

The DNR tests waters throughout Iowa to make sure they are meeting state water quality standards.

Those standards are in place to protect drinking water, aquatic life and recreational uses, like swimming. When a stream or lake doesn't meet those standards, the stream or lake is placed on the state's impaired waters list. The DNR then creates a plan that outlines ways Iowans can help improve the water quality in their community's lakes and streams.

DNR needs your input

Every Iowan needs the help of their fellow citizens and watershed groups to improve water quality in their community. If you or your group would like to meet with a DNR staff member to discuss water quality, please contact Jeff Berckes at (515) 281-4791 or Jeff.Berckes@dnr.iowa.gov



For more information on water quality improvement plans, please visit <http://watershed.iowadnr.gov>

Union Grove Lake

Pollutant: *Bacteria and High pH, turbidity, algal growth*

Pollution Sources: *Bacteria – Livestock manure, septic systems, and geese at the swimming beach. Turbidity, algae, pH – Phosphorus from soil erosion, fertilizer, and manure.*



What's wrong with Union Grove Lake?

Animal and human waste can carry disease-causing organisms into the water. If ingested, these organisms can make people sick. Testing for *E. coli* bacteria can indicate the presence of harmful organisms in the water. Union Grove Lake experiences high levels of *E. coli* bacteria as determined by beach shore monitoring. Reducing these high bacteria levels can reduce the risk of illness to beach patrons.

Additionally, bottom feeding fish, such as the common carp, mix up the bottom of the lake in search of food. This mixing causes murky or turbid water, which reduces the ability for other fish to find their food. The mixing also releases phosphorus attached to the soil in the bottom of the lake. Algae use phosphorus as a food source and can reproduce rapidly in high phosphorus environments, which causes algal blooms. Enough algae on the lake can increase the pH of the water by using the carbon dioxide available in the water. High *E. coli* concentrations and pH levels both prevent Union Grove Lake from meeting state-designated water quality standards.



What is causing the problem?

Pollution from animal waste, septic systems, geese, soil erosion and fertilizer loss all contribute to water quality problems in Union Grove Lake. High *E. coli* concentrations are attributed primarily to direct deposition of manure by cattle in streams, failing septic systems, manure application, and geese residing at the swimming beach. Primary contributors to high pH, turbidity and algae levels include phosphorus in runoff containing eroded soil, synthetic fertilizer and animal manure.



The following are examples of conservation practices recommended by DNR for water quality improvement in Union Grove Lake:

- Increase conservation tillage on rowcrop lands
- Use vegetative buffers adjacent to streams
- Reduce or eliminate livestock access to streams
- Use strategic fertilizer and manure application techniques
- Use no-phosphorus fertilizer on shoreline properties
- Establish rooted vegetation along shoreline
- Manage fishery to reduce bottom-feeding fish species
- Promote septic system inspection and maintenance programs

What can be done to improve Union Grove Lake?

The goal is to improve water quality, restoring the lake's health and appeal for recreational use. Sources of bacteria and phosphorus must be reduced to achieve this goal. The DNR Watershed Improvement Program is conducting research and seeking public input to develop a water quality improvement plan, also known as a Total Maximum Daily Load (TMDL). This plan examines potential pollution sources and sets goals for reducing pollutants and improving water quality in Union Grove Lake.

When completed, this plan can guide local efforts for improving the health of Union Grove Lake and its watershed. The DNR can also provide additional technical assistance and grant funding opportunities to support those local efforts. However, it is ultimately the responsibility of watershed residents and patrons of Union Grove Lake to take action and lead efforts to clean up the lake.

