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DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING



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VIA E-MAIL

TO: Senate Appropriations Subcommittee on Environmental Quality Members
House Appropriations Subcommittee on Environmental Quality Members
Ellen Jeffries, Director, Senate Fiscal Agency
Mary Ann Cleary, Director, House Fiscal Agency

FROM: Amy Epkey, Deputy Director, Administration

DATE: October 13, 2016

SUBJECT: Report on Section 402 of Part 2, Article VII, of 2015 PA 84, Water
Quality and Use Initiative

In accordance with Section 402 of Part 2, Article VII, of 2015 PA 84, attached is the Department of Environmental Quality's (DEQ) report on the Water Quality and Use Initiative for fiscal year 2016.

If you need further information, please contact Teresa Seidel, Chief, Water Resources Division, at 517-284-5470; or you may contact me at 517-284-5002.

Attachment

cc/att: John Roberts, Director, State Budget Office
Dick Posthumus, Governor's Office
Angela Ayers, Governor's Office
Josh Sefton, Senate Fiscal Agency
Austin Scott, House Fiscal Agency
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Michigan Department of Environmental Quality
Water Resources Division

Water Quality and Use Initiative
Fiscal Year 2016 Annual Report

Reporting Requirement

Water is one of Michigan's greatest assets. It sets the cultural, social, ecological, and economic context for the state and the region. The management of Michigan's water resources is a shared responsibility among many organizations, businesses, agencies, and individuals. This was recognized in the fiscal year (FY) 2015 and 2016 budget processes with the Water Quality and Use Initiative. This report summarizes the activities conducted in FY 2016 as a result of this initiative, as required in Section 402 of the Department of Environmental Quality's (DEQ) budget.

The excerpt below is from Section 402 of Part 2, Article VII, of 2015 PA 84:

Sec. 402. From the funds appropriated in part 1 for the water quality and use initiative/general line item, the department shall update a report detailing a comprehensive plan for the use of the water quality and use initiative funding appropriated in part 1 and identifying the amount of expenditures for specific programs made from the water quality and use initiative/general line item, the real-time beach monitoring program line item, and the wetlands program line item. The report shall be submitted to the chairpersons of the senate and house of representatives appropriations subcommittees on environmental quality and the senate and house fiscal agencies by September 30, 2016.

Summary

DEQ's Water Resources Division (WRD) partnered with the DEQ's Office of the Great Lakes (OGL) and others to allocate and spend the funding for the Water Quality and Use Initiative (\$1,624,000), Wetlands Program (\$1,000,000), and Real-Time Beach Monitoring (\$500,000) for staff to perform and complete the activities detailed below:

- Develop Michigan's Water Strategy
- Improve Michigan's Water Quality
- Control Upstream Sediments to Reduce Dredging
- Ensure Best Management of Michigan's Water Resources
- Monitor Harmful Algal Blooms
- Promote Wastewater Recycling

Strategic Initiatives

Develop Michigan's Water Strategy

The OGL finalized Michigan's Water Strategy in summer 2016 after incorporation of comments from more than 150 citizens, tribal leaders, business professionals, state agencies, communities, and academics. The Water Strategy follows an ecosystems approach, recognizing that the cultural, ecological, social, and economic aspects of water are interconnected. The final document provides a road map for a 30-year vision, featuring 9 goals and 75 recommendations to guide the wise use of Michigan's water resources. The Water Strategy also integrates efforts underway by the 21st Century Infrastructure Commission (Commission) and supports the implementation of the Commission's recommendations and establishment of sustainable funding mechanisms for water and water infrastructure.

The Water Strategy goals are:

- Inspire stewardship for clean water
- Protect and restore aquatic ecosystems
- Create vibrant waterfronts
- Support water-based recreation
- Promote water-based economies
- Ensure clean and safe waters
- Invest in infrastructure
- Monitor water quality
- Build governance tools

Governor Rick Snyder identified five priority recommendations that his administration will focus on. They are:

- Ensure clean and safe drinking water
- Prevent the introduction of new aquatic invasive species and control established populations
- Achieve a 40 percent phosphorus reduction in the western Lake Erie basin
- Support investments in commercial and recreational harbors and maritime infrastructure
- Develop and implement a water trails system

State agencies have developed implementation frameworks for the five priority areas identified by the Governor.

