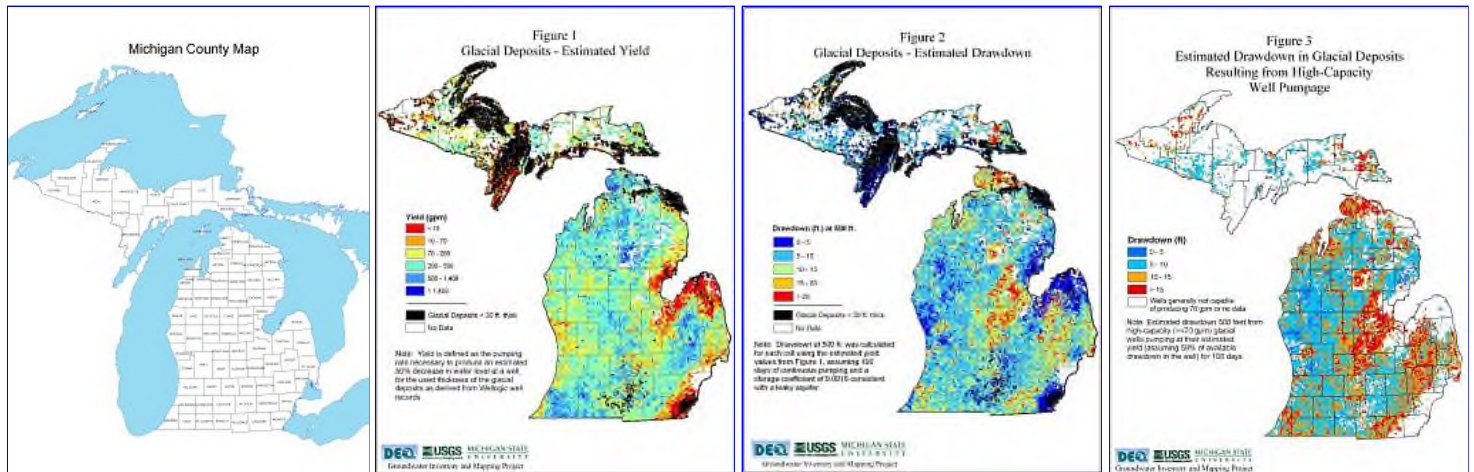


# MICHIGAN GROUNDWATER MAPS

The groundwater inventory and mapping project was developed because Public Act 148 (Michigan, Public Acts of 2003) required the Department of Environmental Quality (DEQ) to create a "groundwater inventory and map" that includes eight specific products, a general requirement for a groundwater inventory, and a directive to make the map and inventory available to the public. The DEQ created a cooperative research team involving groundwater and mapping experts from the U.S. Geological Survey (USGS) and Michigan State University (MSU). The final maps and inventory items assembled to comply with P.A. 148 are provided in the technical report for this project that is available on the project web site (see link below). This web site is an important feature of this project. All the assembled data and analysis derived from the raw data are available on this site, in addition to the final maps required by the legislation. Although the inventory and map products provide a wealth of valuable new information processed from the compilation of existing data, decisions regarding specific groundwater uses require site-specific studies that go beyond the scope of this project (Lush, Reeves, and Miller, March 2006).

