



To: House Appropriations Subcommittees: on Environment, Great Lakes, and Energy; Agriculture and Rural Development and Natural Resources joint meeting
From: Nicholas Occhipinti, Michigan League of Conservation Voters
Date: March 15, 2022
Re: Support; testimony on geological underground aquifer mapping

Thank you for the opportunity to speak and for your consideration of this important issue pertaining to the protection and management of water throughout Michigan. Your work, present and past, to improve Michigan's water infrastructure, address groundwater contamination, and to ensure that all Michiganders have access to clean, safe water is widely recognized as critical to Michigan's future.

Michigan Groundwater Table

In 2021 and over the last year Michigan LCV had the opportunity to participate in the Michigan Groundwater Table. This effort included a consortium of government, non-profit, academic, municipal, and stakeholder sector interests dedicated to developing a common understanding of the extent and nature of Michigan's groundwater, identifying and prioritizing essential groundwater stewardship principles, and building consensus around the need for greater groundwater protection. Michigan LCV joined this diverse group of stakeholders in formally supporting the creation of the Michigan Hydrologic Framework and key priorities contained in the Michigan Water Use Advisory Council's December 2020 report to the Legislature.

The Michigan Water Use Advisory Council (MWUAC)

Established by statute, the MWUAC is charged with guiding Michigan's Water Use Programs - making scientifically grounded recommendations to state departments and the legislature.

The MWUAC's broad membership generated a set of unanimously supported technical recommendations that advance the characterization and management of Michigan's water resources while providing conservation goals and objectives.

The findings and recommendations, set forth in the [MWUAC's 2020 Report](#), include the creation of the Michigan Hydrologic Framework, a statewide "smartmap" that describes the distribution, abundance, status, and trends of the linked atmospheric, surface water, and groundwater systems.

The Michigan Hydrologic Framework

The Water Use Advisory Council recommends the creation of a comprehensive groundwater/surface water/atmospheric/topologic/and geological model to improve water management decision making through centralized access to up-to-date data. The framework will incorporate new data and analysis, and will link through GIS databasing to help create regional models

Michigan Needs Better Groundwater Data

The data need embedded in groundwater mapping and the Council's recommendations will inform and support water-related programs and management, it will also provide technical information, tools, data, assumptions, and decision endpoints that can be used to assist water users in resolving and preventing water conflicts.

There is broad support to fund the Water Use Council's consensus recommendations

As further legislative appropriations are considered, funding MWUAC's recommendations will help ensure that governmental water-related programs will be informed by the best data and informational systems available.

Thank you for your time and consideration.

Nicholas Occhipinti,

Michigan League of Conservation Voters

Additional Information

Appendix A: Michigan Groundwater Table Members Supporting the MWUAC Recommendation

Judith Allen, Director of Government Relations, Michigan Township Association

Matt Bolang, Michigan Association of Local Environmental Health Administrators

Deenare Bosworth, Director of Governmental Affairs, Michigan Association of Counties

David Dempsey, Senior Policy Advisor, For Love of Water

Christine Flaga, Toxicologist Manager, Michigan Department of Environmental, Great lakes & Energy, retired

David Hamilton, Water Use Advisory Council.

Andrew Hogarth, Senior Management Executive, Michigan Department of Environmental Quality, retired

Juan Jhong-Chung, Policy Associate at Michigan Environmental Justice Coalition

Kelly Karll, Manager, Environment & Infrastructure, SEMCOG

Anthony Kendall, Research Assistant Professor, Michigan State University

Liz Kirkwood, Executive Director, For Love of Water

Nicholas Occhipinti, State Government Affairs Director, League of Conservation Voters

Stanley Pruss, Director, Department of Energy, Labor, & Economic Growth, retired

Herasanna Richards, State & Federal Affairs, Michigan Municipal League

Mike Ripley, Environmental Coordinator, Chippewa Ottawa Resource Authority.

Paul Seelbach, Professor of Aquatic Practice, School for Environment and Sustainability, University of Michigan

Alan Steinman, Annis Water Resources Institute, Grand Valley State University

Megan Tinsley, Water & Agriculture Policy Manager, Michigan Environmental Council

John Yellich, CPG, Geologist

Appendix B (Groundwater Inventory and Mapping)

Findings and Recommendations following from 2003 PA 148, Sec. 32802

Concurrent with the work of the Council, MDEQ was conducting a groundwater inventory and mapping project (GWIM), as directed by 2003 PA 148, Sec. 32802. This project was completed by a multi-agency team comprised of MDEQ, USGS, and MSU. Upon conclusion of the project in August 2005, the Council asked the team for findings and recommendations that might follow from their project. Upon consideration of the team's response to this request, the Council has the following findings and recommendations relevant to 2003 PA 148. These are not directly requested under Sec. 32803, but in the Council's judgment are related to the issues raised in that section.

Finding 1—GWIM is an excellent tool, useful to the private sector, the public, researchers and government agencies. If not maintained and enhanced, its value will gradually diminish and a significant investment of State resources will be lost.

Recommendation 1A—Michigan should provide for the maintenance and enhancement of the maps and data compiled in GWIM. Needed maintenance and enhancements are summarized below, based upon the GWIM project team's final report.

