

Fish on Drugs?

Help us keep “Fish off drugs!” These are two concepts that don't typically get put together, but it's true that fish are likely on drugs in many of our watersheds, including Lake Ontario.

When you flush prescription medication or personal care products down the toilet, into septic beds, or down the sink, the chemicals can have harmful effects on the behavior, growth, and reproduction of fish, as well as other organisms. These products can also enter the environment through landfills and contaminated groundwater. Even over the counter products can be detected in the natural environment, generally downstream from sewage treatment facilities and urban areas. Some pharmaceuticals are degraded to various extents in sewage treatment plants, but others leave the plant in active forms.

Active residues of pharmaceuticals have been detected in surface water, and they may persist in the environment for long periods of time. For example, many people keep or use ibuprofen on a regular basis. When ingested, 70-80% of ibuprofen is not used by our bodies, and the unmetabolized component is excreted in urine. In areas of North America where studies have been conducted, this has resulted in widespread detection of the drug in surface waters, along with within tissues of wild caught fish. Studies have shown that fish exposed to levels that are typical for sewage treatment plant effluent can result in skeletal development, immune function and metabolic impacts. Estrogen also enters the natural environment in a similar way, and has been noted to produce intersex (both male and female parts), result in immune response issues, and may be responsible for some fish kills. In another study, anxiety drugs altered the behaviour, while other studies have found the presence of certain antidepressants within tissues of fish. These can negatively impact the health of local fisheries resources, and pose unknown impacts over the long term. These compounds have also been documented to move up the food web, and have been found in fish eating species, such as Osprey.

Despite extensive monitoring by the Ganaraska Region Conservation Authority, it has not conducted any test locally looking for pharmaceuticals, and the above examples are from elsewhere in North America. Effective environmental detection methods are being developed by different agencies, and a detection strategy will become commonly applied to assess the current situation. There are currently no test methods to assess whether negative effects may occur after long-term environmental diffuse exposure in fish, other animals, and humans, during the vulnerable periods of development, on aquatic micro-organism or how it may affect other animals. As residents, you can help avoid the presence of different pharmaceutical products in the environment by disposing of drugs properly, follow advised dosage levels, and help to spread the word about fish on drugs.

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