



Water Withdrawal Assessment Tool

The Water Withdrawal Assessment Tool (WWAT) is intended for use prior to installing a new or increased large quantity withdrawal for the purpose of determining the potential impact to nearby water resources.

- The WWAT has a regression model that estimates stream index flow across the state based on stream flow data from 147 stream gauges in Michigan with at least 10 years of data.
 - The Michigan Department of Environmental Quality (MDEQ) and the United States Geological Survey has agreements to operate stream gauges in Michigan and to collect miscellaneous stream flow measurements at several locations without stream gauges. The stream gauge locations and miscellaneous stream flow measurement locations are chosen, in part, based on areas where there is high demand for large quantity withdrawals.
 - The WWAT uses a 50 percent safety factor to avoid authorizing too many withdrawals if the regression model's initial estimate is too high. Meaning only half of the stream index flow is available to be depleted by large quantity withdrawals registered through the WWAT until MDEQ staff review the regression model's estimate.

- The stream index flow can also be reviewed as part of a site-specific review (SSR).
 - During a SSR, MDEQ staff looks at stream flow data from stream gauges, miscellaneous stream flow measurements, and other standard means of calculating stream flow.
 - The revised index flow value might be lower than, higher than, or the same as the WWAT initial prediction.

- An adverse resource impact is a reduction in stream index flow which results in an unacceptable impact to fish populations in rivers and streams or a decrease in lake or large pond levels which results in an unacceptable impact to fish in inland lakes and ponds, or other uses of inland lakes and ponds.
 - The acceptable level of impact to fish populations depends on the river's or stream's temperature classification, with colder rivers and streams having lower levels of acceptable fish impacts. The maximum allowable decrease in stream index flow is 25 percent.

- To determine cumulative stream flow depletions, the stream flow depletion tracking database functions similar to a checking account balance.
 - The WWAT's allowable decrease in stream flow is the starting balance.
 - The remaining stream flow is decreased when new or increased withdrawals are authorized or when the stream index flow is revised downwards.
 - Deposits are made back into the available stream flow balance when large quantity withdrawal registrations are canceled or expire or when stream index flow reviews change the index flow upwards.