

Water Quality

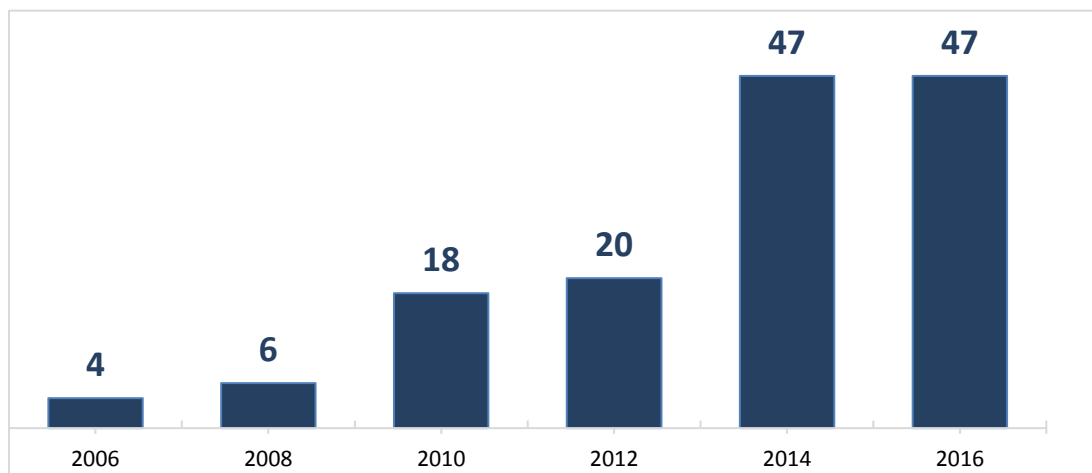
With more than 10,000 lakes, 100,000 miles of river and streams, and about 9.3 million acres of wetland, water is a major part of Minnesota's culture, economy and natural ecosystems. Policies in the 1970s resulted in cleaner water than ever before, but in the last 30 years water quality has declined overall. While local government and industrial sites have taken steps to improve water quality, managing pollution from chemical runoff will continue to be a challenge. Transportation infrastructure and adjacent land development stress water quality by generating pollutants and disrupting the natural filtration system. Finding ways to limit these impacts is important to improving Minnesota's water quality.

WATER QUALITY IN MINNESOTA

Current programs and strategies are not improving water quality in the state. More than 40 percent of Minnesota's waters are considered impaired or polluted.¹ Excess phosphorus and nitrates from agricultural activities that wash off roads have the potential pollute lakes, rivers, and streams because they don't go through the natural filtration process.

Chloride is another pollutant that can cause poor water quality. In Minnesota, 47 bodies of water were impaired due to chloride pollution in 2016, which is an increase from four bodies of water in 2004.² Road salt and water softeners are the two major sources of chloride pollution.

Figure 1: Number of bodies of water impaired by chloride in MN



CURRENT ROAD SALT USE

Salt is used on state highways, as well as local roads and parking lots, to make pavement safer for winter travel. The amount of salt used is highly dependent on weather. More snow and ice requires more salt to increase travel safety. MnDOT is trying to reduce its salt use and has had some success. Management strategies include using new technology to optimize salt use, liquid chemical deicers instead of salt or sand, underbody plows to reduce the amount of salt needed, driver training, and research on lower salt solutions. Landowners can help limit the amount of snow plowing and salt used on state highways by installing and maintaining living snow fences – trees, shrubs, native grasses, wildflower, corn rows, or hay bales that prevent blowing snow.

STORMWATER

Stormwater – or rain or snow that falls on the ground -- can contain harmful chemicals like lead, cleaning solvents, chloride, phosphorus, pesticides, bacteria and viruses. When stormwater runs off roads, parking lots and rooftops, it can reduce water quality. Conventional stormwater management detains water in ponds and constructed wetlands to control release rates and prevent sediment from reaching freshwater lakes and rivers. These controls also help to prevent major flood risks from large rain events. Other low-impact stormwater control strategies include green roofs, bioswales or rain gardens, curb cuts, catch basins, porous pavements and tree planting.

WETLAND LOSS

Wetlands provide natural water filtration services. They also offer wildlife habitat, water quality protection, and stormwater management. Over the last century, Minnesota experienced 50 percent reduction in wetland acreage due to land development. This wetland loss increased flood risk around impervious surfaces like roads because it meant losing water filtration services wetlands provided in the past. Wetlands must be restored to their native setting in order to perform essential ecological services.

¹ [Minnesota Pollution Control Agency \(MPCA\) Watershed Achievements Report 2015](#)

² [MPCA Minnesota's Impaired Waters List](#)

³ [Minnesota Department of Natural Resources](#)