The final Water Strategy is being released as a four-part series highlighting recommendations to address each of the Water Strategy focus areas. The first part, highlighting water stewardship and protection of aquatic ecosystems, was released on June 10, 2016, at Lake St. Clair. The second, emphasizing access to water recreation, water-based economies, and Michigan's harbors, was released on July 27, 2016, in conjunction with an adaptive paddling clinic in Interlochen, Michigan. The third part of the Water Strategy, released on September 16, 2016, in Harbor Springs, defined goals and actions for the protection of water quality, restoration of areas impacted by legacy pollution, investment in water infrastructure and innovation in water technologies to improve drinking water and wastewater systems. In conjunction with the release, the DEQ also announced \$158 million in low interest loans awarded to local municipalities to fund infrastructure projects that improve water quality and protect public health. The final part of the strategy will be released in Fall 2016 and addresses needs for developing comprehensive water monitoring systems and shared governance.

The OGL will form an interdepartmental water team led to unite agencies to ensure a cohesive, common strategy around implementation of the Water Strategy, including the Quality of Life (QOL) agencies, Michigan Economic Development Corporation, Department of Health and Human Services (DHHS), and Michigan Department of Transportation, including stakeholder involvement and continued consultation with tribal governments. The frameworks, Strategy implementation, water stewardship information, and related initiatives can be found at www.michigan.gov/waterstrategy.

Improve Michigan's Water Quality

Address Raw Sewage Discharges:

Discharges of raw sewage are a significant threat to public health and the environment. Such discharges are generally categorized as untreated combined sewer overflows (CSO), which are discharges from sewer systems that convey both sanitary and storm water flows; and sanitary sewer overflows (SSO), which are discharges from sewer systems that convey sanitary flows only. Michigan's CSO program, established in 1994, continues to require CSO communities to adopt programs aimed at correcting untreated CSO discharges, either through separation or treatment. Michigan's SSO elimination program, based on the Michigan SSO Policy that was adopted in 2002, requires separate sanitary systems to eliminate discharges during storm events below a specified threshold. Both of these programs are implemented via enforcement and/or permit schedules and involve significant wastewater infrastructure improvements.

During FY 2016, the DEQ continued to lead the effort in eliminating the public health threat from raw sewage discharges into Michigan waters. The DEQ's State Revolving Fund Final Intended Use Plan for FY 2016 allocated nearly \$228 million for wastewater infrastructure projects, much of which is intended for projects addressing existing CSO and SSO projects and the remainder for wastewater infrastructure projects that will further aid in prevention of raw sewage discharges. Large-scale sewer separation projects continue in the cities of Grand Rapids, Port Huron, Manistee, St. Joseph, Sault Ste. Marie, Wakefield, and Manistique. The cities of Detroit and Dearborn and others continue work to provide retention treatment basins for control of untreated CSOs to the Rouge River Watershed in southeast Michigan. The DEQ is continuing its 2013 initiative to promote programs aimed at pursuing and achieving sustainable

wastewater infrastructure. Such programs are referred to as asset management programs and will also aid in prevention of raw sewage discharges. Thus far in FY 2016, the DEQ issued 15 National Pollutant Discharge Elimination System (NPDES) permits to wastewater systems that included an asset management program requirement (to date, approximately 60 such permits have been issued). To help communities prepare for this initiative, the Stormwater, Asset Management, and Wastewater (SAW) Program was created in January 2013 from legislation enacted to establish grants for asset management plan development, among other planning efforts, as well as State-funded loans to construct projects identified in asset management plans. In October 2015, \$100 million in SAW grants and loans were awarded to 134 recipients.

