

2026 Annual Report

IOWA LAKESIDE LABORATORY

This report is submitted to the Iowa Board of Regents and the Council of Provosts as an annual update on activities and financial report for FY26

The Iowa Lakeside Laboratory was established in 1909 by Dr. Thomas Macbride for the purpose of Studying of Nature *in* Nature. For more than 100 years, students have immersed themselves in experiential learning, which builds upon and enhances their studies at the Regents Universities.

Staff of the Iowa Lakeside Laboratory Regents Resource Center

Dr. Mary Skopec, Executive Director

Matthew Fairchild, Facilities Manager

Dennis Heimdal, State Hygienic Laboratory Chemist

Megan Vigdal, State Hygienic Laboratory Assistant Chemist

Ashley Scheve, Educational Coordinator

Table of Contents

Lakeside History.....4

The Year in Review.....5

University Courses.....6

Student Success.....7

Research.....,.....8

Community Engagement.....10

Budget Review.....16

Iowa Lakeside Laboratory History

Iowa Lakeside Laboratory Regents Resource Center

The Iowa Lakeside Lab Regents Resource Center (Lakeside) is owned by the state of Iowa and operated through the Iowa Board of Regents. Financial support from University of Iowa, Iowa State University and University of Northern Iowa provide dollars critical for staffing, campus maintenance and day-to-day operations. Tuition supports hiring of adjunct instructors for specific classes, who come from various Regents universities, community colleges or private universities. PreK-12th education mirrors the nature-based college experience for thousands each year. Lakeside's 147-acre campus is located on West Okoboji Lake, on Little Miller's Bay. Since 1909, the natural areas have been used as outdoor classrooms for Lakeside's university courses and outreach programs. The campus is open all year, and visitors are welcome to visit during daylight hours.

Mission

The mission of the Iowa Lakeside Laboratory Regents Resource Center is to provide facilities and programing as a field station and community resource to support scientific education, research, and outreach programs of the Regents universities.

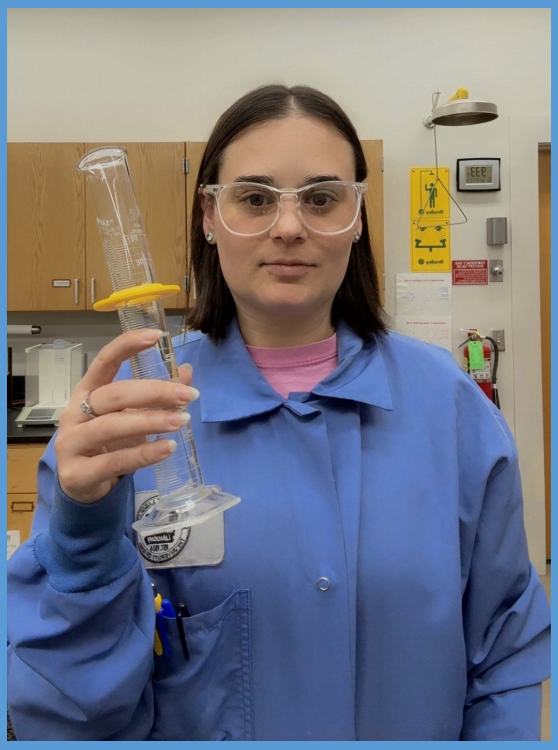
Friends of Lakeside Lab

The Friends of Lakeside Lab supports Lakeside through funding for scholarships, environmental education, research and water quality monitoring. In 2026, The Friends of Lakeside provided $250,000 in funds to support housing, meals and tuition scholarships for college students. Friends also provides financial support for internships and the K-12 education coordinator position. To date, the Friends have raised more than **$4,000,000** for capital improvements.



Above: Dr. Thomas Macbride, founder of Iowa Lakeside Laboratory, is pictured on a hill overlooking the property. Macbride advocated for the study of nature in nature as a way for students to understand the interconnectedness of scientific disciplines. .

