

Michigan Water Withdrawal Assessment Tool

Implementation of the Water Withdrawal Assessment Tool

The Water Withdrawal Assessment Tool (Assessment Tool) is designed to estimate the likely ecological impact of a proposed water withdrawal on nearby streams and rivers. **This is the implementation version.** Its use is mandatory, effective July 9, 2009, for new or increased large capacity water withdrawals (over 70 gallons per minute). Test versions were available since October 1, 2008. Users made a number of helpful suggestions that were incorporated into this version.

The legislation that authorized implementation of the Assessment Tool was signed into law July 9 2008 (2008 PA185) and limits the amount of water withdrawals that can occur across Michigan. The limit is tied to the type of stream or river affected by a withdrawal and is based on not causing an “adverse resource impact” to streams and rivers. In order to assist in evaluating a withdrawal, the legislation also creates a series of “zones” that describe how much risk a proposed withdrawal poses for creating an adverse resource impact. Withdrawals in Zone A through C can proceed (although some additional steps in the process may be required). A withdrawal in Zone D would likely create an adverse resource impact and cannot take place.

The zones and adverse resource impact line (marking the beginning of Zone D) established in the 2008 legislation became effective February 1, 2009. Withdrawals established before that date still cannot cause an adverse resource impact, although the determination of what constitutes an adverse resource impact would be made by the Department of Environmental Quality (DEQ) under legislation passed in 2006 (2006 PA33). In making this determination, the DEQ would use many of the same concepts underlying the 2008 legislation, but the specific numerical limits set by the 2008 legislation do not apply.

The Assessment Tool is designed as a screening process. It allows a person to efficiently determine whether a proposed withdrawal could safely occur without creating an adverse resource impact (Zone A and in most cases Zone B) or whether additional review is necessary before the proposed withdrawal can occur (Zones C and D).

Registration of a Proposed Withdrawal

Under Michigan law, a Large Quantity Withdrawal (LQW), defined as a water withdrawal of 70 gallons per minute or greater, must be registered with the Michigan Department of Environmental Quality, or with the Michigan Department

UPDATE: July 9, 2009

of Agriculture if the LQW is for an agricultural purpose, before the withdrawal can begin.

The Assessment Tool is designed to register a new or increased large capacity withdrawal. The results page provides a quick link to submitting a registration. A registration is valid for 18 months; the withdrawal capacity must be installed within that 18 months or the registration becomes void.

Please Provide Your Comments

We are very interested in the experience of users and how to improve the Assessment Tool. If you have suggestions for improving the tool, or any comments, please submit them through the “feedback” quick link found on the results page. Responses to the feedback comments will be posted periodically.

Background and How the Assessment Tool Works

Governor Jennifer Granholm signed the Great Lakes Compact on July 9, 2008, that joins Michigan with all other Great Lakes region states and provinces in a commitment to use responsible and science-based management of the region's water resources. At the same time, she signed laws to implement a new conservation-based water management process designed to provide for the wise use of Michigan's abundant water resources, while protecting the waters and water-dependent natural resources for use by current and future generations. The Michigan Water Withdrawal Assessment Tool is an important piece of the new process.

The Assessment Tool provides an initial, screening-level assessment of the impact of a potential water withdrawal on local stream and river ecosystems. It operates within a Geographic Information System and can be used to examine potential withdrawal sites anywhere in the state. It is designed with some safeguards so that when a proposed withdrawal clearly poses little or no risk to nearby stream and river ecosystems, the Assessment Tool can approve, and facilitate immediate on-line state registration, of the withdrawal. But when a proposed withdrawal triggers concerns of risk to the ecosystems, the Assessment Tool instructs the person to request a more detailed review by Department of Environmental Quality (DEQ) staff.

The Assessment Tool considers the geographic variations in Michigan's stream flows and fish community types when making a determination. Using current scientific understanding, scientists created mathematical models of stream flow, groundwater, and fish ecology. The stream flow model uses information on soils, geology, land use, and precipitation to predict how much flow is available in each stream. The groundwater model uses information about geology, well depth,

UPDATE: July 9, 2009

pumping rate, and distance from nearby streams to estimate how much a well will reduce the flow in nearby streams. And the fish ecology model determines how a reduction in stream flow is likely to impact the types and abundance of fish that live there. Fish populations are a surrogate representing health of the overall stream ecosystem.

All streams and rivers of the state are classified by size and water temperature. Each stream type has different characteristic fish populations that respond differently to the loss of water. For each type, a maximum amount of water can be withdrawn before it causes an adverse resource impact. The risk of approaching an adverse resource impact is marked by Zones A through D. Zone A has little risk of causing an adverse resource impact, while Zone D means an adverse resource impact would likely occur in the stream. Zones B and C lie between these extremes, indicating increasing risk. The Assessment Tool advises the user what zone their proposed withdrawal is in, and provides instruction on what to do.

Michigan's cold rivers and streams are a unique resource in North America. Users may note that in one set of the cold stream types, only relatively small withdrawals are allowed. Cold transitional rivers and streams are the most sensitive to reductions in flow. Relatively small reductions in flow can dramatically alter their ecosystems so that they will no longer support cold water species like trout. Withdrawals from cold transitional rivers and streams also require more detailed review by DEQ staff.

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