

Executive Summary



SUSTAINING

MICHIGAN'S WATER HERITAGE



A Strategy for the Next Generation

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the Michigan Department of Agriculture and Rural Development
and the Michigan Economic Development Corporation





Governor's Foreword

Michigan has an unparalleled system of thousands of lakes, streams, wetlands, beaches and groundwater resources. This vast water network – combined with our unique position within the Great Lakes, the world's largest freshwater system – provides us exceptional opportunities. But, it also means we have a great responsibility to ensure the healthiest water system in the world.

Michigan's water system provides drinking water to millions of people, creates unique and pristine habitats and provides for world-class recreation opportunities found nowhere else on Earth. We rely on this system for public health, environmental, recreational and economic benefits. To sustain Michigan's future, we must manage Michigan's water resources wisely in ways that protect and enhance their value.

Michigan's Water Strategy will, for the first time in our state's history, outline a vision for the future for managing, protecting and enhancing one of our greatest natural assets: abundant freshwater resources.

This Water Strategy will guide the decision makers of our state on sound water policy and it will help align the actions of the various stakeholders involved in water resource planning with a focus on water stewardship. However, there are a few critical areas the state needs to focus on immediately. With the release of this Water Strategy, I am directing my administration to focus the state's actions on five key priorities. These priorities, under the leadership of their designated departments, will be developed in more extensive detail over the coming months. These priorities will emphasize and align the protection of public health and the sustainable use of our natural resources to enrich the quality of life and economic vitality in Michigan's local communities.



1. Ensure safe drinking water

We need to ensure Michigan has reliable water infrastructure systems in place to safeguard the public health of all residents. Sound infrastructure systems are critical to providing high-quality drinking water and optimal treatment of our sewer and storm water.

2. Achieve a 40% phosphorus reduction in the western Lake Erie basin

Reducing the amount of phosphorus in the Lake Erie Basin will help reduce harmful algal blooms and improve water quality for both drinking water and ecosystem health.

3. Prevent the introduction of new aquatic invasive species and control established populations

Invasive species are one of the most significant threats to our nation's lands and waters. The native ecosystems of the Great Lakes and Michigan's inland waters are at risk of being forever changed. Our local natural resource-based economies that depend on tourism for their livelihood are at risk of collapse if invasive species enter the Great Lakes.

4. Support investments in commercial and recreational harbors

Our harbors serve as both a recreational and economic asset for local communities, helping to create vibrant waterfronts for boaters, anglers, residents and businesses. Michigan's 80 recreational harbors also help to support the state's \$4 billion boating industry. Integrating harbors into community and economic development planning can help to prioritize and leverage capital investments necessary to improve and maintain harbor infrastructure and dredging needs.

Our commercial ports also serve a vital role in the economic vitality of our local communities and the Great Lakes Basin. Strategic investments in our ports and port infrastructure will help to enhance existing markets and create new markets to improve Michigan's position in Great Lakes maritime commerce.

5. Develop and implement a water trails system

Water trails are integral to a comprehensive statewide trail strategy. They help spur economic development along Michigan's waterways, increase access to natural resources and benefit local communities.

The details of how we will work on these five priorities will be outlined in specific implementation plans crafted by each lead state agency over the next few months. Through our combined efforts, we can provide an unparalleled quality of life for all people in Michigan. We owe this to all Michiganders now and well into the future.

Rick Snyder,

A handwritten signature in black ink, appearing to read "Rick Snyder". The signature is fluid and cursive, with a large initial "R" and "S".

