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JON W. ALLAN  
DIRECTOR

November 22, 2016

Mr. David Naftzger  
Executive Director, Great Lakes-St. Lawrence River Basin  
Water Resources Council  
Secretary, Great Lakes-St. Lawrence River Water Resources  
Regional Body  
Conference of Great Lakes and St. Lawrence Governors  
and Premiers  
20 North Wacker Drive, Suite 2700  
Chicago, Illinois 60606

Dear Mr. Naftzger:

SUBJECT: 2016 Water Management Program Report and Water Conservation and  
Efficiency Program Report Submitted on behalf of the State of  
Michigan

On behalf of the State of Michigan, please find enclosed our 2016 Water Management  
Program Report and a Water Conservation and Efficiency Program Report being sent  
pursuant to and in satisfaction of the obligations included in Section 3.4 of the Great  
Lakes-St. Lawrence River Basin Water Resources Compact. Please note that these  
reports are subject to revision and update during the course of the Compact Council  
and Regional Body program review process.

If you have any questions, please do not hesitate to contact me.

Sincerely,

Jon W. Allan  
Director

Enclosure

cc: James Milne, Michigan Department of Environmental Quality  
Grant Trigger, Racer Trust  
Peter Johnson, Council of Great Lakes Governors

# **Great Lakes-St. Lawrence River Basin Water Resources Compact Water Conservation and Efficiency Program Annual Assessment**

**November 22, 2016**

## **State of Michigan**

This Water Conservation and Efficiency Annual Program Assessment fulfills Michigan's obligation under Section 4.2.2 of the Great Lakes-St. Lawrence River Basin Water Resources Compact (Compact) to annually assess its water conservation and efficiency programs in meeting the Party's goals and objectives, report to the Compact Council and the Regional Body and make this annual assessment available to the public.

### **1. Lead agency and contact persons.**

The Michigan Department of Environmental Quality (MDEQ) Water Use Program is the lead agency responsible for Michigan's water conservation and efficiency program. Mr. Jon W. Allan, Director, Office of the Great Lakes, the Compact contact, can be reached at 517-285-5034, [allanj@michigan.gov](mailto:allanj@michigan.gov). Mr. James F. Milne, Chief, Great Lakes Shorelands Unit, Surface Water Assessment Section, Water Resources Division, the program contact, can be reached at 517-284-5559, [milnej@michigan.gov](mailto:milnej@michigan.gov). Information about Michigan's Water Use Program, including water conservation and efficiency, is available at <http://www.michigan.gov/wateruse>.

### **2. Status of Michigan's water conservation and efficiency goals and objectives.**

On December 8, 2010 Michigan adopted water conservation and efficiency goals and objectives consistent with the basin-wide goals and objectives adopted in Resolution #6 of the Great Lakes-St. Lawrence River Water Resources Regional Body (Appendix 1). The water conservation and efficiency goals and objectives are met in Michigan through programs put in place by the state legislation that implemented the Compact. Michigan's goals and objectives were adopted by the former Water Resources Conservation Advisory Council (WRCAC), a stakeholder forum of executive and legislative appointees that was established for collaborative study, evaluation, and advisement of Michigan's water management and water conservation and efficiency programs. The WRCAC was eliminated by executive order of the Governor in 2009 and its duties were transferred to the Natural Resources Commission until 2013 when the MDEQ established the Water Use Advisory Council (WUAC). The WUAC is similar in make-up and function to the WRCAC, and was established to convene ongoing discussions and evaluation of Michigan's water management and water conservation and efficiency programs directly and openly with the agency staff carrying out the work of the programs. The WUAC forum has provided valuable perspective and input to guide Michigan's efforts for program improvement. The WUAC issued a comprehensive program assessment report in December 2014 that included emphasis on Michigan's water conservation and efficiency program. The WUAC report identified areas of need and included recommendations for intensified focus and direction of resources to better meet Michigan's water conservation and efficiency goals and objectives. The MDEQ has identified priorities from the WUAC report and is implementing specific recommendations, including incorporation of water conservation and efficiency recommendations into the Michigan Water Strategy and its implementation plan. Michigan's first Water Strategy was released in October 2016, providing a comprehensive 30-year vision and roadmap designed to ensure Michigan's water resources support healthy ecosystems, communities, and economies for current and future generations. The plan was collaboratively developed by state agencies and refined as a result of extensive

