U.S. Department of the Interior
U.S. Geological Survey
Minnesota Water Science Center

Founded in 1879, the USGS serves the Nation by providing reliable scientific information to describe and understand the Earth; minimize loss of life and property from natural disasters; manage water, biological, energy, and mineral resources; and enhance and protect our quality of life. The USGS provides unbiased science to inform decision-making but has no direct resource-management role.

U.S. Geological Survey – Water Resources Programs in Minnesota

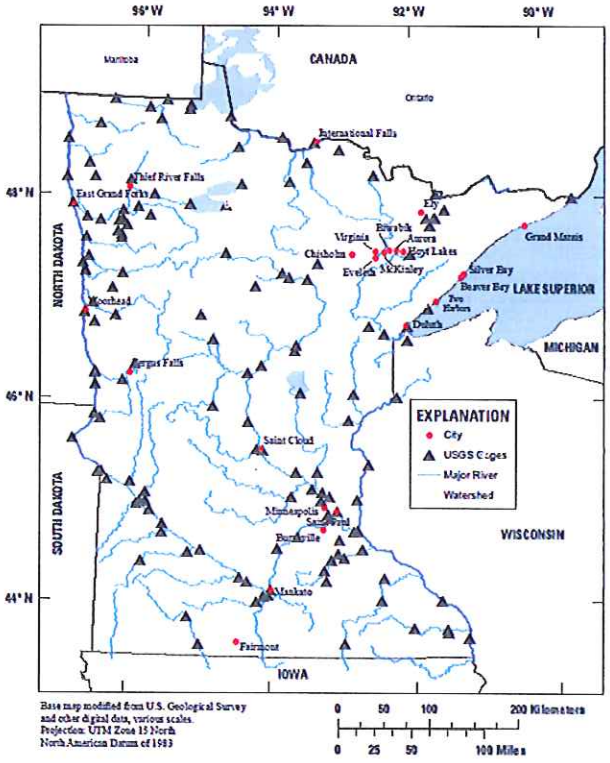
The USGS conducts water-resources science activities in Minnesota with over 50 Federal, State, and Local funding partners. These activities include data collection and investigative studies that focus on quantity, quality, and sustainability of Minnesota's water resources. This work is conducted out of the Minnesota Water Science Center in Mounds View and our field office in Grand Rapids.

Program Highlights

Hydrologic Data

USGS measures water levels and flow rates at over 150 of Minnesota's lakes, streams and rivers and 45 water wells. These data are served to the public in near-real-time on waterdata.usgs.gov, and are used by our many partners and the public for:

- Flood forecasting and flood control
- Drought monitoring
- Water-supply planning and permitting
- Waste-load allocation permitting
- Ecological in-stream flow needs
- Navigation and shipping
- Designing bridges, culverts, highways and other structures in or near streams
- Determining trends in water flow, levels or quality that may result from climate variability, or from increasing agricultural and urban development
- Meeting legal water resource obligations relating to treaties and compacts, interstate and binational borders, and hydroelectric power generation
- Recreation



Hydrologic Analysis

The USGS develops hydrologic models that describe the quantity and movement of groundwater and surface waters. Hydrologic models are important tools for USGS and our partner agencies to assess availability and sustainability of water resources so that resources can be better managed. Current hydrologic analysis projects include:

- Development of a hydrologic model of the Northeast Twin Cities Metropolitan area. This model will improve understanding of the effects of groundwater use and climate variations on water levels in White Bear Lake, other lakes in the Northeast Metro, and aquifers.
- Analysis of water balance and water quality in restored wetlands at the Glacial Ridge National Wildlife Refuge is being done to better understand where wetland restoration efforts in western Minnesota can be most effective at improving water quality and reducing floods.

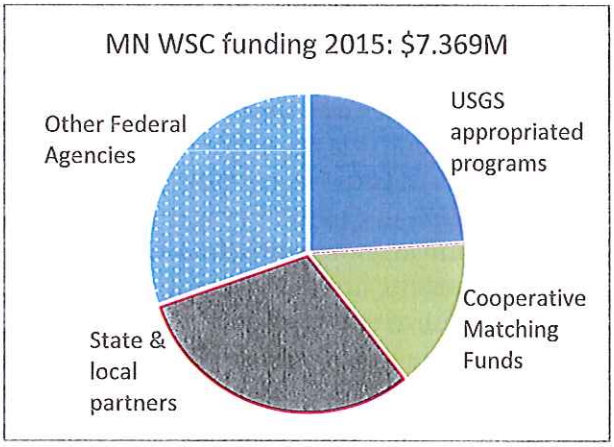
Water Quality

We conduct numerous studies and assessments of the chemical water quality of Minnesota's streams and rivers, lakes, and groundwater. USGS has played a pioneering role in local, regional, and national-scale assessments of numerous manmade and natural contaminants.

- Mercury assessments have informed State and Federal policies aimed at reducing environmental mercury pollution.
- USGS's discovery of unregulated pharmaceuticals and new pesticides in State waters have prompted significant State activities aimed at reducing ecological and human health risks associated with these compounds.
- Assessment of water quality in areas of proposed copper-sulfide mining in Northeastern Minnesota. Water that flows over mineralized rocks can naturally become enriched in trace metals; therefore, it is critical to establish baseline conditions so that the effect of future mining operations can be evaluated.
- Statewide groundwater assessments are informing State and County health agencies about the prevalence and occurrence risk factors of natural contaminants in domestic and municipal well water. Arsenic, manganese, and radium are widespread natural contaminants in Minnesota groundwater, the drinking water source for 75% of Minnesota residents.
- Sediment and turbidity are major water-quality impairments to the State's rivers. USGS conducts statewide assessments of sediment and turbidity in rivers to inform resource management agencies on strategies to reduce sediment loads from erosion of soils and river banks and restore habitat.
- Predictive lake ecosystem models are being developed that address nutrient enrichment, hazardous algal blooms and fish habitat in Voyageurs National Park, the St. Croix National Scenic Riverway, and the St. Louis River estuary.

Unique funding model of USGS Water Science Centers

The Minnesota Water Science Center leverages appropriated funds from the Cooperative Matching program and other Federal programs, such as the National Stream Information Program, to collaborate with 50-80 funding partners in any given year. The Water mission of the USGS is unique among Federal agencies in that a substantial portion of our budget comes from Federal, State, and local funding partners—mainly government agencies. We also work with partners on projects funded by the LCCMR. This funding model requires the Minnesota Water Science Center to be highly responsive to the Minnesota's water information needs. Major Federal partners include the U.S. Army Corps of Engineers, International Joint Commission, and the U.S. EPA's Great Lakes Restoration Initiative.



Activities important to Minnesota that are led by other USGS offices include:

- Mapping and geospatial data (national programs)
- Mineral research and assessments (national programs)
- Ecological studies, including loon migration, development of methods to control invasive zebra mussels, and ecological functions of prairie pothole wetlands (Upper Midwest Environmental Sciences Center in LaCrosse, WI; and Northern Prairie Research Center in Jamestown, ND)
- Animal health research and assessments on issues such as avian influenza and white nose bat syndrome, both of which affect Minnesota. (National Wildlife Health Center in Madison, WI)

For additional information, please contact Jim Stark, MN WSC Director at 763-783-3230, or stark@usgs.gov