures for all State of Ohio water and wastewater programs in 2010 (OWDA 2011).

Project Type	2010		2009		% of 2009
	Number	Amount (mil \$)	Number	Amount (mil \$)	
Planning					
Water	24	3.0	20	3.8	78.2
Wastewater	35	21.2	73	31.1	68.2
Subtotal	59	24.2	93	34.9	69.3
Construction					
Solid Waste	1	1.2	0	0	N/A
Water	51	111.9	128	183.3	61.0
Wastewater	100	609.7	182	270.2	22.7
Subtotal	152	722.8	310	453.5	159.4
Total	211	747.0	403	488.4	152.9

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 www.epa.state.oh.us/ddagw/financialassistance.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 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. The majority of section 319(h) grants are awarded for projects such as lowhead dam removal, natural stream channel reconstruction, or other projects designed to restore impaired waters. Projects that eliminate impairments and/or restore impaired waters are most likely to receive funding. Other eligible activities include in lake management projects and agricultural best management practices that results in demonstration projects and/or 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 FY 2011 the total obligation to carry out Farm Bill programs was \$35,560,000. This includes obligations for EQIP, WHIP, CSP (2008), WRP Easement acquisition and restoration and FRPP (easement acquisition).

The Environmental Quality Incentives Program (EQIP) is the most widely used and well-funded program coming out of the Farm Bills. 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 FFY 2011, 929 contracts were awarded to Ohio farmers totaling \$16,838,700 million. Historically, most EQIP funded practices in Ohio have gone toward installation of tangible items (e.g., fencing, access roads, and manure storage units). Very rarely are management-focused BMP incentives contracted in EQIP. 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 USDA-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 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. The Natural Resources Conservation Service administers this program and provides financial and technical assistance to eligible producers. In Ohio, soil quality, water quality, and plants are the natural resource areas that are of specific concern for the 2009 CSP ranking period. 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; improves 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). For 2011, the CSP program was opened up nationwide. So, whereas previous CSP priority watershed included the Western Basin of Lake Erie and Appalachian Ohio, now all parties that meet program requirements are eligible, regardless of watershed. Five year contracts are not to exceed \$40,000 annually per person or entity.

The Mississippi River Basin (MRB) initiative includes forty-one focus watersheds in twelve MRB states including Ohio. Focus areas in Ohio were selected in 2009 by the NRCS State Conservationist based on potential for avoiding, controlling, and trapping nutrients and improving water quality in selected watersheds within the MRB. The Focus Areas selected in Ohio include the upper Wabash River, the upper Great Miami River and the upper Scioto River watersheds. MRB projects will be selected from smaller watersheds within Focus Areas through a competitive process under the Cooperative Conservation Partnership Initiative (CCPI; <http://www.nrcs.usda.gov/programs/ccpi/index.html>) leveraging partner contributions and accelerating conservation assistance to achieve MRBI objectives. Additional programs and funding will be available to support CCPI funded projects, including the Wetlands Reserve Enhancement Program (<http://www.nrcs.usda.gov/programs/wrp/index.html>) and Conservation Innovation Grants (<http://www.nrcs.usda.gov/programs/cig/index.html>). For more information: http://www.nrcs.usda.gov/programs/pdf_files/mrbi_factsheet.pdf.

Set-aside-type programs such as the Conservation Reserve Program (CRP), Conservation Reserve Enhancement Program (CREP), the Grassland Reserve Program (GRP) and the Wetlands Reserve Program (WRP) are designed to temporarily or permanently take farmed land out of production to improve or protect threatened natural resources. Land targeted through these programs is environmentally sensitive and/or 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. Regarding WRP, Ohio has historically not used all dollars allocated to Ohio because of a lack of proposed projects. More funding has been made available for WRP recently. As such, promotion of WRP practices has paid dividends via increased participation, and likewise there is expectation of increased water quality benefit. Altogether 104 WRP applications have been received to protect 5,265 acres. Additionally, Ohio NRCS has moved ahead to purchase 1,709 acres of wetland for \$4.8 million.

The Conservation Reserve Enhancement Program (CREP) is a Federal-State conservation partnership program that targets significant environmental effects related to agriculture. A voluntary program, CREP uses financial incentives to encourage farmers and ranchers to enroll in contracts of 10 to 15 years in duration to remove land from agricultural production. Ohio is one of two states in the nation to have three CREPs. Because many land retirement program acres involve stream-side grass buffers that are not specifically designed to treat agricultural runoff, there are opportunities to further expand acreage under these programs to include practices that reduce rate and amount of agricultural runoff. These practices include filter areas, wooded riparian corridors, and/or wetlands designed to intercept, distribute, store and/or treat runoff from cropland.

CREP Project	Area Addressed	Total Acres 9/30/09	Acreage Goal
Lake Erie	Maumee River, Portage River, Sandusky River, Huron River, Vermilion River, Black River, Lake Erie direct drainage	36,558	67,000 acres
Upper Big Walnut Creek (to be combined with Scioto River CREP)	upstream of Hoover Reservoir	541	3,500 acres
Scioto River	Scioto River watershed	63,334	70,000 acres

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 programs in Ohio is available at <http://www.oh.nrcs.usda.gov/>.

Surface Water Improvement Fund

Ohio's Nonpoint Source Program continues administering the implementation of the SFY10 Surface Water Improvement Fund (SWIF) grants projects. The SWIF program enhances Ohio EPA's nonpoint source efforts by providing more than \$3 million in additional funding available for locally implemented nonpoint source, stream restoration and innovative storm water management projects. During our first SWIF cycle in 2010, we received 172 applications requesting more than \$20 million in grant funds. 32 SWIF grants were awarded totaling \$3.45 million for the following types of activities:

- 6 Stream restoration projects
- 4 Wetlands restoration projects
- 20 Storm water projects
- 1 Agricultural BMP project
- 1 Inland lakes project

The SWIF program's popularity among local implementers such as municipalities, counties, townships, park districts and others has prompted a second SWIF grant cycle that is anticipated in spring FFY12. Meanwhile, contributions and payments into the SWIF fund by external parties continue to grow. Available funding in the surface water improvement fund currently exceeds \$3 million.