The Year in Review



Above: The internship program at Iowa Lakeside Laboratory draws applicants from across the U.S. In 2026, 25 interns took part in the program, which offers a free course, housing and meals plus wages for internship work. Interns are required to complete a research project or a community outreach project. Haley, pictured above, graduated from the University of Iowa in May and completed her internship at the State Hygienic Laboratory at Lakeside Lab. Her future plans include working in a water chemistry laboratory for a drinking water or wastewater utility. Funding for the internships come from private donations, local grants or the Friends endowment.

Highlights from 2026

In 2026, Iowa Lakeside Laboratory broke ground on the first new building on campus since 1998. The new building will house a large, open concept laboratory allowing for student research, laboratory based courses including environmental chemistry as well as a multipurpose classroom, which can accommodate 150 people. The building is scheduled for completion by the end of 2026. Due to the disruptive nature of the construction, the number of courses offered in 2026 was smaller to allow for interruptions in electricity, water or property access. Following the completion of the building, it is anticipated that the number of courses will increase and will allow for more year-round activity.

New courses offered in 2026 include a field methods course in geology and paleontology and a Geographic Information Systems course (GIS). The geology field methods course builds practical skills in mapping geological formations and understanding past environments that help scientists understand where valuable mineral and oil deposits may be located. The course is also intended to help pre-service or in-service teachers achieve an earth science endorsement. The GIS course builds essential skills for students in the environmental, sustainability or related sciences and are highly desired skills for students entering the workforce.

The Lakeside internship program continues to be a highly successful program with applicants from around the country vying for a summer position. Interns were hired from all three Regents Universities as well as from DMACC, the University of Delaware, Minot State University, Southwest Minnesota State, and Winona State. Intern research projects are listed later in this report.

Demand for youth STEM education experienced nearly 300% growth from 2025. The demand for formal and informal programs continues to expand at Lakeside as we align our offerings with state and national standards.

University Courses

Below: Norm Bucciero holds the toe bone from a dinosaur. Norm excavated the bone during a new course on Paleontology and Geology Field Methods. The course traveled to Montana to assist with an active excavation of dinosaur bones. Norm said of his experience, "This class was really amazing, I had new experiences that I probably wouldn't have had the opportunity to have until much later in my life. Going on a real dig in Hell Creek of all places and meeting people like Pete Larson is invaluable experience for my future career. The whole class was truly like no other."



Highlights from 2026

Courses offered in 2026:

- Ecology and Systematics of Diatoms (UG/G)
- Aquatic Ecology
- Field Archaeology
- Environmental Nonfiction
- Multispecies Kinship and Literature
- Geographic Information Systems
- Paleontology and Geology Field School

Dr. Kata McCarville offered a new course in paleontology and a geology field school in 2026. This course combines lessons in mapping geologic formations in several locations with the exploration of paleontology with experts in Montana. Students were able to conduct the dinosaur "dig" side-by-side with paleontologists working to understand the depositional environments of the dinosaur remains. Students found bones from a Triceratops and an Edmontosaurus (a massive, duck-billed herbivore).

As part of the course, students also learned proper museum methods to preserve, stabilize, catalog, and transport the specimens.



Above: Aquatic Ecology students examine the Silver Lake fen.

Student Success



Above: Kate Murray (2026 4-H AmeriCorps Member) assists with a prescribed prairie burn on Lakeside's property. Below: Faun Hansen (2026 Intern—Southwest Minnesota State University) assists the Iowa DNR with banding geese for population studies.



Career-Ready Skills

Iowa Lakeside Laboratory enhances traditional classroom learning by training students in a variety of skills needed in today's workforce. These skills include instrument calibration and trouble-shooting, navigation, GPS and GIS, data analysis (statistics, spreadsheets, data analytics), and communication (report writing, public speaking, working with the public and social media). Students learn project development and management to achieve a defined goal. Key partners include the Iowa DNR, Iowa Department of Agriculture and Land Stewardship, Dickinson County Conservation Board, Dickinson County Board of Health, among other entities.