Database maintenance and enhancement

- Continue to add relevant scientific reports to GWIM.
- Continue to maintain Wellogic (MDEQ's computerized well log database), adding new well records in a timely fashion.
- Enter data from the scanned historic well records (about 800,000 are available) into Wellogic, prioritizing areas where electronic well records are scarce.
- Continue to provide outreach and technology transfer on the use and importance of Wellogic.

- Pursue consistency in water-use reporting requirements. Current inconsistencies include reporting either capacity or use, reporting use by facility or well, and reporting use aggregated by township.
- Develop a process to streamline the mapping of water use and provide tools to MDEQ and MDA to simplify the mapping procedure as new data are submitted each year.

Mapping maintenance and enhancement

- Explore ways to obtain hydraulic characteristics of aquifers, especially in data-poor areas, with a priority on areas of potential future water-resource development.
- Update the improved bedrock topography map and the improved thickness map of the glacial deposits that were created by this project. Much of the information required for this updating task was collected and scanned during the GWIM project.
- Develop large-scale, local, 3-D maps identifying the major confined and unconfined aquifer zones in the glacial deposits. Such a task was considerably beyond the scope of work of the GWIM project team.
- Support and expand the detailed glacial geology mapping of the Michigan Office of Geological Survey with a focus on relating this effort to groundwater-resource management.

Additional data and information needs

- Study and report on the temporal trends in the existing groundwater-level data. This analysis would provide insight to areas of Michigan that are more or less sensitive to drought, and provide a water-use and climatological context to the reported water levels.
- Expand streamflow monitoring network to improve estimates of baseflow and recharge.
- Collect low-flow streamflow measurements for currently unengaged watersheds to confirm the baseflow estimates and provide additional data to improve these estimates.
- Research and develop practical methods to link aquifer analyses, water-use information, and baseflow and recharge estimates to evaluate the ecological impact of future

groundwater resource development.

Recommendation 1B—Michigan should invest the necessary resources to maintain and enhance GWIM

Appendix C: WATER USE ADVISORY COUNCIL FUNDING RECOMMENDATIONS

CURRENT OPERATIONS AND DATA COLLECTION

1. Michigan Integrated Water Management Database (\$250,000 over two years)

A database to facilitate data collection and modeling by making current data accessible and available in a common geospatial format

2. Well Driller Trainings for Improved Data (\$4,000 over two years)

Information collected for the water withdrawal assessment program depends on accurate Wellogig data submitted by well drillers, who must be trained to identify and submit accurate soil profile and well data

3. U.S. Geological Survey (USGS) and EGLE Streamflow Gages (\$350,000 annually)

NEW OPERATIONS TO IMPROVE DATA COLLECTION AND MODELING

1. Michigan Hydrologic Framework (\$2,100,000 over three years (\$900,000 in year 1, \$700,000 in year 2, and \$500,000 in year 3)

Facilitate the creation of groundwater/surface water models to improve water management decision making through centralized access to up-to-date hydrologic data, comprehensive hydrologic analysis, and other models. Incorporate new data and analysis, and link GIS databases and the Michigan Integrated Water Management Database to help create regional models. Create three regional models to more accurately assess water withdrawal impacts within the Framework, and to assess its functionality. Assess metamodeling processes on a regional model to develop a rapid method to evaluate potential water use impacts.

2. Geologic Data Collection and Mapping in targeted areas of Michigan (\$3,000,000 annually)

Expands geologic information with data from drilling, soil sampling, seismic and gamma ray logging to produce accurate geological maps, static groundwater levels, and bedrock topography. Michigan Geological Survey will conduct data collection, which can be used in multiple program areas including the water withdrawal assessment program, PFAS tracking, waste leachate tracking and others c. \$3,000,000 annually

3. Monitoring Well Network (\$259,000 for first year and then \$226,000 thereafter)

Install monitoring wells and join the national groundwater monitoring network. EGLE and U.S. Geological Survey to partner on effort

IMPROVE DATA COLLECTION AND MODELING AS CONTINUED AND NEW OPERATIONS ARE UNDERWAY

1. Long-term planning (\$100,000 over two years (\$50,000 each year)

Analysis of streamflow, groundwater, and geologic data to identify critical gaps and needs, and identify data collection priorities

2. Water Withdrawal Assessment Tool (WWAT) user interface update (\$50,000 for one year)

Display registration information and current status of water management areas

3. Compiling Key Aquifer Properties for use in the WWAT (\$110,000 over two years, \$55,000 each year)

Update statewide estimates of transmissivity, and identify water management areas where storage coefficients may be changed to more accurately reflect geologic conditions

4. 3D Glacial Aquifer Mapping in Two Counties (b. \$80,000 over two years (\$40,000 each year)

Use transition probability geostatistical mapping in two Michigan counties: Cass and Calhoun, to assess the ability of this mapping process to identify glacial aquifer properties

WATER CONSERVATION

1. Advance Michigan's Water Conservation and Efficiency Efforts through State Climate, Energy, and Water Infrastructure Initiatives (\$50,000 for one year)

Assess current climate, energy, sustainability, and water infrastructure policies and programs to identify gaps and opportunities to incorporate water conservation and efficiency, technological improvements, other state and national programs, and education

2. Increasing Water Efficiency and Conservation Practices in the Agriculture Industry (\$600,000 total for three years)

Provide funding for two Full-Time Equivalent (FTE) positions through Michigan State University Extension (MSUE) to develop and launch an educational program for agricultural water use efficiency for both plant and animal industries