Make NPDES Permits Current and Effective:

The DEQ has worked to reduce the backlog of individual NPDES permits in FY 2016. Ideally, NPDES permits in Michigan are reissued for a five-year period on a rotating basis by watershed so that compliance inspection, receiving water monitoring, and permitting activities can take place in a coordinated, cost-effective, and environmentally protective manner. It is also critical that NPDES permits are reissued in the proper watershed year so that they contain the most up-to-date conditions. Though an expired permit is administratively extended, the regulated community also desires a permit that is up to date and effective for the longest time permissible under state and federal rules.

The WRD's Permits Section is now fully staffed with 11 NPDES permit writers. The best estimate is that the percent of individual NPDES permits that are current and effective as of September 30, 2016, will be at 75 percent. With a strengthened effort and use of *The Four Disciplines of Execution* process in FY 2016 and FY 2017, it is our goal to achieve 97 percent of individual NPDES permits current and effective as of September 30, 2017, thus exceeding the expectations of our regulated community and the United States Environmental Protection Agency (USEPA). Though we fully intend to push towards the 97 percent goal, we realistically expect that 90 percent of all individual permits will be current and effective as of September 30, 2017. Note that as of the end of August 2016, the USEPA, Region 5, indicates that 86 percent of all NPDES permits (individual and certificates of coverage) in the state of Michigan are current and effective.

Control Upstream Sediment to Reduce Dredging Need

The WRD's Nonpoint Source (NPS) Program continues to develop and implement watershed management plans to reduce sediment loads to waters of the state. Reducing sediment loads to waters of the state may help to reduce the volume of materials dredged from some of Michigan's harbors. The NPS Program provided financial or technical assistance to 15 watershed groups working to develop watershed management plans in FY 2016. A total of eight plans were approved by the DEQ for implementation in FY 2016 and became eligible for Clean Michigan Initiative, Section 319, and Great Lakes Restoration Initiative implementation grants. In addition, NPS Program staff oversaw 34 grants to implement watershed management plans to reduce sediment and nutrient loads to waters of the state. These projects implemented 47 best management practices in FY 2016, resulting in an annual load reduction of 914,000 pounds of sediment. Although reducing sediment loads to the surface waters of the state is important to alleviate environmental and economic impacts, the recent rise in Great Lakes levels has resulted in a greatly reduced demand for harbor maintenance dredging permits.

Refine Michigan's Water Use Program:

Staff from the QOL agencies developed an implementation plan for the 69 recommendations in the December 2014 final report of the Water Use Advisory Council, a stakeholder group appointed by former DEQ Director Dan Wyant in 2013. Thirteen of the recommendations are in the planning coordination meeting phase. Groundwater, surface water, and/or geologic data are being collected to implement another three recommendations. Three draft guidance documents are currently under internal agency review. One guidance document went through external stakeholder review, was finalized, and is posted on the DEQ Water Use Program's Web page, www.michigan.gov/wateruse. Actions to address 27 of those recommendations have already been initiated. The QOL agencies plan to initiate work on 12 recommendations within 5 years, and 5 recommendations will take more than 5 years to initiate, provided that adequate resources are available; and 18 of the recommendations dealing with water conservation will be addressed through the implementation of the Water Strategy. The QOL agencies are assessing the staffing and budgetary resources necessary to fully implement the recommendations to improve the Water Use Program.

The Water Use Program also posted an Information Guide for New Large Quantity Withdrawals on its Web site. This guidance document is intended for property owners, consultants, and other interested parties. There are sections devoted to using the Water Withdrawal Assessment Tool, requesting a site-specific review (SSR) by the DEQ, and applying for a permit under Part 327, Great Lakes Preservation, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA). This document includes detailed discussions of the various methods of collecting additional data to support SSR requests and/or permit applications.

Develop a Groundwater Quality Monitoring Strategy (GQMS) for Michigan

The GQMS is being developed with the purpose of enhancing our understanding of where groundwater resources are, what monitoring has been done, what monitoring is underway, where monitoring gaps are, and how this strategically compares with what other states have developed for groundwater quality monitoring. We have entered a contract with Western Michigan University to develop the GQMS for the state. The DEQ is also working to coordinate the GQMS with the United States Geological Survey that is working on a groundwater project with a similar purpose.

