

# The Michigan Groundwater Inventory and Mapping Project

## What is the Michigan Groundwater Inventory and Mapping Project?

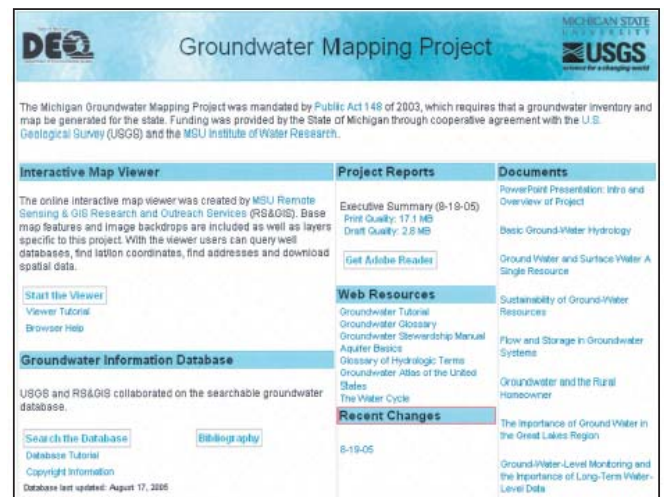
The Michigan Groundwater Inventory and Mapping Project is a project to aid in understanding and evaluating the groundwater resources in Michigan and fulfills the mandates of Michigan Public Act 148 of 2003. The act required the Department of Environmental Quality (DEQ) to create a “groundwater inventory and map” that includes eight specific map components, a general requirement for a groundwater inventory and a directive to make the map and inventory available to the public. DEQ established a collaborative research team involving groundwater and mapping experts from the U. S. Geological Survey (USGS) and Michigan State University (MSU). The project team designed an interactive web site to make the mandated products available to the public.

The interactive website’s home page ([gwmap.rsgis.msu.edu](http://gwmap.rsgis.msu.edu)) links to the following components for the Groundwater Mapping Project.

- **Interactive Map Viewer**—access the spatial map layers as well as query databases. The mandated map components are:
  - Location and water yielding capabilities of aquifers in the state—glacial yield, glacial transmissivity, glacial drawdown, bedrock yield, bedrock transmissivity and bedrock drawdown.
  - Aquifer recharge rates in the state.
  - Base flow of rivers and streams in the state.
  - Water levels of groundwater in the state.
  - Surface waters, including designated trout lakes and streams, and groundwater dependent natural resources that are identified on the natural features inventory.
  - Location and pumping capacity of specific facilities.
  - Aggregate agricultural water use and consumptive use, by township.
  - Conflict areas in the state.
  - Supplemental maps: Glacial Landsystems, Wells Summary database, Wells-Complete database, Wells-Hydrologic Properties database.

Additional map layers, including political boundaries, roads, aerial photos, topography, satellite imagery, land use, environmental sites and many more are available.

- **Groundwater Information Database**—access more than 220 articles digitally scanned and a bibliography with more than 480 groundwater relevant citations.
- **Project reports**—the Executive Summary contains a synopsis of the statewide conditions for each of the map components and inventory.
- **Web resources**—links to primers on groundwater and water resources.
- **Documents**—online documents concerning water resources.
- **Online tutorials**—for the Interactive Map Viewer and Groundwater Information Database.



## Who can use this site and why?

Anyone with internet access can make use of this interactive website. The Michigan Groundwater Mapping Project website is targeted for a wide audience, for example, planners, watershed groups, policy makers, scientists, educators and citizens. This site can be used to investigate and evaluate areas of interest regarding the groundwater resources of Michigan.

## What kind of questions can be answered by the Michigan Groundwater Inventory and Mapping Project website?

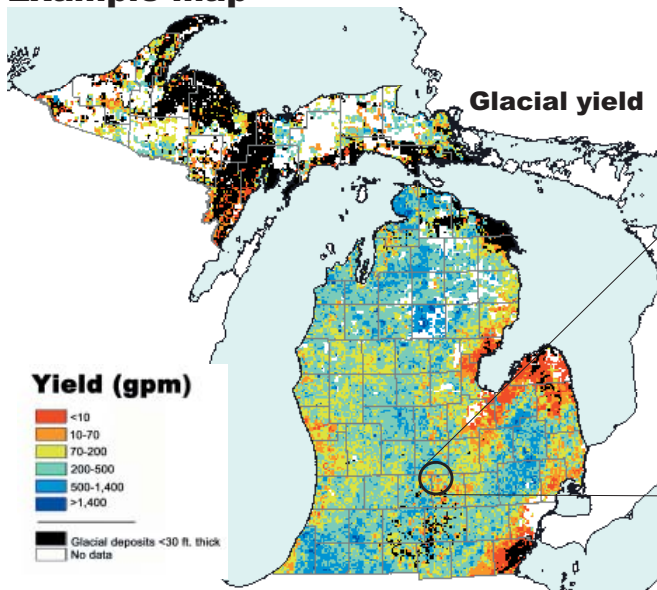
- How abundant is groundwater in the glacial and bedrock deposits?
- What is the probability that a high capacity well will adversely impact a small capacity well in the glacial deposits?
- Where and what type of water wells exist in my vicinity?
- Where are the groundwater dependent features, for example, trout streams and lakes, and Michigan Natural Features Inventory identified wetlands, located?
- What type of water use is in my area and how much groundwater is being withdrawn?
- What are the hydrogeologic characteristics of my county or watershed?
- Are there any publications with water quality data for groundwater in my area?

## How can I obtain components of the inventory and map products?

The inventory and map products are available to end-users in three ways:

- Web-based mapping site hosted by MSU (gwmap.rsgis.msu.edu). The digital data and publications are available for download from this site.
- The digital data are available for download through the State of Michigan, Center for Geographic Information (www.michigan.gov/cgi) for use in a GIS mapping software.
- Digital data provided on compact disc for use with the Map Image Viewer software, an easy-to-use GIS software package for viewing and analyzing spatial data. MSU provides this mechanism. There is a charge for this service for users other than local health departments and the DEQ.

### Example map



### Well data

WELLS SUMMARY									
WELLID	IMPORT_ID	COUNTY	TOWNSHIP	TOWNSHIP_RANGE	SECTION	OWNER_NAME	WELL_ADDR	WELL_DEPTH	WELL_TYPE
33000000374	Lib Inv	33040224002	Ingham	Lansing	04N 02W	24	MSU POULTRY RESEARCH 3808 E MT. HOPE RD.	352	"U

### Zoom view



This example glacial yield map highlights some of the interactive map viewer features. The zoom feature allows viewing of smaller geographic areas. At this scale, water well point data can be displayed and queried.

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