



Help Reduce the Volume of Unregulated Chemical Pollutants in Our Waters

By Barb Eller for the Mille Lacs Lake Watershed Management Group

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Our lakes and streams are threatened by chemicals used to make popular products

The Minnesota Pollution Control Agency (MPCA) monitors the presence of chemical pollutants in our lakes and rivers. Over the last decade they have found a variety of chemicals that are associated with familiar consumer goods such as pharmaceuticals and personal care products (PPCPs); fire retardants; and detergents. They've also found increasing amounts of the repellent N,N-diethyl-m-toluamide (DEET).

The MPCA's January 2021 report detailed findings from a statewide study of 50 randomly selected lakes completed in 2017. Although Mille Lacs was not among the lakes tested, prior studies did include the Mille Lacs region, and those prior studies showed results consistent with the new findings.

Researchers looked for 163 chemicals, and they found 55, with at least one chemical detected in every lake tested. Among those found were several medicines and chemicals that are endocrine-active. These chemicals act like hormones and affect living creatures' physiology, reproduction, and behavior, even when present in very small amounts.

The most frequently detected and worrisome chemicals included:

- Antidepressants;
- Antibiotics;
- Estradiol (a hormone);
- Triclosan (a disinfectant);
- Nonylphenols (chemicals used in making antioxidants, lubricating oil additives, detergents, and other consumer goods);
- Octylphenols (chemicals used in rubber, pesticides, and paints).

Collapse of a fish population after exposure to a chemical found in birth control pills

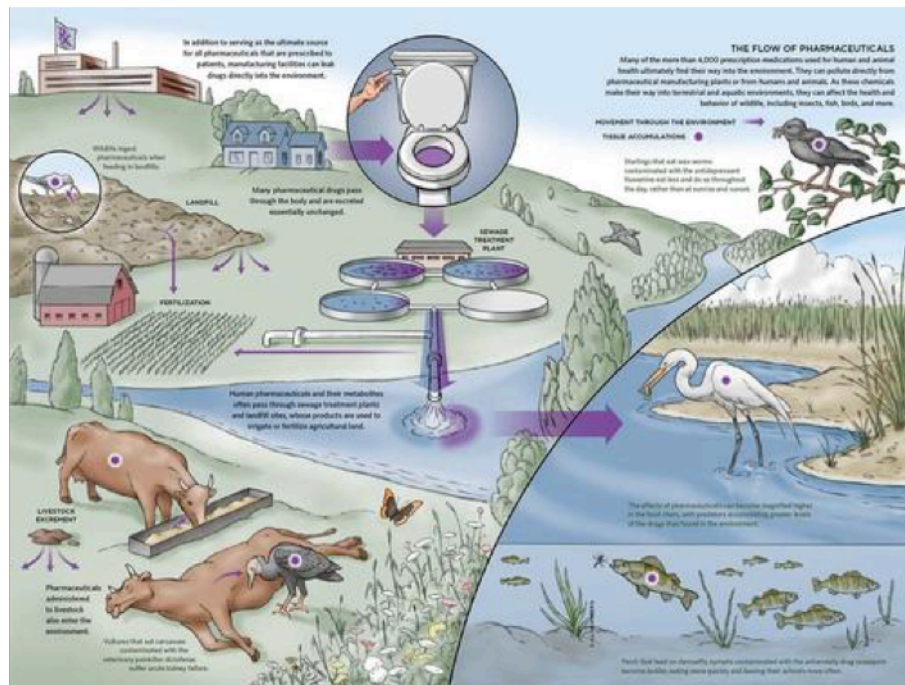
Researchers in Ontario found feminization of male fathead minnows and altered egg production in females exposed to very low concentrations of a synthetic estrogen commonly used in birth control pills. Over the 7-year course of the study, changes led to the almost complete extinction of this species. Researchers proposed that this chemical as well as others, such as the nonylphenols, with estrogen-like effects can lead to reproductive harm to fish with chronic exposure to very low concentrations.

The highest concentrations of these chemicals were found in discharges from sewage treatment facilities (including individual septic systems); pharmaceutical and other manufacturing facilities; and storm-water drainage. However, chemicals were also found in locations far from industrial regions and population centers, which suggests they are transmitted through the air and in precipitation. Their ultimate source is in the production, use, and disposal of popular consumer products.

Your actions can help reduce the impact of chemical pollutants that are affecting animals all along the food chain, including humans:

- Be aware that anything you use will eventually find its way into our lakes, rivers, and drinking water.
- Choose foods, personal care products, and detergents that don't contain endocrine-active or other toxic ingredients. Use your power as a consumer to convince manufacturers to use only nontoxic ingredients.
- Use insect repellents containing less than 30% DEET, an amount that is effective against mosquitoes and ticks. Carefully follow directions. Consider natural alternatives. (Note that some essential oils are toxic to our animal friends.)
- Never dispose of drugs in toilets or trash; take them to drop-box or take-back locations. Nearby locations include the City of Isle, County Sheriff Offices in Mille Lacs & Crow Wing Counties, Crosby Police Department, and the Mille Lacs Band Government Center.
- Dispose of all hazardous waste including petroleum products, pesticides, and paints at county collection sites or recycling centers.
- Visit MilleLacsWatershed.org to learn more about preventing storm water runoff with its load of chemicals from entering our lakes and rivers.

This graphic from the U.S. Geological Service illustrates the many ways polluting chemicals enter our environment, including through surface and ground waters. *Credit: Al Granberg.*



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Visit MilleLacsWatershed.org to learn more about supporting a healthy lake environment