# SG/WR

UNIVERSITY OF WISCONSIN SEA GRANT INSTITUTE/WATER RESOURCES INSTITUTE

## Science for the Safeguarding and Sustainable Use of Wisconsin's Waters

The University of Wisconsin Water Resources Institute and Sea Grant Institute both support multidisciplinary research, education and outreach for the protection and sustainable use of Wisconsin's water resources. These highly efficient and cost-effective federal-state programs draw out the best from Wisconsin's aquatic scientists and outreach professionals.

The work matters because Wisconsin has a wealth of water. There are nearly 1 million acres of lakes, more than 5 million acres of wetlands, about 32,000 miles of perennial streams and 6.4 million acres of lakes Michigan and Superior within its borders. Wisconsin also has about 1.2 million billion gallons of water underground. If it were above ground, it would submerge the state in 100 feet of water.

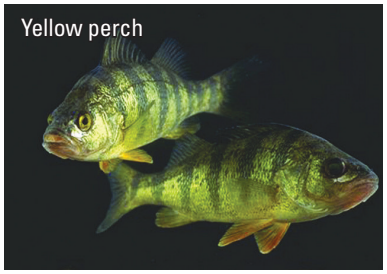
The Great Lakes support one of the world's largest regional economies, including a $7 billion fishery and a $16 billion tourism industry. A 2011 analysis concluded that the Great Lakes generate $62 billion in wages each year and that more than 1.5 million jobs are directly connected to the waterways.

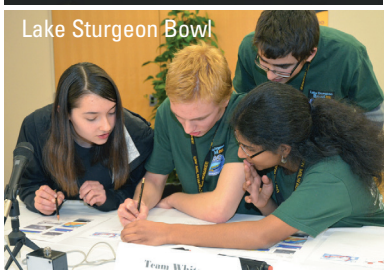

Asian carp


Wetlands


Lake sampling


Beach restoration


Yellow perch


Lake Sturgeon Bowl

## RECENT RESEARCH AND OUTREACH IMPACTS

- Yellow perch is a staple of Wisconsin's iconic Friday-night fish fry. Great Lakes commercial fishing for yellow perch is all but closed due to depleted stock. In 2011, a Sea Grant researcher was awarded a U.S. patent for his work to get the perch to spawn out of season, and now the fish are produced through aquaculture operations. One company using the spawning method expects annual profits of $10.8 million.

- Private wells across Wisconsin can be contaminated, making the water unsafe and jeopardizing the health of families. Water Resources Institute scientists have refined methodology to pinpoint the sources of contamination.

- There are more than 180 non-native aquatic species now at home in the Great Lakes, causing economic and environmental disruption and threatening a $7 billion annual fishing economy. Sea Grant employs many methods to counter the effects of invasive species, including one staff member who is integral to the battle to keep Asian carp out of the lakes.

- Marinas and related industries and services contribute more than $2.7 billion to Wisconsin's economy. The voluntary, industry-led Clean Marina Program ensures clean boating practices that benefit the environment and marinas alike. The Wisconsin Marina Association manages the program and Sea Grant provides the training and technical assistance to make the program successful. Sea Grant has certified 19 state marinas to date.

- Wisconsin is proud of its champions, including the science-smart students at Marshfield High School who are four-time National Ocean Sciences Bowl winners. Their rigorous preparation for the national competition, besting hundreds of ocean-based students, is proof that Sea Grant investments in marine-science curriculum better prepare young people for cutting-edge careers.

- A Water Resources Institute researcher has determined that Wisconsin's wetlands play a vital role in removing nitrogen from the environment. That removal is important because excess nitrogen in waters can lead to algae growth harmful to humans or can cause fish kills.

- A Sea Grant researcher has developed a rapid testing method using DNA sequencing of sand and water samples to clean up beaches, enhancing recreational tourism. It has made a difference. At Milwaukee's Bradford Beach, for example, $1.5 million in combined public-private money addressed contaminant sources, and a summer's day now draws thousands to the Lake Michigan shore.

- In communities up and down Wisconsin's Great Lakes coasts, planners and emergency-response officials are faced with daily decisions about how to manage the land or plan for possible flooding or other disasters. Sea Grant has stepped in with a powerful scientific decision-support tool known as the Wisconsin Coastal Atlas, offering online data through a geo-portal.

- Elevated levels of strontium have been found in deep wells in Brown, Calumet, Oconto and Outagamie counties. The naturally occurring element, different from the one that is a byproduct of nuclear production, can cause rickets and damage teeth enamel. Thanks to Water Resources Institute research, this important public health matter was investigated and publicized.

Sea Grant University of Wisconsin

WRI University of Wisconsin

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