*Note: Please click on the following figures to obtain higher quality figures.*

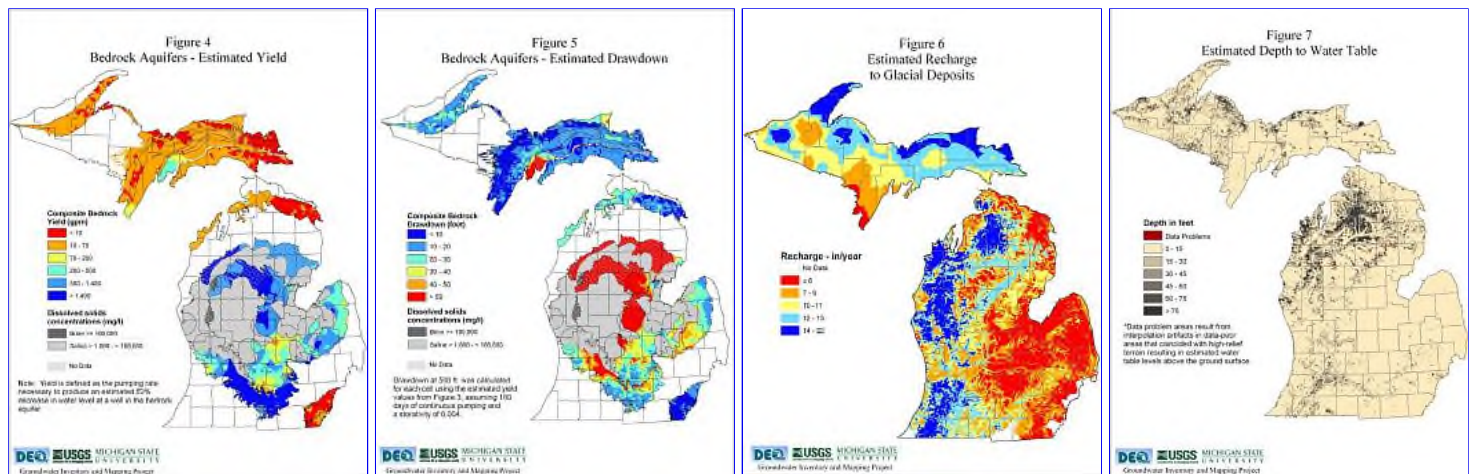


Michigan County Map

Glacial Deposits - Estimated Yield

Glacial Deposits - Estimated Drawdown

Estimated Drawdown in Glacial Deposits Resulting from High-Capacity Well Pumpage

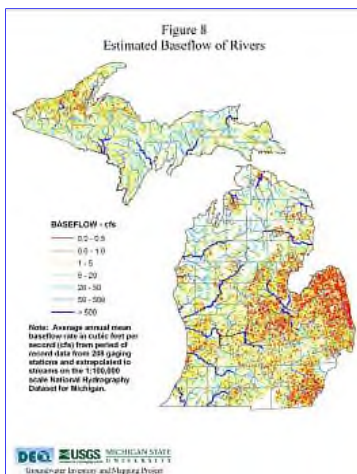


Bedrock Aquifers - Estimated Yield

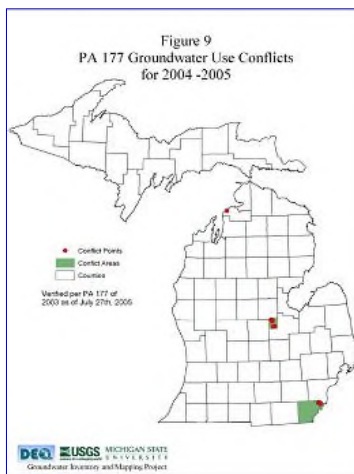
Bedrock Aquifers - Estimated Drawdown

Estimated Recharge to Glacial Deposits

Estimated Depth to Water Table



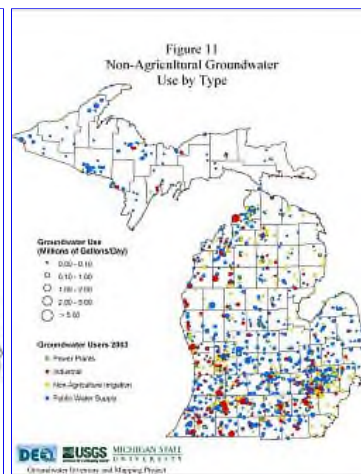
Estimated Baseflow of Rivers



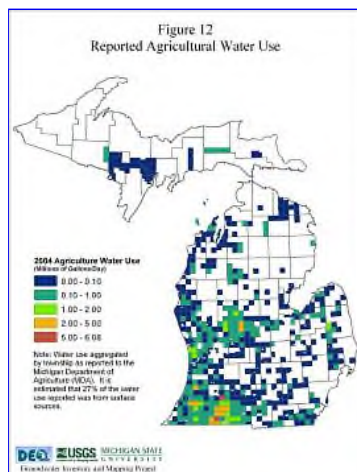
PA 177 Groundwater Use Conflicts for 2004 - 2005



Trout Lakes and Streams and Groundwater-dependent Resources from the Michigan NFI



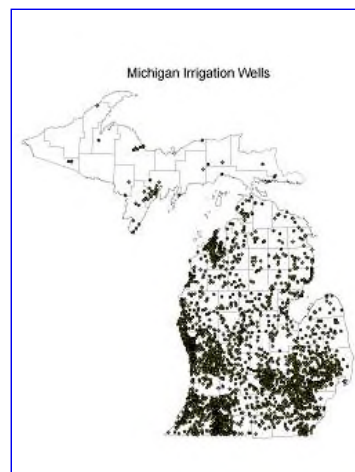
Non-Agricultural Groundwater Use by Type



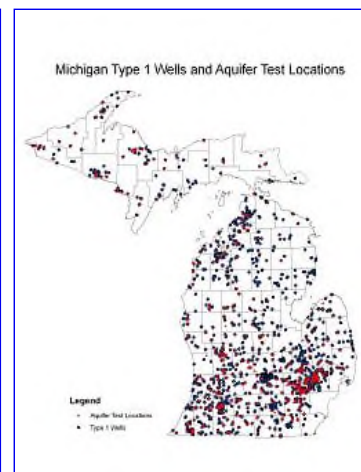
Reported Agricultural Water Use



Michigan Water Wells



Michigan Irrigation Wells



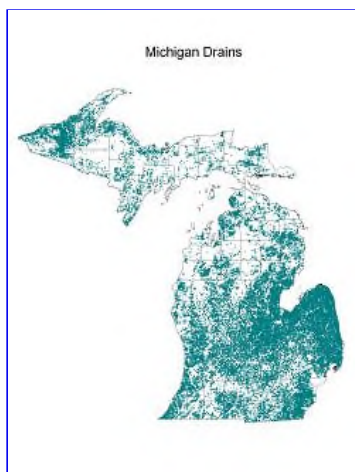
Michigan Type 1 Wells and Aquifer Test Locations