engagement and input from nongovernmental organizations, environmental groups, communities, industry leaders, tribal governments, and others. In addition to the 23 water conservation recommendations from the WUAC report, the Water Strategy also calls for establishing voluntary water efficiency targets for all major water sectors, accelerating the development and use of technologies and improved information management systems to optimize water use and to reduce water use impacts and costs. Most notably, the Water Strategy calls for the development of a groundwater monitoring strategy, a long term sustainable funding source for both surface and groundwater, and further refinement and improvements to Michigan's water withdrawal assessment process and model. Appendix 2 provides a full list of the water conservation and efficiency recommendations from the Water Strategy, as well as a link to the WUAC report under the Development Tab. An interdepartmental Water Team has been created and charged with ensuring a cohesive approach around the implementation of the strategy working with tribal governments and stakeholders to establish priorities, assess, track and report on progress.

Public comments for ways to enhance Michigan's water conservation and efficiency program have been sought, and a major theme of these comments was the importance of a collaborative council to advise on technical issues, assist in implementation, and monitor overall progress of Michigan's program. The continuation of the WUAC activities is important to the success of Michigan's program, and provides ongoing opportunity for public comments on the program to be aired and addressed.

The WUAC's recommendations reiterated public comments that call for Michigan to develop distinct water conservation and efficiency goals and objectives, rather than utilizing the regional goals and objectives adopted by the Regional Body. To develop Michigan's own goals and objectives, a stakeholder committee and public comment process will be convened, and state agency staff time dedicated to the process will be required. This commitment has not been made to date, and Michigan continues to operate under the regional water conservation and efficiency goals and objectives.

### **3. Water Conservation and Efficiency Program Overview.**

Michigan's water conservation and efficiency program is founded on the water withdrawal assessment requirement that applies to all new or increased large quantity withdrawals (LQWs). The assessment process evaluates proposed water withdrawals relative to environmental impact standards set for conserving and protecting the water resources of the Great Lakes Basin (MCL 324.32705). Through the assessment process, the likely resource impacts of a proposed withdrawal are predicted in advance of withdrawing water, and a proposed withdrawal must meet the environmental impact standard and be authorized before the withdrawal can begin (MCL 324.32706, 324.32723). To gain authorization to make a LQW, water users consider conservation and efficiency of use as a means to reduce their impact. LQWs are cumulatively tracked and accounted for against the environmental standard at a sub-watershed scale, ensuring that the water resources of the basin are conserved even at a small scale (MCL 324.32706e).

In conjunction with annual water use reporting that is required for LQWs, owners are required to review water conservation measures applicable to their water use sector. Implementation of conservation measures is voluntary (MCL 324.32707, 324.32708). In sub-watersheds that are approaching the environmental impact standard, as a condition of approval an applicant must implement the water conservation measures they deem to be reasonable (MCL 324.32706c, 325.1004). For applications greater than 2 MGD capacity, it is required that all sector or withdrawal-based conservation measures are complied with as a condition of approval (MCL 324.32723).

Michigan's water conservation and efficiency program goes beyond the assessment process and the consideration of water conservation measures to comprise a comprehensive program of water use management. In Michigan, where water resources are generally plentiful and true conflicts over its use are somewhat rare, there is a challenge in motivating people to work towards conservation and efficiency program development. Therefore, the WUAC is an integral part of the program because it provides a forum to raise the issue, and establishes an integrated framework of roles and responsibilities for all stakeholders in managing Michigan's water resources. This framework creates opportunities for involvement by the public, university researchers, industry professionals, advocacy groups and other interested parties to work directly with state agency personnel to set policy and shape the direction of the program. This promotes better understanding and cooperation to the benefit of the program, and results in shared investment in the management and sustainability of Michigan's streams, lakes, wetlands and groundwater. The formal report produced by the WUAC devoted a substantial portion to water conservation and efficiency and included numerous specific recommended actions to improve Michigan's program. Among others, the recommendations included: developing Michigan-specific goals and objectives, developing metrics to evaluate and measure progress made in increasing water conservation, consideration of climate change scenarios in long-term planning, improving water use data quality and database management, identifying ways to incentivize various conservation practices, evaluating the efficacy of voluntary conservation practices, initiation of a marketing campaign promoting water conservation, and regular consultation with Michigan tribal governments to share respective progress on individual and joint efforts to manage water resources.