Ensure Best Management of Michigan's Water Resources

Maintain State Management:

Michigan has successfully maintained authority over regulating our wetlands, lakes, and streams. On July 7, 2013, Governor Rick Snyder signed into law 2013 PA 98 (Act 98), that amended Part 301, Inland Lakes and Streams, and Part 303, Wetlands Protection, of the NREPA.

Over 30 years ago, Michigan was authorized to administer the federal Clean Water Act Section 404 Program; however, to maintain that authorization, Michigan's statutes and rules must remain consistent with the federal program. The USEPA began reviewing the changes enacted in Act 98 in the fall of 2013 to determine if Michigan's program still remains consistent with the

federal program. To date, the USEPA has not issued any findings and Michigan is continuing to administer the Section 404 Program through our current laws and rules.

Conduct Agricultural Wetlands Outreach:

The WRD has established an Agricultural Assistance Program that is intended to provide education and outreach to the agricultural community on the wetland regulatory process. Two WRD staff are the specific points of contact for this program to provide consistent and responsive customer service to the agriculture community on these issues. Through this program, WRD staff has:

- Given presentations and attended meetings of numerous agricultural stakeholder groups, as well as provided free preapplication meetings and wetland identifications for farmers.
- Fielded numerous phone calls from farmers and agricultural agency representatives with questions regarding wetland regulations and agriculture. For specific project questions, discussions with WRD district staff are facilitated. Agricultural Assistance Program staff has also met with farmers on-site on numerous occasions to provide regulatory assistance.
- Continued to work closely with the Michigan Association of County Drain Commissioners (MACDC) and their agents to develop educational materials, improve communication, and streamline permitting with the goal of increased compliance with state and federal law. Many informational materials have been developed jointly by the WRD and agents for the MACDC for presentation and distribution at MACDC conferences, regional meetings, and workshops.
- Continued to engage representatives from agriculture stakeholders, including Michigan Farm Bureau, to address the recent legislative changes to Michigan's program, discuss future direction of the program, and streamline the permitting process.

Monitor Harmful Algal Blooms (HAB)

In August 2014 the Toledo, Ohio, drinking water supply was overwhelmed with HAB toxins and had to stop supplying drinking water for a few days. This incident resulted in a sense of urgency to better monitor HABs in Lake Erie, specifically, and Michigan surface waters more generally. It also provided the DEQ with a unique opportunity to bring together local, state, tribal, and federal partners to advance our understanding of HABs and how technology can be used to improve HAB monitoring and assessment.

Funds allocated for HAB monitoring in FY 2016 were used in the following manner:

1. *Develop state laboratory capacity/sample analysis (\$45,000)* – An important component of HAB monitoring is to develop analytical capacity for algal toxins at a state laboratory. Therefore, the DEQ established a Memorandum of Understanding (MOU) with the DHHS for a total of \$45,000. The DHHS laboratory recently developed an analytical method for various algal toxins. To support this method, the MOU included \$15,000 for a lyophilizer (freeze drier) used to break apart algal cells and free up any toxins for the analysis. In addition, the MOU included \$30,000 for algal toxin analysis by the DHHS

laboratory, which allowed for the analysis of 240 water samples for various congeners of microcystin, as well as cylindrospermopsin and anatoxin, at \$125 per sample.

2. *Expand monitoring capacity (\$138,000)* – The DEQ conducted HAB monitoring on selected inland lakes and Lake Erie during 2015 to better understand the timing, geographic extent, and duration of algal toxin occurrences. The 2016 monitoring plan built on that effort. A significant portion of the funds were used to equip the DEQ to improve our ability to monitor HABs, specifically to purchase six sondes with sensors capable of measuring phycocyanin (a pigment unique to blue-green algae). These sondes are being used to rapidly determine whether blue-green algae are abundant in an algal bloom and whether algal toxins are likely to be present.

