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The Monitor

The newsletter of Wisconsin's Citizen Lake Monitoring Network

Microplastics in our Water

Microplastics - plastic particles under 5mm in size - are being found in waters all across the world, including drinking water. These particles are manufactured at this miniscule size for cosmetics, clothing, furniture, cleaning products, and microfiber items. Microplastics can also be the result of larger plastic materials breaking into smaller particles over time through weathering and mechanical breakdown.

A recent study on microplastics by the University of Minnesota School of Public Health was published in the scientific journal PLOS ONE this year. The researchers examined 12 brands of beer that were brewed with Great Lakes water, and 12 brands of sea salt. Every sample of beer and sea salt contained microplastics. They also sampled 159 tap water samples from around the world, including both urban and rural systems, and found 81 percent of those samples to contain microplastics. Even bottled water, often thought by consumers to be more pure than municipal systems or private wells, has also been found to contain microplastics.

These tiny particles have been shown to cause blockages in the digestive systems of small, aquatic animals. Zooplankton in the water appear to mistake microplastics for food. The particles increase in concentration through the food web through a process called biomagnification - an accumulation of contaminants that occurs as larger animals consume an abundance of contaminated food organisms from lower levels of the food web. Health effects of these particles to humans or other larger animals are not well understood. Scientists suspect that the benefits of eating fish are likely greater than the potential risk associated with consuming microplastics, although the level of risk could vary depending on other chemicals that may be coating the microplastics, such as flame retardants and BPA. They believe that most particles, especially those at the larger end of the microplastic size range, would probably be excreted by the human body.

You have likely seen plastic litter floating in or around your lake. But did you know that there are many large "trash islands" that float around the world's oceans? The largest of these is known as the Great Pacific Garbage Patch, and it is the most well-studied accumulation of plastics in the world. Located between California and Hawaii, it occupies 1.6 million square kilometers, and contains about 80,000 tons (160 million pounds) of plastic debris. Ocean currents flow around the perimeter of this area, and floating garbage is constantly settling out there. Larger plastic items eventually break into smaller pieces, and enter the food web of the ocean.

You can help reduce the amount of microplastics in the ocean and in our local lakes and groundwater. Lint filters from your clothes dryer can be cleaned over a garbage can instead of allowing the lint to sit on the ground or blow away. You can also help by cleaning up trash that is in and around our lakes, being aware of cleaning products and cosmetics that contain microplastics/microbeads, and limiting the launching of fireworks over lakes, rivers, and wetlands. You can read an in-depth article about microplastics here: <https://www.scientificamerican.com/article/microplastics-earth-has-a-hidden-plastic-problem-mdash-scientists-are-hunting-it-down/> or listen to a WPR segment on microplastics here: <https://www.wpr.org/minnesota-researchers-find-microplastics-beer-made-great-lakes-water>

Announcements

Volunteers find prohibited species during AIS Snapshot Day

Nearly 200 sites across the state were sampled for invasive species on the statewide AIS Snapshot Day on August 17th. This one-day event brings volunteers together with local experts to learn how to identify aquatic invasive species, and sample a large number of public access points. Two new populations of starry stonewort (*Nitellopsis obtusa*) were discovered by a Snapshot Day volunteer in southeastern Wisconsin. Snapshot Day seeks to get more trained eyes on the ground looking for aquatic invasive species, and aims to detect these plants and animals while their populations are small.

Please submit data by November 1st

Please submit all of your citizen lake monitoring data into the SWIMS database by November 1st. We will certainly still accept data after November 1st, but this is when we begin examining the season's data, totalling numbers of participants and sites, and assigning awards and certificates to volunteers reaching milestones. If you cannot enter your data by Nov. 1st, please do it as close to Nov. 1st as possible.

New temperature sensor coming to CLMN

Our manufacturer of the CLMN water temperature meter is no longer making these units, nor are they making a suitable replacement, so we have been exploring other options. After building/testing a couple of commercially available units and homemade units built by CLMN staff, we will likely be moving forward with a commercial unit from a different vendor. After a bit more testing, we will be selecting a unit and distributing them in 2020 to new chemistry monitoring volunteers and existing volunteers who need replacements for broken meters.

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