Internships

Twenty-four students and recent graduates participated in an internship at Lakeside during the summer of 2026. Each intern is assigned a primary project or deliverable for the summer. Interns are also encouraged to develop a research project. Interns are guided through the steps required to complete a successful project including defining an achievable research question, determining the methodology, budgeting time and financial resources needed and preparing a final report, poster or presentation. Career ready skills, such as public speaking, are emphasized and all interns are required to lead an outreach event and present their research at the Summer Intern Showcase. Projects are listed in the following section. Interns complete exit interviews at the end of their term where staff comment on areas of strengths and avenues for improvement, which models authentic work environments for them. Interns particularly value the networking opportunities and ability to gain project management experience.

"This internship gave me more confidence in my abilities as a scientist and helped me grow both personally and professionally. I became more independent and learned to adapt when projects did not go as planned."

~Jaden Johnson, Winona State (Undergraduate) & Iowa State (Graduate)

Green Iowa & 4H AmeriCorps

Lakeside Lab works with the University of Northern Iowa to host AmeriCorps members from the Green Iowa program. Key areas of service for these members are Energy Efficiency, Land and Water Stewardship and Sustainable Schools. Lakeside works primarily with the Land and Water Stewardship program training members in skills that are in demand for natural resource professionals. Due to federal funding cuts, only two full-time members were hosted in 2025-26 down from the typical eight members. Member projects included water quality assessment of the Iowa Great Lakes, a land management plan for Iowa Lakeside Laboratory, and work with the Dickinson County Hunger Coalition and Garden. Additionally, Lakeside hosts a 4H AmeriCorps member. The 4H program is directed by Iowa State University. In 2025-26, we hosted one member with responsibilities focused on assisting in our youth education programs.

Research

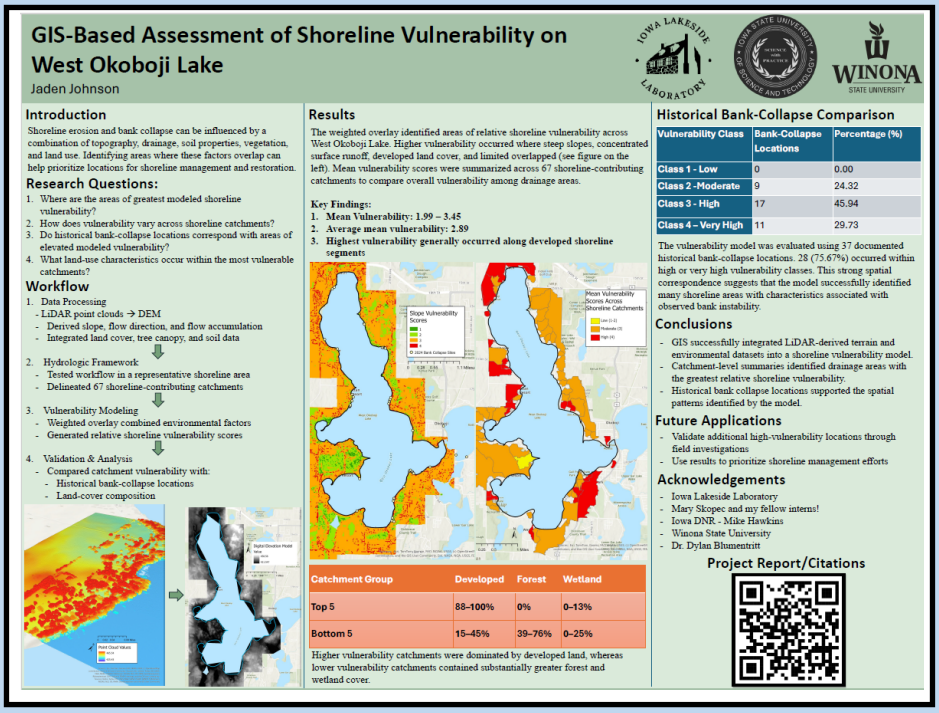
Student Research

Undergraduate interns at Lakeside Lab are encouraged to conduct an independent research project. Students are mentored by Lakeside staff, faculty from the Regents Universities or partner institutions. Financial support for student research is provided by the Friends of Lakeside, Inc., Iowa DNR, the Okoboji Protective Association, private donors and grants from the Dickinson County Clean Water Commission.