Governor

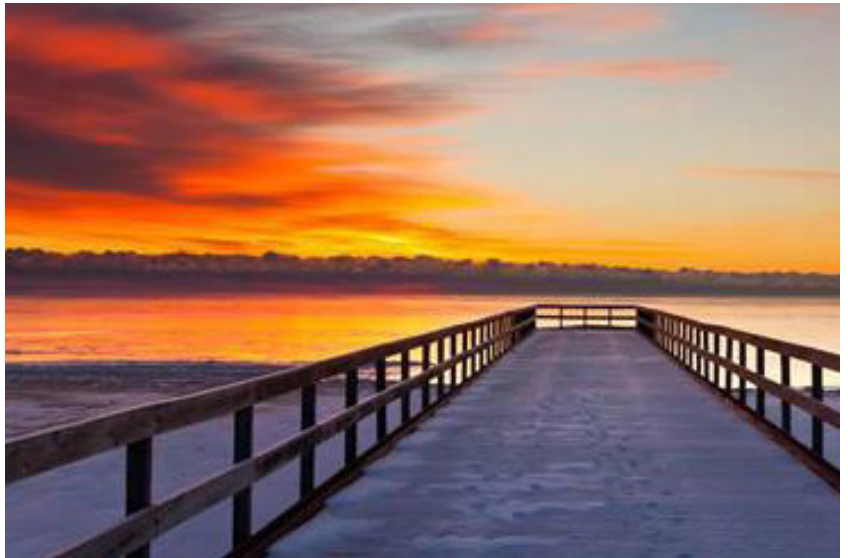


VISION

As the Great Lakes State, Michigan will protect and promote wise use of its globally unique water resources to ensure healthy citizens, vibrant communities, sustainable economies and the stewardship of Michigan's water heritage.

Executive Summary

Water defines Michigan. It is deeply rooted in the state's culture, heritage and economy. With 20 percent of the world's available freshwater, four of the Great Lakes, more than 11,000 inland lakes, 76,000 miles of rivers, 6.5 million acres of wetlands and more than 3,200 miles of freshwater coastline - the longest in the world - ensuring the long-term sustainability of this treasured globally significant natural resource is critical to the integrity of the ecosystem, the well-being of nearly 10 million residents and our ability to advance Michigan's prosperity.



A deep connection to water - from the smallest trickling stream to the mighty Great Lakes - shapes the Michigan way of life. Water is a primary character in our stories from the earliest tribal histories through industrial growth to today's vacation destinations. One in five Michigan jobs are tied to our water resources;¹ they are the lifeblood supporting our health, families, values and economic opportunity. The beauty of our lakes and rivers inspires us to be better stewards of our resources and maintain them for today's communities and tomorrow's future.

Michigan's clean, plentiful freshwater is a unique and valuable resource that is growing in importance. The world population is expected to grow from 7 billion to over 9 billion people by 2050,² further increasing the growing demand for global freshwater resources. In 2015, a global risk report from the World Economic Forum identified water crises as the number one risk influencing the global economy.³

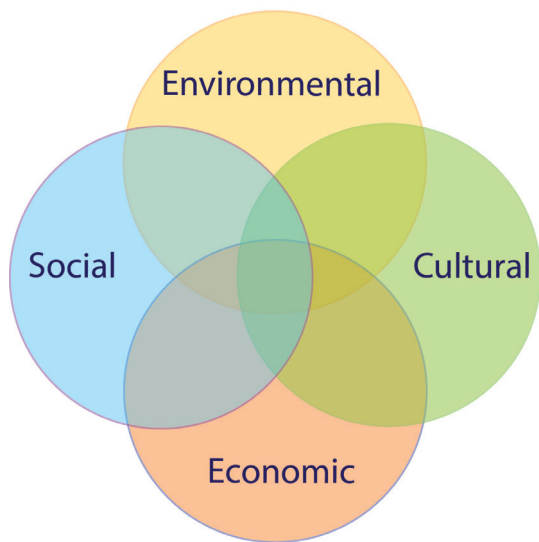
Abundant freshwater resources are at the root of why many Michiganders choose to live, work and play in the peninsula state. Michigan's surface and groundwater resources are vitally important for agricultural production, irrigation, drinking water, electric utilities, mining, manufacturing and water supply to lakes and streams that support valuable fish, waterfowl and wildlife populations. Michigan's abundant water assets and research capabilities, in addition to its highly-skilled talent, economic development expertise, innovation and invention, and powerful tourism and business marketing brand are pivotal drivers for attracting business creation and investment.

