



House Bills 5065-5073 and Senate Bills 721-729

Groundwater Withdrawal Assessment Tool Implementation

Water Use Regulatory Process

Every riparian property owner in Michigan has the right to put the water adjoining or beneath their land to reasonable use. That use could be for domestic purposes, agriculture, industrial use, navigation, or recreation. The state process must recognize and support this right, and assist in the orderly resolution of disputes regarding the use of water. The state must also protect our aquatic resources against adverse resource impacts. One goal of this process is to define to the best of our ability those adverse resource impacts in order to provide certainty for water users across the state.

Framework

These bill packages strive to regulate large water users in a cost-effective manner while protecting aquatic health and current water users. To best achieve this goal, the regulatory process should guide future water users to areas in the state that present the least risk for negative impacts to the environment or conflicts with other riparian users.

The Groundwater Conservation Advisory Council has worked with scientists from Michigan State University, the University of Michigan, MDEQ, MDNR and the United States Geological Survey to create a water withdrawal assessment tool to help the state achieve its goals. The tool, an internet-based GIS application is designed to perform three basic functions:

1. Locate the proposed withdrawal within a sub-watershed and estimate the “index flow”¹ of nearby potentially-impacted streams.
2. Given the size and depth of the proposed well, estimate the expected impact on rivers and streams located nearby.
3. Estimate the potential impact of the proposed withdrawal on the aquatic health of nearby streams (using data regarding the impact of flow reductions on fish habitat as the sole indicator of aquatic health).

Use of Zones to Describe Relative Impacts

The scientists recommended that the tool incorporate the use of different zones of impacts (Zones A through D) because there is no bright line that can be drawn to indicate where a reduction in flow

¹ Estimated flow of water during the summer months when the flow is the lowest and therefore has the greatest potential impact to aquatic resources. Note that by using “median” index flow, one half the years have less water and one half have more, therefore underestimating impacts during dry years.

does or does not cause impacts. In addition, different classes of streams react differently to changes in flow level. Those classes are defined by their relative temperature (cold, cold/cool, cool and warm), and size (stream, small river and large river). Therefore, identical wells pumping at the same rate will have different impacts depending on where they are located.

While the scientists can tell us how much impact on streams they expect a withdrawal will have, the legislature will need to decide how much impact is “acceptable” (see Great Lakes, Great Michigan’s fact sheet “Water Withdrawal Assessment Tool: Where Science Ends and Values Begin.”)

In general, stakeholders agree that Zone A should represent a reduction in stream flow that is expected to cause relatively minor impacts. Zones B and C reflect respectively greater impacts, and Zone D represents unacceptable adverse resource impacts.

The assessment tool serves as a screening mechanism to estimate the expected impact on streams from any particular withdrawal (or the cumulative impact of a number of withdrawals). If properly adopted, the assessment tool should serve as a trigger for greater state oversight and community involvement.

Great Lakes, Great Michigan’s Proposal for Regulations Within Zones

While Great Lakes, Great Michigan supports the science behind the assessment tool, we advocate a conservative approach to its implementation. The following outlines our implementation proposal.

Zone A - Withdrawal is expected to have minor impacts.

The process should allow users to register using the online tool and proceed with well construction.

Zone B - Withdrawals are beginning to have more significant impacts.

The assessment tool uses statewide gauges to estimate stream flow and the anticipated impact that a well may have. Due to the margin of error in such predictions, the amount of flow needs to be reduced by 50% in order to not over predict expected flows. Even with the safety factor, about 10% of the time the tool will still over predict the amount of water available because of the margin of error. A more accurate assessment can be made by agency staff looking at the proposed withdrawal location. This allows them to make a site-specific determination by comparing it to nearby flow gauges and reviewing any available flow measurement data.

Therefore, if the tool predicted an impact from a proposed withdrawal in Zone B, the process should require the user to obtain a site-specific determination of stream flow from the Michigan Department of Environmental Quality (MDEQ). If the MDEQ confirms the withdrawal will place the stream reach into Zone B, the user should be allowed to register the use and proceed with well construction.

The indication that a particular stream reach is in Zone B should also trigger education and planning activities, designed to prevent it from degrading into Zone C. Additionally, the local water user committee (described below) should develop a plan to address any future drought conditions that could quickly move a stream reach into Zone C or D (even without the addition of new water users).

Currently, Michigan water use statutes allow the formation of local water user committees, which are designed to facilitate voluntary resolution of water use conflicts and engage in long-term planning to avoid conflicts between users or impacts to water resources. In Zone B, the water user committee should review conservation measures and determine whether the current measures are adequate to protect their community's water resources. In addition, the committee should prepare drought plans to be instituted if the stream in question reaches Zone C or beyond. The goal of the plan should be to move use in the stream reach into Zone B and avoid adverse resource impacts.

Zone C – Withdrawals are having more significant impacts on aquatic health.

If the tool or the site-specific review results in a determination that a withdrawal will cause a stream reach to be in Zone C, the applicant must either change the nature of their request or apply to the MDEQ for a permit to withdraw. The applicant would be required to prepare a hydrogeological analysis of the withdrawal and its potential impacts. The MDEQ would apply the criteria included in these bill packages and make a decision on the permit application. The MDEQ would be allowed to place restrictions or conditions on the use, including requirements to monitor stream flow and reduce pumping if levels fall too far.

In Zone C, the water user committees would be asked to begin implementing best practices for water conservation and drought plans, with a goal of moving the stream reach into Zone B.

Zone D - Withdrawals may not be authorized.

If a riparian owner wants to withdraw water in an area determined to be in Zone D, he or she will need to engage the other water users in a discussion of how to allocate the resource among all the potential users so that each is able to exercise their "reasonable use" of the resource. A new permit for use cannot be granted by the MDEQ without a reduction of water use by current users.

If a stream reach is determined to be in Zone D, the MDEQ must require water users to reduce withdrawals or institute conservation measures to reduce the impact on aquatic health.