Interns share their results with the public and funders at the annual Research Showcase, which gives them a professional experience on how to prepare a poster, share it with various technical and non-technical audiences and field questions from interested participants. Research projects are an essential component of preparing the students for the next phase of their career—entering the workforce, attending graduate school or finishing their undergraduate degree. For many interns, the ability to conduct an independent research project where they formulate a question, design the data collection protocols, collect data including troubleshooting problems and reporting on results is the highlight of their experience.

"The hands on field experience will be beneficial in future careers. Community outreach and events increased my network. These relationships may help me in future careers. This internship also increased my independence and problem solving skills with the independent research project. " ~ Anna D., University of Iowa

Research projects are listed in the next section.



GIS-Based Assessment of Shoreline Vulnerability on West Okoboji Lake

Jaden Johnson

Introduction

Shoreline erosion and bank collapse can be influenced by a combination of topography, drainage, soil properties, vegetation, and land use. Identifying areas where these factors overlap can help prioritize locations for shoreline management and restoration.

Research Questions:

1. Where are the areas of greatest modeled shoreline vulnerability?
2. How does vulnerability vary across shoreline catchments?
3. Do historical bank-collapse locations correspond with areas of elevated modeled vulnerability?
4. What land-use characteristics occur within the most vulnerable catchments?

Workflow

1. Data Processing
   - LiDAR point clouds → DEM
   - Derived slope, flow direction, and flow accumulation
   - Integrated land cover, tree canopy, and soil data
2. Hydrologic Framework
   - Tested workflow in a representative shoreline area
   - Delineated 67 shoreline-contributing catchments
3. Vulnerability Modeling
   - Weighted overlay combined environmental factors
   - Generated relative shoreline vulnerability scores
4. Validation & Analysis
   - Compared catchment vulnerability with:
     - Historical bank-collapse locations
     - Land-cover composition

Results

The weighted overlay identified areas of relative shoreline vulnerability across West Okoboji Lake. Higher vulnerability occurred where steep slopes, concentrated surface runoff, developed land cover, and limited overlapped (see figure on the left). Mean vulnerability scores were summarized across 67 shoreline-contributing catchments to compare overall vulnerability among drainage areas.

Key Findings:

1. **Mean Vulnerability: 1.99 – 3.45**
2. **Average mean vulnerability: 2.89**
3. **Highest vulnerability generally occurred along developed shoreline segments**

Catchment Group	Developed	Forest	Wetland
Top 5	88–100%	0%	0–13%
Bottom 5	15–45%	39–76%	0–25%

Higher vulnerability catchments were dominated by developed land, whereas lower vulnerability catchments contained substantially greater forest and wetland cover.

Historical Bank-Collapse Comparison

Vulnerability Class	Bank-Collapse Locations	Percentage (%)
Class 1 - Low	0	0.00
Class 2 -Moderate	9	24.32
Class 3 - High	17	45.94
Class 4 – Very High	11	29.73

The vulnerability model was evaluated using 37 documented historical bank-collapse locations. 28 (75.67%) occurred within high or very high vulnerability classes. This strong spatial correspondence suggests that the model successfully identified many shoreline areas with characteristics associated with observed bank instability.

Conclusions

- GIS successfully integrated LiDAR-derived terrain and environmental datasets into a shoreline vulnerability model.
- Catchment-level summaries identified drainage areas with the greatest relative shoreline vulnerability.
- Historical bank collapse locations supported the spatial patterns identified by the model.