With this abundance comes a deep sense of responsibility and stewardship - but Michigan has not always treated its water with a sense of care. Today, the state is slowly returning to a level of aquatic health in many waterways and lakes necessary to fully support diverse fish and wildlife and meaningful recreation in many communities. Through longstanding public and private partnerships and tremendous investment of time and resources, communities are making progress in cleaning up legacy contamination.

But that is just the beginning. The ability to achieve Michigan's vision for its water resources depends on a strategic, collaborative ecosystem-based plan that monitors the health and condition of our water resources, invests in water-related infrastructure, uses water more thoughtfully and efficiently to grow sustainable economies, reconnects communities to water and fosters a water ethic and culture of stewardship.

Michigan's Water Strategy - An Ecosystems Approach

The forthcoming Water Strategy takes an ecosystem approach, focused on the fact that Michiganders are a part of the ecosystem in which we live and therefore have an effect on the health of our water resources. The Strategy recognizes that the core values identified with water are four fold: environmental, economic, social and cultural. All are equally important. Communities across Michigan recognize the value of water quality improvement activities supported through state and federal investments. Studies by the Brookings Institution and Grand Valley State University show that restoring water quality and shorelines respectively, result in a 3-to-1 and 6.6-to-1 return on investment in the form of increased property values, local economic development, improved ecosystem health and quality of life.



Water has immense economic and social value when paired with a healthy environment. Water use by humans is tied to the health of ecosystems and the various fish and wildlife species that occupy them. Social value is represented as how water forms a basis for activity and time with friends and family and how these uses create joy and memories. Cultural value is about identity and affinity to place: where we choose to live and why; who and what we identify with; and where our stories, myths and beliefs come from. For Michiganders, water – and especially the Great Lakes – forms a core part of identity and culture.

The approach recognizes that each of these four values needs to be addressed in balance with the others. They exist together, influence each other and may require compromise, accommodation and limits. This approach is reflected in the Strategy through its goals, outcomes and recommendations.

A Roadmap to Achieve the Vision

The Water Strategy outlines a 30-year vision shaped by a desire for high-quality, accessible water resources that are protected by and for present and future generations based on the question asked in multiple forums around the state: “What do you want Michigan and Michigan’s water resources to look like and do over the next generation?” Throughout the development of the Strategy, Michiganders said they care deeply about the Great Lakes, rivers and inland lakes, groundwater and water in general. It is this caring that ultimately drives the ability to support, choose, manage and fund the requirements of healthy water. To that end, the Strategy recognizes that decisions made now regarding infrastructure, innovation and technology, monitoring and water literacy will set the course for decades.

Great Lakes, Water and Governance

The Great Lakes and Michigan’s water have long been recognized as valuable resources fundamental to our way of life by federal and provincial governments, tribal nations and the seven other states within the basin. The Great Lakes are a global treasure and thus, protection and restoration must be considered in the context of all who share the resource. While the Strategy is Michigan-specific, coordination with the other Great Lakes states, Canadian provinces, and both the federally-recognized Indian Tribes and First Nations in the Great Lakes area is necessary to fully sustain our water heritage.

The Great Lakes region has long-standing governance and institutional structures, organizations and other formal and informal mechanisms focused on protecting, restoring and maintaining the integrity of this vast water resource. These include the International Joint Commission, Great Lakes Water Quality Agreement, Great Lakes–St. Lawrence River Water Resource Compact Agreement, Conference of Great Lakes - St. Lawrence Governors and Premiers, Great Lakes Commission, Great Lakes Fishery Commission and many others. Federal, state, and tribal laws and regulations also apply to specific water issues. The many layers of this institutional and legal framework create an ongoing need for consultation and collaboration among all of the governments and actors that seek to protect water resources.