**4. Water conservation and efficiency program consistency with regional objectives, and promotion of Environmentally Sound and Economically Feasible Water Conservation Measures.**

**a. Guide programs toward long-term sustainable water use.**

Michigan's LQW assessment process, environmental impact standard and cumulative impact tracking system have effected significant changes in the planning and development of LQWs. This process has driven the integration of long-term sustainable water use concepts into water management decisions, and has raised the awareness of water use and resource impact implications.

**b. Adopt and implement supply and demand management to promote efficient use and conservation of water resources.**

The MDEQ works with many water users and industry contractors on an individual basis throughout the assessment process to ensure withdrawals are implemented in an efficient manner that reduces the impact to water resources. This assessment process incorporates both supply-side management of the water resources through the use of a specialized database that tracks cumulative impact of withdrawals at the sub-watershed level, and demand-side management by notifying all affected water users when withdrawal limits begin to be approached in an area. Michigan's common law reasonable use doctrine is the legal foundation underlying the assessment process, and also promotes the conservation and efficient use of water in its own way when conveying to water users that water is a shared, finite resource under this doctrine. Users are encouraged to conserve up front, rather than when required to in the event of a conflict situation when supplies are limited or overtaxed.

**c. Improve monitoring and standardize data reporting within water conservation and efficiency programs.**

Measurement and evaluation of water conservation and water use efficiency, and changes over time remain difficult to track from an agency perspective. Recent improvements made to electronic data collection systems and databases are resulting in better consistency in water use data collection, and a better ability to identify trends in water use and to account for variability. Michigan has entered into a cooperative agreement with the U.S. Geological Survey (USGS) Water Use and Data Research grant program to outline areas of need and identify methods to attain better quality water use data. The grant dollars were also directly used to increase quality control efforts on reported water use data, resulting in improved data quality. Michigan's Water Strategy also includes a recommendation to create a coordinated strategy for groundwater data collection, including a data management system. Such data is a critical measurement and indicator of the effects of water use and the effects of water conservation and efficiency practices.

**d. Develop science, technology and research.**

Michigan is actively developing science, technology and research on an ongoing basis through the efforts of various projects by state, federal and academic institutions. Michigan has identified scientific data collection as a primary need in order to make better-informed decisions on proposed new water uses. Michigan is funding several research projects in high water use areas to better understand the groundwater-surface water interaction. This data will be used to improve the assessment and forecasting of new water uses' impact on the resource. Having more and better quality data is imperative when conveying the need for conservation and efficient use to water users in a proactive manner before obvious shortage issues occur. Michigan is investing in this data now more than ever, including through cooperative cost-sharing agreements with federal agencies and private industry groups. The WUAC convened scientific and policy discussions amongst stakeholders and technical experts to evaluate Michigan's water management and water conservation and efficiency programs, and identified where improvements and updates could be made. Many of these recommendations are also reiterated in Michigan's Water Strategy. The development of science, technology and research in the water conservation field is in early stages, as Michigan strives to convey its importance prior to widespread issues such as shortage or conflict.

**e. Develop education programs and information sharing for all water users.**

A dedicated educational program has not been developed in Michigan, although the MDEQ and the Michigan Department of Agriculture and Rural Development staff have made educational presentations and share information at various conferences and upon request to interested parties. The WUAC and its subcommittee meetings are open to the public and have provided tremendous educational opportunities for water users and water managers. Meeting notes and informational materials from the WUAC proceedings are posted on the MDEQ webpage. Michigan State University Extension convenes meetings around the state with agricultural water users to share information about conservation practices for irrigation. The MDEQ's Office of Environmental Assistance provides webinars, conferences, training and information for businesses and industry to support enhanced water conservation and efficiency.

## **5. Water conservation and efficiency program implementation timeline and status.**

Michigan's water conservation and efficiency program is being implemented. The foundation of the program, the water withdrawal assessment process, has been in full-effect since 2009. Sector-based water conservation measures have been developed and are required to be reviewed annually by all large water users. The WUAC and its many outstanding contributors have provided a wealth of input and recommendations for program improvement. Michigan has committed to maintaining the WUAC, and has allocated funding for the implementation of specific program improvement recommendations. From the beginning, it has been acknowledged that the program would continually adapt and that the staff would be open to changes necessary for improvement and enhancement. Michigan has shown a strong commitment to this forward-looking approach, and remains dedicated to the betterment of the program and to upholding the ideals of the Compact. Further progress toward increasing water conservation and optimizing the efficient use of water in Michigan will be a key focus of the implementation of Michigan's Water Strategy.