Future Applications

- Validate additional high-vulnerability locations through field investigations
- Use results to prioritize shoreline management efforts

Acknowledgements

- Iowa Lakeside Laboratory
- Mary Skopec and my fellow interns!
- Iowa DNR - Mike Hawkins
- Winona State University
- Dr. Dylan Blumentritt

Project Report/Citations

Example project from the Undergraduate Intern Research Showcase. Presentations and posters are shared with funding entities and the public. (Students presented results at a research symposium on July 30, 2026)

Student Research

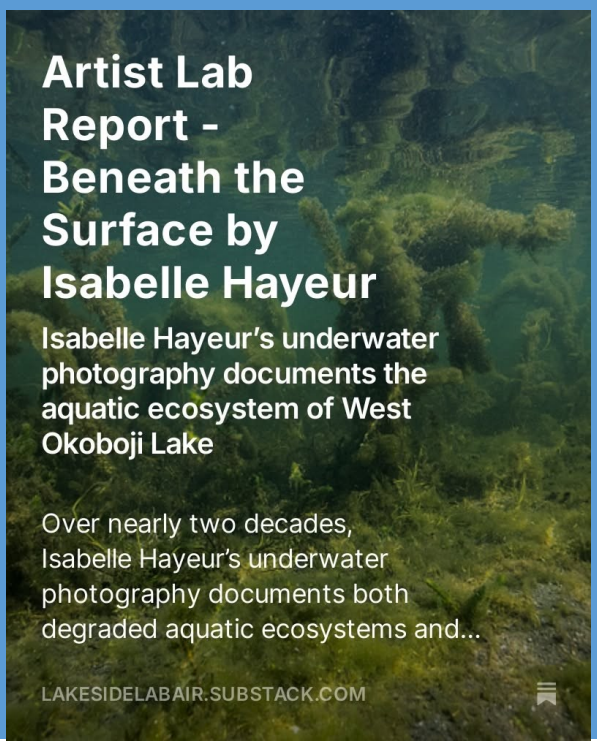
FY 2026 Projects

- Norm Bucciero (University of Delaware) Frog and Toad Survey of Northwest Iowa
- Vaibhavi Chelluboyina (Iowa State University) Ecological Management Matrix for Private Landowners
- Anna Deutmeyer (University of Iowa) Analyzing the Relationship Between Soil Properties and Vegetation Composition Along a Wetland-Prairie Gradient
- Lauren Eirp (University of Northern Iowa) Glyphosate Presence in Iowa Great Lakes Waters
- Elizabeth Van Paemel (Iowa State University) Soil Organic Matter in Iowa Wetlands in Relation to Depth and pH and Location
- Sam Schmitz (University of Iowa) Illumination Levels Influence on Fish Movements In West Lake Okoboji
- Logan Bullock (University of Iowa) Evaluating the relationship between Primary Vegetation and Muskrat Mound Morphology
- Patrick Baughman (Iowa State University) Recreational Boat Activity, Nitrate Concentrations, and Surface Phytoplankton Richness; the Interworking of 5 West Lake Okoboji Bays
- Faun Hansen (Southwest Minnesota State University) More Than Meets the Eye: Exploring Microbial Life in a Single Drop of Water
- Taylor Hunt (Green Iowa AmeriCorps) Lakeside Land Management Plan
- Mackenzie Pickett (University of Delaware) How does prescribed burning affect plant diversity in prairie ecosystems?
- Ryan Riesberg (Iowa State University) Millers Bay Boat Anchor SCUBA Assessment
- Samara Hruska (University of Iowa) Modernizing Entertainment Sustainability
- Kasidee Fuller (Minot State University) Field Geology and Paleontology at Lakeside Laboratory
- Nick Blocha (Green Iowa AmeriCorps) Food Ecosystems at Iowa Lakeside Laboratory
- Jaden Johnson (Winona State University & Iowa State University) GIS-Based Assessment of Shoreline Vulnerability on West Okoboji Lake
- Esben Enriquez (Iowa Lakes Community College & Iowa State University) Colonization of Macroinvertebrates in West Lake Okoboji Trash

Community Engagement



Top: The Artist-in-Residence program holds regular open studio events that invite the students and community to engage with the artists.
Bottom: Artists prepare reports on their experiences at Lakeside Lab as part of the AIR program.



Value to the Iowa Great Lakes

STEM Education

Life-Long Learning

Community Technical Assistance

Arts and Culture

STEM Education





Top: Students use magnifying glasses to examine a caterpillar. Classes and camps focus on building essential skills such as observation, recording, and analyzing data.

Bottom: Pre-K students learn how to be safe in the outdoors and employ the habits of scientists.