For generations, the Indian Tribes have resided in the Great Lakes region and depended on the Great Lakes and Michigan's inland lakes, rivers, streams and groundwater for their way of life. These water resources provide food, transportation and drinking water, in addition to fulfilling many cultural purposes. The State's relationships with the federally-recognized tribes in Michigan are an important part of the governance landscape for water in the Great Lakes region. The State is a party to federal consent decrees with five tribes that govern, among other things, both inland and Great Lakes fishing to manage the fisheries and give effect to those tribes' reserved rights under treaties with the United States. Over the past two decades, Michigan and all the tribes have also worked to formalize their relationships through a variety of voluntary agreements in areas of shared interest and mutual commitment, including past agreements concerning water and climate change. The 2002 Government-to-Government Accord executed by Governor Engler and tribal leaders was a landmark agreement establishing a mechanism for consultation, collaboration and dialogue and continues to serve as the basis for a working relationship on a wide range of water issues.

Exploitation of native fisheries, wildlife and forests during Michigan's emergence as the manufacturing center of the nation created great wealth and a high quality of life, but also devastated native fish populations, impacted water quality and left a complex and costly legacy of contamination. Federal, state,

tribal and local regulation and restoration programs have made progress in addressing this legacy in many communities. These programs have been instrumental in restoring and ensuring drinkable, swimmable and fishable waters. They include progress under Michigan's Natural Resource and Environmental Protection Act, Safe Drinking Water Act, the federal Clean Water Act and cleanup statutes such as the Environmental Remediation and Leaking Underground Storage Tank Act. In addition to these efforts, recent investments by the federal government through the Great Lakes Restoration Initiative have accelerated efforts to clean up and restore our water resources and fish and wildlife populations, and to improve quality of life in many communities; however, there is more work to be done.

Government-to-government relationships, statutes, regulations and management programs all play a critical and complementary role to the actions recommended in the Water Strategy. There are many successful examples of collaboration and management of our shared waters.

Driving progress toward the goals and the outcomes will depend on harnessing this complex framework of governance, institutions and regulations to continue to build durable relationships and collaboration around common interests. A long-term strategy built upon local, state, federal, tribal and international collaboration that involves continued learning, open dialogue and adaptive management is critical to achieving improved water quality, sustainable groundwater resources and ensuring proper management of these shared resources.

Strategic Actions

The Water Strategy charts a course by providing recommendations and identifying strategic actions to:

Inspire Stewardship for Clean Water

Most importantly, Michigan residents need greater opportunities to learn about water. Michigan is surrounded by 20 percent of the world's fresh surface water, and with that comes a deep ethical obligation to be good and thoughtful stewards of this global treasure. A shared water ethic will guide Michigan into the future and ensure that our children and future generations will have the same or better quality of life than we have today. The durability of this Strategy and ensuring the health of our water resources for generations to come depends on creating a culture of stewardship through lifelong education about water.

Protect and Restore Aquatic Ecosystems

Michigan needs more integrated, holistic approaches to managing water on and across the landscape, including groundwater, which support healthy ecological systems and hydrologic integrity at the watershed scale.

Create Vibrant Waterfronts

Michigan needs an emphasis on water resources as assets in state, regional and community planning efforts to create vibrant and sustainable communities, a robust recreation and tourism industry and a thriving environment and economy.

Support Water-Based Recreation

Michigan needs to create greater opportunity for access to water resources through water trails and appropriate public access.

Promote Water-Based Economies

Michigan needs to collectively build robust multi-sector and multidisciplinary public-private partnerships between business, industry, academia, private capital and government. These partnerships will link ideation; invention and innovation; research and development; capital investment and end users. This approach will bring technologies to the market to better manage and solve water challenges in Michigan and across the globe. Directed research and development to address specific water challenges should provide the basis for forming a new paradigm of collaboration.

Ensure Clean and Safe Waters

Michigan needs to protect and restore water quality to ensure ecosystem function and support current and future human uses of Michigan's surface and groundwater resources.

