

NATIONAL
OCEAN
SCIENCES
BOWL

#GLBOWL

INSPIRING THE NEXT GENERATION OF WATER LEADERS



What do sea otters, meteorites, scurvy, and the speed of sound have in common? They're all topics studied by intrepid high schoolers competing in the annual National Ocean Sciences Bowl (NOSB).

NOSB is a national academic competition where teams of high school students compete for regional and national titles. The matches feature quiz bowl-style rounds that test a team's ocean and Great Lakes knowledge. The wide-ranging questions cover everything from biology, chemistry, and geology to technology, history, and economics.

Michigan Sea Grant annually hosts the regional Great Lakes Bowl at the University of Michigan. This regional tournament draws teams from around Michigan to showcase what they've learned about the watery parts of our world.



HOW DOES THE COMPETITION WORK?

Each team includes four high school students. Teams come from high schools, homeschool groups, 4-H clubs, or any other setting where curious teenagers hang out. Groups are usually spearheaded by one or more adults who may be parents, teachers, club leaders, or academic coaches. Team coaches don't need an encyclopedic knowledge of marine and freshwater science and history — all they need is an ability to wrangle teens, help students access books and online materials, and get a working grasp of the competition rules.

"I always was interested in ocean science, but I didn't really gain a passion for it until we started competing in [NOSB]. I love working with my team, and we have a lot of fun."

Pearl Daskam, Cass City homeschoolers

Sue Steuver Battel leads a team of homeschooled high school students from Cass City, up in Michigan's Thumb. Michigan Sea Grant Extension Educator Meaghan Gass visited the students to talk about invasive species, and her casual mention of the Great Lakes Bowl fell on eager ears. "We knew next to nothing about ocean science. Our team was young so most of them hadn't even taken chemistry or physics yet. We did our best to prepare and they did well enough to want to do it again. We are adding a second team this year because they told their friends how fun it was."

The NOSB website contains a wealth of study guides, reading materials, sample questions, and other resources

to help teams get ready for the big day. Michigan Sea Grant also has a library of useful textbooks and practice buzzer systems that coaches can check out during the year.

When the annual Great Lakes Bowl rolls around, the teams and coaches trek to Ann Arbor, with the option to come the night before — the program will pay for travel costs and hotel rooms. The Saturday competition begins with a round-robin set of face-offs. In each round, a flurry of multiple-choice queries is answered by whichever team is quickest to hit their Jeopardy-style buzzer. The rapid-fire quizzing is accompanied by written challenge questions that test teams' ability to analyze data and synthesize science and math concepts.

After the round-robin, teams enter an elimination bracket and compete until one team emerges as the year's champion. The winning team has the chance to compete at the national competition in April.

WHAT ARE THE BENEFITS OF COMPETING?

On one level, the rewards of winning are clear: top finishers in the Great Lakes Bowl can receive cash prizes, trophies, medals, or other benefits. National prizes have included cruises on aquatic research vessels, visits to scientific laboratories, lab equipment, scholarships, medals, and more.

But students don't have to win to reap the rewards of participating in NOSB. Being on a team looks great on a college or scholarship application and shows future employers that a student is curious, hard-working, and able to work well with others. Teachers and coaches might be



"I really enjoy [NOSB]. It's been able to create a community around me. I found really cool friends that I would never meet before."

Madison Patel, Dexter High School

able to use their work with NOSB to flesh out grant applications or qualify for awards.

At its heart, though, NOSB is about giving the next generation a passion for science, learning, and caring about the oceans and Great Lakes. Many students walk away from the experience with new dreams of studying marine biology, oceanography, or other STEM (science, technology, engineering, and mathematics) fields. They learn about fascinating creatures and habitats, ground-breaking scientific discoveries, and threats to the future of our planet's watery worlds.

Cheryl Wells recently retired from teaching at Dexter High School. She started a team in 1998 and continued coaching until 2015, taking 10 teams to nationals. "[NOSB] was a place for really bright students to find their niche," she says. "Many of these students have majored in marine sciences in college." Cheryl says that NOSB shaped her, too,

calling it "a highlight in my career." She currently shares her passion for the ocean with senior citizens in her community's adult learners program — and her grandchildren's elementary classes.