Youth Education

Lakeside Laboratory's education programs immerse students in hands-on experiences. Students learn to observe phenomena, report data, communicate results to peers and propose hypotheses to support claims with data and evidence.

The outdoor classroom setting gives students time in nature, which reduces mental stress. Physical movement during lessons builds different learning pathways and enhances the student's overall comprehension.

Students gain experience with potential career pathways and build 21st century skills needed in the future workforce. Lakeside works with educators to design lessons that help them meet goals and standards.

Student participation in our formal STEM education programs grew by 20% last year. The number of teachers utilizing Lakeside programs nearly tripled. Similarly, informal education programs (homeschool or no-school days) saw a 300% increase in participation.

School Year Programs
Fall 2025-Spring 2026
Students – 2289
Teachers – 276

Informal School Year Programs
Fall 2025—Spring 2026
No school/Homeschool – 703

Summer Education Experiences 2026
(3-5 days)
Total participants - 402

Includes camps offered with Okoboji Sailing School. Iowa State Extension and Iowa Great Lakes Fishing Club).

Life-Long Learning



Above: Example flyer for Wild Wednesday family event.

Adult Education

Tuesday night lectures have been an on-going tradition at Lakeside since classes were first held in 1909. This tradition continues today and has been expanded to offer a variety of outreach and education events that appeal to all ages. Wild Wednesdays feature family-friendly nature experiences and Science on the Menu pairs a casual meal with a presentation on a general interest topic. Attendance at the these events ranged from 25-50 individuals. In 2026, Lakeside hosted conferences including the Iowa Water Center Pre-Conference Workshop (150 attendees), the Okoboji Writers Retreat (325 attendees) and Bee Identification Workshop (50 attendees).

Twelve speakers entertained audiences during the 2026 Tuesday Speaker Series. Topics are listed on the next page and ranged from music to mastodons. More than 2,000 people attended the lectures in-person or on-line.

Wednesday Night Family Events

"Wild Wednesdays" serve two purposes for Lakeside Lab. Interns are required to select a topic and prepare an event that is appropriate for families with kids of different ages and utilizes their training in immersive, nature-based learning. Conducting these events builds intern skills in public speaking, outreach planning and facilitation. Secondly, the Wild Wednesday events help families find activities for kids that builds curiosity about nature. Adults appreciate that these events help kids get away from their screens or digital devices. More than 215 families attended Wild Wednesday in 2026. A list of topics is included on the next page.

Tuesday Night Speaker Series

Speaker	Topic Title
Dr. Mary Skopec	Lakeside History
Wild Prairie Winds	Music by Wild Prairie Winds
Dr. John Hains	The Many Splendors of Dominica: Nature Island of the Caribbean
Amie Adams	Iowa Field Guides: A Reading and Conversation about Prairies & Wetlands
Lisa Dill	How to write a book
Dr. Jeff Lang	Blandings Turtle Conservation
Open Mike Night!	Lakeside Students and Participants Share Writing Samples
Vince Evelsizer	Gray Foxes of Iowa
Dr. Pat Collison	Bastions, Beads, Baptisms, and Burials: Evidence for Epidemic Disease among the Arikara and their Ancestors
Dr. Kevin Mason	The Dragoon Trail and Iowa History
Conor Fitzpatrick	Paddlefish Research in Okoboji
Dr. Joe Otto	Drained Lakes of Iowa

2026 Topics
Zip! Zap! Lightning!
Ice Age in Iowa
Night Fliers
Wonderful Wetlands
Wild Snacks
Underwater Plants
Prairie Heroes
Pollinator Pals
Animal Friends
Nature Patterns



Below: Flyer for Tuesday Night Speakers. These lectures serve two purposes: 1) Students connect with experts in their fields and 2) Community members learn about how Regent Universities are conducting research valuable to Iowans.



Wednesday Night Family Events



Adult education programs are held throughout the year. Above, adults are identifying animals that live in the lake bed sediments and water. Left, adults are identifying common Iowa bee species.