## Appendix 1

### Michigan Water Conservation and Efficiency Program Water Conservation and Efficiency Goals and Objectives

#### GOALS

1. Ensuring improvement of the waters and water dependent natural resources;
2. Protecting and restoring the hydrologic and ecosystem integrity of the Basin;
3. Retaining the quantity of surface water and groundwater in the Basin;
4. Ensuring sustainable use of waters of the Basin; and,
5. Promoting the efficiency of use and reducing losses and waste of water.

#### OBJECTIVES

1. Utilize Michigan's Water Use Program and Water Withdrawal Assessment Process to guide long-term sustainable water use.
  - a. The programs will be adaptive, goal-based, accountable and measurable.
  - b. Continue to develop and implement programs openly and collaboratively, with local stakeholders, Tribes and First Nations, governments and the public.
  - c. Prepare and maintain long-term water demand forecasts.
  - d. Develop long-term strategies that incorporate water conservation and efficient water use practices.
  - e. Review and build upon existing planning efforts by considering practices and experiences from other jurisdictions.
2. Adopt and implement supply and demand management to promote efficient use and conservation of water resources.
  - a. Maximize water use efficiency and minimize waste of water.
  - b. Promote appropriate innovative technology for water reuse.
  - c. Conserve and manage existing water supplies to prevent or delay the demand for and development of additional supplies.
  - d. Provide incentives to encourage efficient water use and conservation.
  - e. Consider water conservation and efficiency in the review of proposed new or increased uses.
  - f. Promote investment in and maintenance of efficient water infrastructure.

3. Improve monitoring and standardize data reporting among State and Provincial water conservation and efficiency programs.
  - a. Improve the measurement and evaluation of water conservation and water use efficiency.
  - b. Encourage measures to monitor, account for, and minimize water loss.
  - c. Track and report program progress and effectiveness.
4. Develop science, technology and research.
  - a. Encourage the identification and sharing of innovative management practices and state of the art technologies.
  - b. Encourage research, development and implementation of water use and efficiency and water conservation technologies.
  - c. Seek a greater understanding of traditional knowledge and practices of Basin First Nations and Tribes.
  - d. Strengthen scientific understanding of the linkages between water conservation practices and ecological responses.
5. Develop education programs and information sharing for all water users.
  - a. Ensure equitable public access to water conservation and efficiency tools and information.
  - b. Inform, educate and increase awareness regarding water use, conservation and efficiency and the importance of water.
  - c. Promote the cost-saving aspect of water conservation and efficiency for both short-term and long-term economic sustainability.
  - d. Share conservation and efficiency experiences, including successes and lessons learned across the Basin.
  - e. Enhance and contribute to regional information sharing.
  - f. Encourage and increase training opportunities in collaboration with professional or other organizations in order to increase water conservation and efficiency practices and technological applications.
  - g. Ensure that conservation programs are transparent and that information is readily available.
  - h. Aid in the development and dissemination of sector-based best management practices and results achieved.
  - i. Seek opportunities for the sharing of traditional knowledge and practices of Basin First Nations and Tribes.

## Appendix 2

### Water Conservation and Efficiency Recommendations from Michigan's Water Strategy

**Goal 1:** Michigan citizens are stewards of clean water and healthy aquatic ecosystems.

**Outcome:** Individuals and communities understand their responsibility for and make informed and responsible decisions regarding water resources.

**Recommendations:**

1-2: The State, working with stakeholders, will develop a public outreach campaign that highlights stewardship practices and encourages actions that sustain water resources.

**Goal 2:** Michigan's aquatic ecosystems are healthy and functional.

**Outcome:** Aquatic systems are resilient and diverse.

**Recommendations:**

2-8: Incorporate planning for wet weather extremes, droughts, and increased seasonal variability of precipitation into state, regional, and community planning to mitigate impacts to ecological, economic, social and cultural resources.