Sue Steuver Battel can see the effects of NOSB on her homeschool group, too. "I love watching the students make connections between various disciplines. They're learning that physics and chemistry and biology and more all come together to help us understand our ocean environments. One of the students wants to be a marine biologist now and another wants to add environmental sustainability as a college minor. Mostly, I love watching their confidence grow."

In 2020, Sue and her co-coach brought two teams to the Great Lakes Bowl. "I'd encourage any 4-H club, homeschool group, or school teacher to just do it. Pull together a team of eager learners and see what they can do." ✓

I'M INTERESTED IN STARTING A TEAM! WHAT'S NEXT?

- **Contact Michigan Sea Grant!**
- **Get your team excited by visiting an aquarium or watching some ocean-themed documentaries.**
- **Start learning!**
- **Borrow buzzers and textbooks from Michigan Sea Grant as needed.**
- **Apply in December for the February competition.**
- **Not quite ready to compete? Michigan Sea Grant can help you and your team observe the competition to better prepare you for next year.**

Check out the resources at:
michiganseagrant.org/nosb
nosb.org



Getting to Know Our Great Lakes Neighbors

LEARN MORE ABOUT THE BIODIVERSITY IN THE GREAT LAKES WITH GREAT LAKES WATER LIFE AND GLANSIS

By El Lower and Rochelle Sturtevant

A first-grade student asks his teacher if sharks live in the Great Lakes. An angler pulls up a strange-looking fish she's never seen before in her favorite fishing spot. A high school student gets assigned a science project about zebra mussels in Lake Michigan. A researcher is tracking the spread of an invasive aquatic plant and needs to find a map of where it's been spotted through the years. Where can each of these folks go to learn more about the creatures that live in the Great Lakes region?

The biodiversity of the Great Lakes has inspired both scientific research and public interest for centuries, and in a changing ecological landscape, it's more important than ever for both scientists and citizens to get to know the flora and fauna in their communities.

Michigan Sea Grant staff, along with researchers at the NOAA Great Lakes Environmental Research Laboratory and a team of regional partners, support two comprehensive databases featuring the aquatic plants, animals, and microorganisms of the Great Lakes. The Great Lakes Water Life database hosts basic information on all aquatic species found in the region, while the Great Lakes Aquatic Nonindigenous Species Information System provides more in-depth information on nonindigenous aquatic species,

including those that have harmful impacts.

WHAT IS GREAT LAKES WATER LIFE?

The recently-launched Great Lakes Water Life database (GLWL) is a comprehensive, accessible inventory of aquatic species native to the Great Lakes region. GLWL is designed to support environmental researchers and managers by hosting a broad range of ecological information and tools, including identification guides for native species, records of rare or unfamiliar taxa, lists of expected species in a specific area, summaries

of broad-scale biodiversity patterns, and more. This site is also available for public use to students, citizen scientists, and other Great Lakes residents who want to learn about native species in their area, providing new opportunities for outreach and education online.

That elementary school teacher wanting to check for sharks can use Great Lakes Water Life to search for a list of fish and pull up common names, photos, and locations that each native species has been found in — and can reassure her students that out of the 178 fish species native to the basin, none of them are Great Whites.



- **Feed stomachs as well as brains. Coordinate to have parents provide meals or snacks at team practices, or plan practice sessions at restaurants.**
- **Get students invested by having them write practice questions or teach a topic to the group.**
- **Connect science to culture — find learning opportunities in events like the Discovery Channel's Shark Week.**
- **Digital resources are great, but don't forget textbooks!**

- **In competition, students can use what they know to guess what they don't know.**
- **Get familiar with the buzzers. Practice with buzzers from Michigan Sea Grant and help students strategize when to buzz in.**
- **Encourage students to practice with their friends.**
- **Students might surprise you. Pull together a team of eager learners and see what they can do.**

