



# 2017 Research Report

## Southwest Michigan Farmers for Responsible Water Use

Project: Cass County Assessment Pilot Project

Project Manager- Michigan Gateway Foundation

Project Administrator- Michigan Department of Environmental Quality

Principal Contractor- Tritium, Inc.

Project Champion- Southwest Michigan Farmers for Responsible Water Use

Environmental concerns prompted the creation of the Michigan Water Withdrawal Assessment Process (MI-WWAP) as a step to protect inland streams and fish populations. The program was instituted under the auspices of the Great Lakes Compact as an approval mechanism for new high-capacity water withdrawals. The program is based on the theory that a groundwater withdrawal at any location will deplete streamflow at some locations and thus degrade both the quality of the stream and the fish habitat within that stream. The program consists of two basic parts, an online screening tool ([www.deq.state.mi.us/wwat](http://www.deq.state.mi.us/wwat)) for approval or denial of proposed water withdrawals, and a Site Specific Review (SSR) process should an application for use be denied by the screening tool. The Site Specific Reviews are to be conducted by the MDEQ staff in the Water Resource Division and by statute are to include all available site specific information regarding the local hydrogeology, including any additional information collected and supplied by the applicant.

Investigative efforts into the Assessment Process revealed three complicating issues. First, there is a significant lack of groundwater, streamflow, and hydrogeologic data supporting the streamflow depletion model embedded in the screening tool. Second, the specific model embedded in the screening tool (Hunt, 1999) does not represent the Michigan geology in most locations, whereas other available models can (Hunt, 2003, Ward and Lough, 2011). Third, the Site Specific Review process was flawed. The reviews took longer than the 10 days specified in the statute, there was no guidance regarding what additional data should be collected, no protocols established for data collection, and no alternative streamflow depletion models utilized.

A group of concerned farmers with crop irrigation systems in southwest Michigan initiated the Cass County Pilot Project in 2016. The project is a cooperative effort supported by a number of stakeholders and funded with significant financial contributions from the Corn Marketing Program of Michigan, the Michigan Soybean Promotion Committee, the Michigan Quality of Life Groups (MDEQ, MDNR, MDARD), and the original group of farmers. The main project goal is to improve the SSR process by collecting additional groundwater and surface water data, creating data collection protocols, and identifying additional groundwater models that can be utilized in SSRs.

The project work is being completed by a professional hydrogeologic consultant. Monitoring wells were drilled near irrigation wells, and stream gages were installed at several locations near the monitoring wells. The ground-water and surface water levels are measured every 15 minutes using pressure transducers. The data are being used to demonstrate long-term water level trends, measure interference effects during pumping, and conduct aquifer performance tests. The data and the aquifer test results are used to conduct streamflow depletion calculations using at least 3 different models for comparison with the screening tool data and results. The aquifer characteristics and the streamflow depletion calculations have proven to vary significantly from the data and calculations in the screening tool. The project is scheduled for completion in the Fall of 2019.



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Corn Marketing Program of Michigan are available  
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