Community Technical Assistance

Lakeside Lab serves as a nexus for Regent University expertise in the Iowa Great Lakes. Faculty and staff research a variety of ecological, sustainability and water quality issues. In 2026, Lakeside Lab interns completed several projects of interest to the local community.

Flood Recovery

During the flooding in NW Iowa during June 2024, Iowa Lakeside Laboratory collected water quality samples to understand the movement of nutrients and sediment into the Iowa Great Lakes. During 2026, Interns continued to monitor the lake improvement post flood. Interns also developed a shoreline collapse vulnerability index to predict where collapses could happen in the future.

Bacterial Contamination at Local Beaches

Local resource managers were trying to understand why local beaches were closed due to high levels of E. coli bacteria. Lakeside Lab conducted a study to determine the sources of fecal matter at the beaches using DNA analysis.

Water Quality Monitoring

Lakeside experimented with an early detection program to determine if harmful algae species were producing toxins that can be harmful to humans. The tests were administered biweekly from the samples collected by Cooperative Lakes Area Monitoring Program volunteers. This early detection system allows for proactive communication with the public to avoid risk from exposure.

Aquatic Invasive Species Management

Interns conducted weekly surveillance of the canals on West Okoboji to determine if the highly invasive species, Eurasian Water Milfoil had reappeared. Interns coordinated sampling with Iowa DNR professionals to determine if species observed were problematic and how to communicate with lakeshore owners on the scope of the problem.

Arts & Culture

The Artist and Writer residencies at Iowa Lakeside Laboratory create opportunities for collaboration, partnership, and reflection between artists, scientists, and community members. Artists interact with scientists, field study courses, local residents, and visitors. A high priority of the program is exploring relationships between art and science. Preference is given to artists and writers whose work engages with ecology, science, and natural history in unique and collaborative ways. Writers are primarily selected from Regents University writing programs and are typically focused on writing that incorporates landscapes, ecology, and the interaction with humans and their environment. Artists and writers are required to conduct a workshop, open house or other event to showcase the residency. Seven artists and two writers completed residencies at Lakeside Lab in 2026.

2026 Writers	**2026 Artists**
Liam Flake, Iowa State University	Maya McCullom
Audrey Cerchiara, University of Iowa	Ivy Fu
	Merate Barakat
	Sheila Novak
	Beile Hu
	David Peterson



Above: Community members and students attend an open studio event.

Budget Review

IOWA LAKESIDE LAB REGENTS RESOURCE CENTER	Grants Included FY22 Actual	Grants Included FY23 Actual	Grants Included FY24 Actual	Grants Included FY25 Actual	Grants Included FY26 Actual	FY27 Budget
REVENUE						
Carry forward - operating	379,329	172,635	(186,819)	(149,969)	(79,688)	(79,688)
Carry forward - grant funding	-	-	148,164	109,677	129,539	129,539
Regent university allocation	592,061	592,061	592,061	621,663	621,663	621,663
Room and Board	54,259	70,929	81,147	58,244	46,567	65,000
Center revenue	142,340	150,430	97,973	102,341	76,148	75,000
Friends & Other Support (grants)	187,498	231,811	183,621	234,387	245,565	245,465
TOTAL REVENUE	**1,355,487**	**1,217,866**	**916,146**	**976,342**	**1,039,793**	**1,056,979**
EXPENDITURES						
Salaries and benefits	639,826	713,230	608,187	542,248	588,094	577,230
Travel and hospitality	69,309	86,422	55,403	88,221	85,703	91,500
Supplies and Other	66,225	70,051	52,155	38,191	33,700	35,715
Utilities	80,559	94,347	62,130	67,282	84,029	85,000
Maintenance and repairs	183,491	174,511	114,638	133,465	112,280	150,000
Equipment	86,433	66,706	20,664	9,370	17,327	20,000
Marketing	150	150	-	500	-	1,000
Scholarship Expense	56,859	51,104	43,262	47,214	56,000	66,864
TOTAL EXPENDITURES	**1,182,852**	**1,256,521**	**956,439**	**926,491**	**977,134**	**1,027,309**
NET BALANCE	**172,635**	**(38,655)**	**(40,293)**	**49,851**	**62,660**	**29,669**