

## Lake Michigan shoreline water is a medicine cocktail

By Michael Peterson

During his research to measure pharmaceutical abundance along the shorelines of Lake Michigan, Ball State University biologist Thomas Lauer said he and his fellow researchers found chemical compounds “practically everywhere.”

With funding from Illinois-Indiana Sea Grant (IISG,) Lauer and Melody Bernot, also a Ball State University biologist, took samples from Lake Michigan in August and November of 2010.

They found antibiotics, caffeine, mood-stabilizing drugs, pain-relievers, antibacterials, and more. “To get large, measurable numbers—consistently—in all those places was a bit surprising to us,” Lauer said. “It is an intimidating thought, considering how big the lake is.”

While the chemical concentrations are not toxic to humans, they can be a concern if these medications enter our drinking water. A 2008 Associated Press investigation found pharmaceuticals in the drinking water supplies of at least 41 million Americans. In addition, there is a long list of negative effects the chemicals can have on aquatic organisms. For example, medicines have been shown to disrupt reproductive development in frogs, cause irreversible fish masculinization, and impair predator avoidance in minnow and shrimp.

The Lake Michigan study focused on Michigan City and East Chicago, Indiana; St. Joseph, Michigan; and Chicago. At each



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## Illinois-Indiana Sea Grant

*Two States Caring for One Great Lake*

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site samples were taken near drinking water intake points, as well as at the mouth of incoming rivers at two different depths. The next step for these researchers is to expand on that data to see how this specifically affects aquatic organisms.

This study reinforces the need for IISG's efforts to help communities develop local medicine collection programs. Through workshops and the program's toolkit, *Disposal of Unwanted Medicines: A Resource for Action in Your Community*, IISG provides information and support so that collection projects are safe and successful.

This study is one of many funded as development or "seed" grants for researchers to begin start-up studies that may grow into something larger, or to finish ongoing projects. The following are results from more IISG-funded seed grant projects.

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