



LARGEMOUTH BASS IN THE BUSY CHICAGO RIVER ARE SEEKING OUT NATURAL AREAS

EFFORTS IN RECENT YEARS to clean up the Chicago River system have led to increases in fish numbers and diversity in this waterway. But in this highly urban environment, do fish have the conditions they need to thrive?

An ongoing study is monitoring fish in the river using a system of sensors and receivers, in other words, a tracking system that allows fish to tell us what habitats are important to them, according to Austin Happel, research biologist at the John G. Shedd Aquarium, who is leading this effort.

While the level of contaminants in the Chicago River is lower than it's been in maybe a century, the environment still poses challenges to fish living in the river system—it's busy, noisy and sometimes polluted.

For example, the Chicago wastewater system is designed for stormwater and sewage to travel in the same pipes. When big storms hit, the combined sewer overflow system can become overwhelmed and untreated sewage can leak out, or in several locations, is pumped into the river to alleviate pressure on the system. Water quality plummets, at least temporarily.

Another challenge is structural. In places, this hectic, urban river flows right up against high rises, some that make up the Chicago skyline. Rather than having a natural shoreline, which can provide fish habitat, most of the downtown river's edge is comprised of steel walls.

Efforts to improve fish habitat have led to the development of the Wild Mile in the river's North Branch Canal in addition to floating wetlands in the South Branch. Shedd Aquarium, along with Urban Rivers, a non-profit organization, have created a floating "ecopark" of tiny islands complete with wetland plants native to Illinois. The underwater root systems are meant to provide safe areas for spawning and for young fish and other river organisms.

It's not clear the extent to which fish are using this habitat, so Shedd Aquarium is collaborating with IISG, the Purdue University Department of Forestry and Natural Resources, and the Metropolitan Water Reclamation District of Greater Chicago to answer questions about where river fish go and when.

In late spring of 2023, the researchers set up 32 receivers in the river and equipped 80 fish with sensor tags, including largemouth bass, common carp, some panfish species and walleye. The acoustic telemetry receivers can hear

and identify the unique sound emitted from each tagged fish.

"We have put listening devices in strategic locations that allow us to not only track where fish are, but how quickly they move through the system and maybe what might cause them to move and relocate to other areas," said Happel.

For the first year or so of the project, Happel has been assisted by Luke McGill, an IISG graduate student at Purdue University whose advisors are IISG's Tomas Höök and Paris Collingsworth. McGill has been focused on the movement of the 32 tagged largemouth bass for his master's thesis. As he wraps up his contribution to the larger project, McGill has some preliminary insights into some study questions.

McGill found that the bass mostly spend their time in areas of the river that have more natural habitat and minimal boat traffic. The most populated sites for bass, especially over the winter, are offshoots of the river's South Branch—the waters at Chicago's Park 571 and a nearby site with barge slips.

"The barge slips are kind of overgrown with overhanging tree branches that can create shade. Also, fallen branches and other structures in the water provides habitat for bass and the baitfish that bass prey on," said McGill. "Nearby



Purdue University grad student Luke McGill releases tagged fish into the Chicago River at the Wild Mile.

Park 571 has some floating islands and natural sloping shorelines that are better for bass than the steel corrugated walls that line most of the river.”

Monitoring the bass’ movement has provided some hints as to where they are spawning, which are likely to be sites with lower pollution levels. During the spring, many migrated to several of the river’s North Branch locations, including the Wild Mile.

“The Upper North Branch has more natural sloping shorelines and shallow areas that are suitable for bass to make nests, and the Wild Mile, with its floating islands, may be providing rearing habitat for the larval and yearling fish,” explained McGill.

Back in the South Branch and adjacent to the barge slips and Park 571, the river’s Bubbly Creek tells quite a different story about the bass’ movements. This

infamous section of the river is still recovering from many decades of pollution from Chicago’s meatpacking industry. Last June, the number of bass here dropped when, in response to a large rainstorm, raw sewage was pumped into these waters.

“As sewage entered Bubbly Creek, the dissolved oxygen in that area dropped to zero and we saw the bass almost immediately leave,” said McGill. “It wasn’t until April of this year that they returned to this area.”

As the monitoring of fish movement moved into its second year and batteries in smaller fish stopped working, 75 new fish have been added to the study and it will continue for at least another year. Happel hopes the study will help answer a range of questions with regards to Chicago River fish, from understanding what they do in the winter to how they cope with busy boat traffic. 🍷

Educators explore water quality along the Wild Mile



Educators from Illinois and Indiana gathered this summer along the Chicago River’s Wild Mile for an immersive two-day workshop designed to bring water quality education to life. Hosted by IISG and Urban Rivers, the training in July offered 5–12 grade teachers a unique opportunity to explore the river and its floating gardens, while also equipping them with hands-on tools to integrate these experiences into their classroom.

The educators learned practical skills in water quality monitoring as they were introduced to the ecology of the Chicago River. The workshop was capped off with an opportunity to kayak along the river and learn about the Wild Mile’s innovative design.

Teachers were trained to use an all-in-one data collection device—this training provides them access to borrow the equipment through the Limno Loan program so they can bring these experiences directly to their classrooms. The program also offered a pathway for educators to engage their students through hands-on field trips to the Wild Mile. 🍷

👉 <https://limnoloan.org>