In addition, a portion of the funds were used to enhance our 2016 monitoring by purchasing rapid test strips for the algal toxin microcystin; for appropriate sample bottles for algal species identification and quantitative laboratory analysis of algal toxins; pay for sample shipping costs; and provide support to the Monroe County Health Department to monitor HABs while monitoring *E. coli* at county beaches. Specific 2016 monitoring activities included sampling 30 status and trend lakes, five targeted lakes, and Lake Erie and Saginaw Bay nearshore areas/beaches, and response monitoring on selected waterbodies where reports of excessive algae are received from DEQ staff and the public.

3. *Grants for technology development projects (\$242,000)* – Two grants totaling \$242,000 were awarded to Michigan universities (Oakland University and Grand Valley State University) to develop innovative technologies to improve our ability to track HABs. The request for proposals was released on May 20, 2016, and grants were awarded in August 2016.
 - Oakland University received approximately \$158,000 to develop statewide HAB hazard maps using existing land use information and cyanotoxin data and to continually update these maps using multiple, emerging analytical technologies. The project also will explore the development and use of a smartphone app that can be used by citizen volunteers to detect HAB. This grant is a collaborative project among researchers from Oakland University, Wayne State University, Lake Superior State University, and Northern Kentucky University.
 - Grand Valley State University received approximately \$84,000 to develop new monitoring methods to rapidly detect the presence of toxin-producing blue-green algae and determine whether they are producing cyanotoxins at the cellular level. The project aims to use improved methods to better track algal blooms, assist in the development of early-warning systems, and provide needed information to better understand the ecological factors that cause algal bloom formation.

Promote Wastewater Recycling

A new model, as presented by the National Association of Clean Water Agencies and other industry organizations, the Water Resources Utility of the Future (UOTF) has evolved; and Michigan is ready to adopt this concept. It consists of an approach where focus at a wastewater facility is placed on the resources produced, rather than the source of raw material, including

“recycling” of these resources. The emphasis is to recycle solids, nutrients (nitrogen and phosphorus); and energy.

Many of the existing wastewater facilities in the United States were constructed as part of the federal Clean Water Act and have begun to exceed their useful design life. For these and other reasons, facilities require updating, and in many cases, communities have limited ability to pay more for wastewater services. Utilities that undertake transformative measures toward the UOTF, changing from treatment and disposal of wastewater to sustainable resource management, generate from their own perspective, net benefits in the form of reduced costs, increased revenues, and improved social outcomes.

In January 2016 the DEQ awarded a \$75,000 grant to the Michigan Water Environment Association (MWEA) to promote and develop a wastewater recycling initiative. Grant tasks are listed below. Tasks 1 through 4 have been completed; the Summit was held in April 2016. The Summit recap document is complete, and the roadmap document is near completion (Task 5). The remaining tasks (Tasks 6-7) are scheduled for completion by the end of 2017 or sooner.

- Task 1 – Grant Management: Monitor progress to assure that goals are being met with agreed upon budget and schedule.
- Task 2 – Recycling Metrics & Baselines (includes energy survey): To establish a working set of metrics with associated baselines for review at the Summit (see Task 4).
- Task 3 – Roadmap Literature Review: Create a framework for Michigan Water Resource Recovery Facilities (WRRFs) and communities based upon the best information available world wide.
- Task 4 – Michigan WRRF Recycling Summit: To elevate the wastewater recycling vision/concept in Michigan’s wastewater sector and influential organizations and individuals, to identify barriers and recommendations, and to explore avenues for promoting implementation.
- Task 5 – Summit Recap Document and Roadmap: Summarize information and recommendations from the Michigan WRRF Recycling Summit and provide recommendations for moving forward.
- Task 6 – Recognition Program Recommendations: To establish a form of recognition related to energy efficiency at Michigan WRRFs.
- Task 7 – Outreach Program: To share information on the WRRF Recycling initiative and obtain feedback.