2-11: The State, working with tribal governments and stakeholders, will establish new partnerships to develop innovative strategies to enhance wetland restoration and green infrastructure efforts in Michigan. The Tribes will work with the State to elevate the recognition, protection, and restoration of native wild rice stands throughout the state.

2-14: Refine and improve the water withdrawal assessment process and model to ensure sustainable use of water resources and that high priority is given to incorporating existing and new data to better represent local and regional water resources and surface water /groundwater interactions.

2-15: Provide technical and financial support to communities and their partners to plan and implement green infrastructure techniques and low-impact development while preserving natural spaces that contribute to water quality, including application of these techniques in the design of new developments, redevelopments, and road projects to ensure storm water management, improved hydrology, and overall water quality.

2-16: Modernize road and highway planning and infrastructure and integrate with watershed planning to effectively accommodate storm water runoff and infiltration needs, thereby reducing the costs and impacts of flooding.

2-17: Enhance financial and technical support of local stakeholder efforts to develop and implement watershed management plans to restore impaired waters, protect high quality waters, and develop and utilize local water resource assets.

**Goal 3:** Michigan communities use water as a strategic asset for community and economic development.

**Outcome:** Economic and community development plans and efforts fully leverage water assets to create great places to live, work, and play.

**Recommendations:**

3-1: Emphasize water resources as assets in state, regional and community planning efforts to provide appropriate, sustainable protection and to fully leverage community-based economic opportunities.

**Goal 5:** Michigan has a strategic focus on water technology and innovation to grow sustainable water-based economies.

**Outcome:** Policy, innovative practices, and technologies are developed and adopted to grow sustainable water-based economies.

**Recommendations:**

5-3: Establish voluntary water efficiency targets for all major water sectors to reduce water use impacts and costs.

5-4: Promote innovative technologies that reduce cost and water loss, or convert waste products to usable materials.

5-5: Develop a water conservation and reuse strategy for the State, local governments, and public and private facilities that incorporates the use of green infrastructure, grey water systems, and energy production that includes recognition programs.

5-6: Fund a pilot project, through a competitive bid process, for the initiation and evaluation of a new model for wastewater management. This pilot program will assess the opportunities and barriers to creating a “Water Resources Utility of the Future,” focused on:

- Reclaiming and reusing water
- Extracting and finding commercial uses for nutrients and other constituents
- Capturing waste heat and latent energy in biosolids and liquid streams
- Generating renewable energy using its land and other assets
- Using green infrastructure to manage storm water and improve urban quality of life

5-7: Define measures of agriculture water conservation and establish voluntary targets for utilizing best management practices (BMPs) that reflect conformance with the

Irrigation Water Use Generally Accepted Agricultural and Management Practices in areas of existing or potential water stress.

5-8: Enhance voluntary water conservation measures through technology and outreach for agriculture to optimize water use while reducing impacts and costs.

**Goal 8:** Michigan has integrated outcome-based monitoring systems that support critical water-based decisions.

**Outcome:** Monitoring systems are in place at a scale and frequency to ensure water quality and quantity are maintained to support diverse uses and values.

**Recommendations:**

8-1: Develop a coordinated, comprehensive monitoring strategy for groundwater quantity and quality, including a data management system.

8-2: Secure a long-term, sustainable funding source for groundwater and surface water quality and quantity monitoring that is continually improved with new technologies.

8-3: Implement a pilot decision-support framework that includes monitoring, data and information, and analytical tools. This framework will assess ecological, economic, social and cultural values and outcomes at local and regional watershed scales.

**Goal 9:** Michigan has the governance tools to address water challenges and provide clean water and healthy aquatic ecosystems.

**Outcome:** Policies, organizational and institutional structures are in place to achieve goals and outcomes of the Strategy.

**Recommendations:**

9-3: Uphold the Great Lakes Compact and Agreement by actively participating in the Great Lakes-St. Lawrence River Regional Body and Great Lakes - St Lawrence River Compact Council including financial support of these entities entrusted to govern the Compact and Agreement.

9-4: State and tribal governments will meet on an ongoing basis to discuss and develop strategies to support management of Michigan's shared water resources. The state and tribal governments will jointly develop agendas reflecting the priorities of all parties involved.

The WUAC program assessment report is available online at [michigan.gov/waterstrategy](http://michigan.gov/waterstrategy) under the Development tab.