

# Educators engage with Great Lakes scientists aboard the *Lake Guardian*

**T**HIS PAST SUMMER, 15 Great Lakes educators swapped lesson plans for life jackets as they boarded the R/V *Lake Guardian*, the U.S.

Environmental Protection Agency's research ship, and set sail on Lake Michigan. Through the Shipboard Science Immersion program, 5–12 grade formal and non-formal educators worked side by side with Great Lakes scientists for a week—an experience they say will ripple back to their classrooms for years to come.

The Shipboard Science Immersion, which takes place every summer on one of the Great Lakes, is organized by the Center for Great Lakes Literacy. This year included three onboard scientific studies focused on food web dynamics, water quality, and even underwater archeology. The itinerary also included a side trip to Central Michigan University's field station on Beaver Island.

“At the field station, we did sampling from the shore,” said Kristin TePas, Illinois-Indiana Sea Grant's (IISG) Great Lakes literacy and workforce development specialist and one of the Immersion organizers. “In place of the heavy equipment used on the ship, the educators experienced sampling with smaller equipment that was more hands-on. This activity helped them see how they can replicate the ship experience with their students.”

This year, four participants were from Illinois and Indiana.

For Ryan Johnson, a 7th and 8th grade science teacher at Jovita Idár Elementary School in Chicago, the program was a chance to deepen his understanding of the Great Lakes while immersing himself in real-world science.

A photograph showing two people from behind, looking at computer monitors. The person on the left is wearing a camouflage jacket and a baseball cap. The person on the right is wearing a light green hoodie. The monitors display scientific data, including a large orange and black patterned image. In the background, there is a large piece of scientific equipment, possibly a scanner or a pump, and a window showing a blue sky with white clouds.

Educators study computer screens for signs of prehistoric inhabitation as the bottom of a mid-lake plateau is systematically scanned. (Photo courtesy of Amy Truemper)



Left: Using a large net called a seine, educators collect fish along the shore of Beaver Island. (Photo courtesy of Amy Truemper) Right: Educators in the lab sort out and identify benthic organisms from lake samples.

“Living and teaching in Chicago along Lake Michigan, I was drawn to the Shipboard Science Immersion so I could engage directly with an important ecosystem that I didn’t understand all that well, even after living here most of my life,” he said.

Gerard Kovach, who teaches science at Decatur Classical School in Chicago, said water quality has always been close to his heart. Growing up on the Vermilion River in Central Illinois, he developed an early passion for ecology that he now brings into his classroom. Kovach, who was recently named Educator of the Year by Friends of the Chicago River, uses hands-on teaching by building aquaria that replicate local ecosystems and providing fishing lessons to students.

“Water ecology is something I’ve brought into my teaching for years,” Kovach said. “The Shipboard Science Immersion program felt like the next step.”

Both teachers described the demanding but rewarding rhythm of life aboard a research vessel. Johnson recalled deploying nets at odd hours, shifting schedules around weather delays and logging sonar data late into the night. “Every task aboard the vessel reinforced the complexity and importance of running a Great Lakes science expedition,” he said.

TePas was happy to see that the educators also enjoyed taking part in the archeological study that involved scanning the bottom of a shallow, mid-lake plateau for signs of human habitation. Prehistoric people may have lived there when it was dry land during the ebbs and flows of the glacier age.

“Most of the shipboard monitoring involved hands-on activities, but the sonar scanning involved mainly watching a screen,” she said. “I was pleasantly surprised at how involved the educators got in the process—some were fascinated for hours, staying beyond their shifts.”

Kovach was struck by the dedication of the scientists. “The team was working around the clock, driven by a passion for learning.”

The camaraderie also stood out. With educators, scientists, and crew working side by side, Johnson described the ship as “a living model of the kind of science community I strive to build in my classroom.”

The educators are already bringing shipboard science back to their students. Johnson plans to have his students model food webs, analyze water quality data, and simulate sampling techniques. He is also exploring a Trout-in-the-Classroom program to connect students directly with local ecosystems.

Kovach hopes to expand his school’s aquaponics work into “window farming,” incorporate round goby dissections into ecology units, and invite scientists from the ship into his classroom. He and Johnson also plan to connect their students virtually to collaborate on Great Lakes-based projects.

Beyond classroom activities, both educators said the program will have lasting effects on their teaching careers.

**“It rejuvenated me,” Kovach said. “It’s those summer experiences that give you a bunch of new activities and perspectives to explore with students.”**

For Johnson, the biggest takeaway was perspective. “This trip helped me fully understand the importance of remaining flexible about some things and rigid about others. Science requires both adaptability in the field and rigor in record-keeping. That’s a lesson I’ll carry into every class I teach.” 🍷