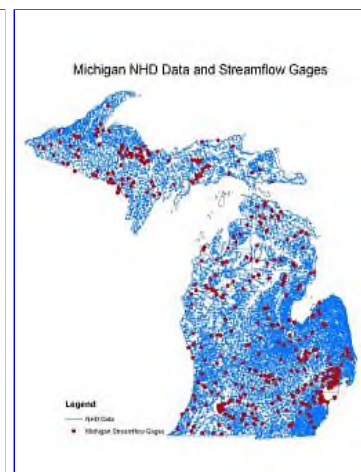
Michigan Oil & Gas and Bedrock Wells



Michigan Lakes



Michigan Drains



Michigan NHD Data and Streamflow Gauging Stations

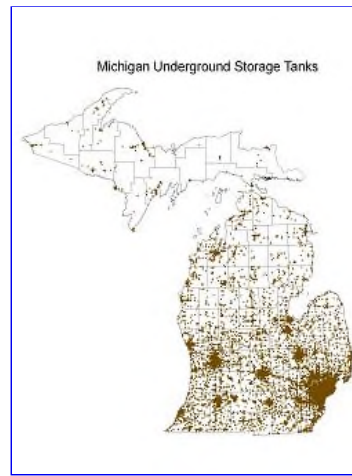




Michigan Wetlands



Environmental Sites in Michigan



Michigan Underground Storage Tanks



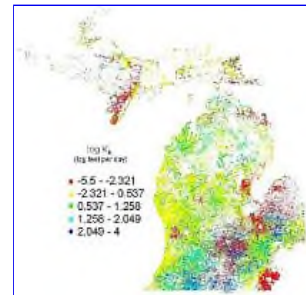
Michigan Wellhead Protection Areas



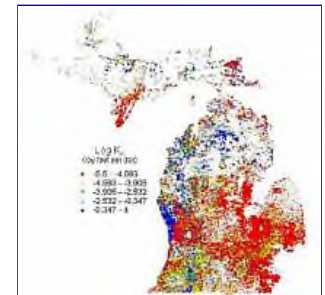
Quaternary Geology of Michigan (Farrand and Bell, 1982a, 1982b)



Glacial Landsystems of Michigan



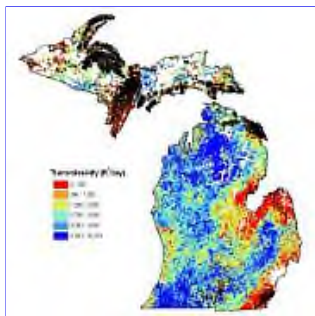
Log of Estimated equivalent horizontal hydraulic conductivity values for Glacial Deposits



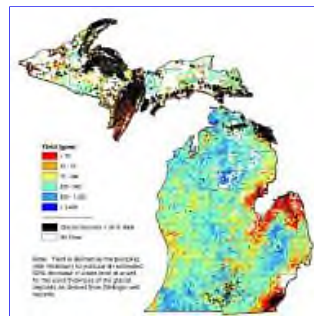
Log of Estimated equivalent vertical hydraulic conductivity values for Glacial Deposits

*Note: This is based on Welllog lithologies and the geometric mean estimated hydraulic conductivity for each lithology.*

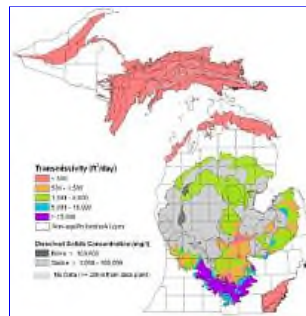
*Note: This is based on Welllog lithologies and the geometric mean estimated hydraulic conductivity for each lithology.*



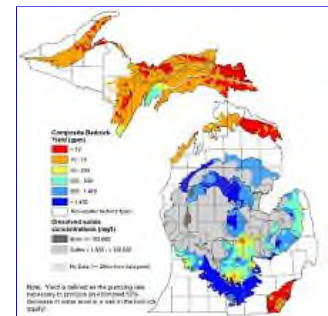
Estimated Transmissivity for the Glacial Deposits of Michigan



Estimated Groundwater Yield from the Glacial Deposits of Michigan



Estimated Transmissivity for the Bedrock Aquifers of Michigan



Estimated Yield of the Bedrock Aquifers of Michigan

*Note: Transmissivity is estimated using estimated hydraulic conductivity values for each lithology reported in the Welllog database based on the landsystem for the well identified using the Glacial Landsystem map.*

## Related links:

Groundwater Mapping Project Website: <http://gwmap.rsgis.msu.edu/>

IGW Website: <http://www.egr.msu.edu/igw/>