Invest in Water Infrastructure

Greater and consistent investments are needed in water-related infrastructure improvements to address aging and deteriorating systems that are causing water quality issues and public health concerns. Michigan needs to make investments in water infrastructure systems to realize the benefits they provide, including delivery of safe drinking water, management of stormwater and wastewater, enhanced recreational opportunities and healthy ecosystems and economies.

Monitor Water Systems

Michigan needs to develop and fund a coordinated, long-term monitoring strategy to provide baseline and trend information about surface and groundwater quality and quantity. This information is necessary to base decisions and best direct actions and future investments to support healthy people, ecosystems, communities and economies.

Build Governance Tools

Michigan needs to build new models of governance at the local and regional level to address increasingly complex and intractable problems facing Michigan's water resources. Implementation efforts will require not just state agencies, but a wide array of individuals, organizations, businesses, industries and tribal and local governments across the state to continue to build on this multi-governmental and stakeholder-collaborative approach.

We call on all people of Michigan to be thoughtful and engaged stewards of our water resources.

Water Strategy Framework

The Water Strategy is organized around nine goals and outcomes designed to ensure the viability and sustainability of Michigan's water resources over time; placing Michigan on the path to achieving its water vision in a way that builds economic capacity while sustaining ecological integrity of this crucial resource for future generations.

The Water Strategy includes a series of recommendations that are a set of interconnected ideas to drive a new relationship between Michigan's communities, governments and residents to solve complex water challenges and create greater opportunities for economic and social well-being. The recommendations are designed to drive performance and behavior change, address barriers and contribute toward achieving the desired outcomes. The ability to achieve the stated goals and outcomes will require both the implementation of recommendations in the Strategy and continued implementation of the entire suite of existing water-related programs and initiatives underway at the state, regional and local level as well as across the Great Lakes Basin.

The Strategy includes recommendations paired with lead actor(s) charged with implementation and an implementation metric to measure progress toward accomplishing the recommendation. A wide host of actors and agents across the state and region, including governments, tribal nations, nonprofits, academia, industry, businesses, individuals, as well as local and regional philanthropies will need to be involved. Therefore, the Water Strategy is not a specific action plan only for government, though there are many actions that government can and should take. Rather, it is a strategy for all people of Michigan, believing that together, we can have a positive impact on the future of the State.

The Strategy includes measures of success intended to examine system response over time as a result of the collective impact of implementation of the Water Strategy recommendations and other efforts already underway by state, federal, tribal and local governments and partners to rebuild healthy aquatic systems, clean water and vibrant economies. Achieving success will require integrating planning strategies for water resources with local units of government; unifying plans between the state, regions and local units of governments and collaborating with stakeholders. Additionally, success will require an integrated process for adapting to new science and understanding of complex issues, evaluating progress, and making course corrections necessary to achieve outcomes.



Photo Credits

Ludington Beach; Ashley Roberds via Pure Michigan, p2
Sand Dunes on Lake Michigan; istock.com, p5
Sunrise over Lake Huron, Paul Gerow via Pure Michigan, p6

References

1. Austin, John. Michigan Economic Center. 2015. Water, Michigan, and the Growing Blue Economy. *(The link provided was broken and has been removed)*
2. United Nations Population Division. 2009. Press Release. *(The link provided was broken and has been removed)*
3. World Economic Forum, Global Risks 2015 report. 10th Edition.

Explore the Water Strategy Online

Stay up to date with Water Strategy news, updates, implementation efforts and related initiatives at www.michigan.gov/waterstrategy, and follow the Michigan Department of Environmental Quality (@MichiganDEQ) and partners on Twitter using the #MiWaterStrategy hashtag.

Document Information

Prepared by the Michigan Office of the Great Lakes, Department of Environmental Quality in collaboration with the Michigan Department of Natural Resources, the Michigan Department of Agriculture and Rural Development, and the Michigan Economic Development Corporation.

Design and Editing by the Michigan Office of the Great Lakes, Department of Environmental Quality.
October 2016. www.michigan.gov/ogl

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