

# Iowa Lakeside Laboratory Regents Resource Center

*Fiscal Year 2020 Annual Report*



**The Year in Review**

**Student Success**

**Research**

**Community Engagement**

**Budget Review**

# Lakeside 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. Lakeside's 147-acre campus is located on scenic West Okoboji Lake, on Little Miller's Bay. Since 1909, the bay and adjacent 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 (ILLRRC) is to provide facilities and programming 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. Many of the programs listed in this report would not be possible without the generous support of The Friends.

*Picture of Lakeside Lab campus from a drone. Waitt lab in the foreground. Miller's Bay of West Okoboji in the background. Photo Courtesy of Jim Luzier, State Hygienic Laboratory*



# The Year in Review



*Testing regulatory samples is an essential service provided by the State Hygienic Laboratory on the Iowa Lakeside Lab Campus*

## The Year of Learning Virtually

The Covid-19 pandemic presented unique challenges for Iowa Lakeside Lab and the ability to provide immersive and experiential courses. While it was not possible to offer all the originally scheduled courses using virtual learning, some faculty were able to quickly pivot and create new and innovative instruction models. Courses offered this year included: Ecology, Algae, Prairie Ecology and Interpreting Nature Sounds (Acoustic Ecology). Course enrollment was lower than normal given the limited number of courses, but courses that were offered were at or above normal enrollment.

Under normal circumstances, Lakeside courses are intensive with classes meeting from 8—5 daily. Students depend on these fast-paced courses to help complete degree requirements, while not consuming an entire summer. Intensive courses fit within the many aspects of student lives including work and family obligations. This year, teaching in a virtual and intensive mode required special attention to student needs. Lakeside faculty used a variety of innovative teaching models to achieve the course goals, while maintaining fidelity of the course requirements. Keeping with the Lakeside goal of nature-based education, faculty connected students to resources in their home location for the outdoor portion of the courses. For example, Acoustic Ecology students collected sound data in their own backyards and shared their data with classmates creating a rich diversity of experiences.

One unexpected benefit of this new model of instruction was the participation of students from around the country and, in some cases, around the world. A combination of synchronous and asynchronous class meetings provided students the flexibility that was necessary given the different time zones and family obligations. Given the success of these courses, plans for 2021 will include hybrid courses that allow for in-person as well as virtual participation.

*I feel like this class opened my eyes to another field of work I didn't know about. I also love how the professor incorporated people for guest lectures during this time because it allows networking to occur that otherwise wouldn't. ~ Prairie Ecology Student, 2020*

# Student Success



*Green Iowa AmeriCorps staff collect water samples at Judd Wildlife Area in Dickinson County. Project conducted in partnership with Dickinson County Conservation Board.*

## Career-Ready Skills

Today's students are looking for ways to improve their resumes in a way that makes them stand out with employers. The competitive job market requires new graduates to have “career-ready” skills that are transferrable to a variety of job positions. These skills tend to be practical, hands-on skills applicable to field work (water quality testing, instrument calibration, instrument 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). Lakeside focuses on preparing students to acquire these skills and use them with our partners. Key partners include the Iowa Department of Natural Resources, Iowa Department of Agriculture and Land Stewardship, Dickinson County Conservation Board, Dickinson County Board of Health, Friends of Lakeside Laboratory among many other entities.

## Internships

Traditional on-site internships were not possible during 2020 due to concerns regarding Covid-19 transmission. However, internships are a key component in the development of students as they prepare to enter the job market. In-person internships were modified into “virtual” internships, which allowed students to have the internship experience while ensuring their health and safety. Virtual internships were created in partnership with natural resource agencies around the State or Midwest.

*“Despite having to work remotely due to a global pandemic, I got hands-on experience and close interaction with mentors to serve my community and the environment. I learned valuable skills in land management, outreach, and community service that I’ll use throughout my career as an ecologist.”*

~ Ethan, Virtual Intern

## Green Iowa AmeriCorps

In 2018, Lakeside became a Green Iowa AmeriCorps host site through a partnership with the University of Northern Iowa. The AmeriCorps members work on projects including land stewardship, environmental education, stormwater assessment and water monitoring. Members represent a spectrum of students from various institutions including Regents universities and community colleges. Students range in age from freshman to recent graduates and get valuable work experience along with an educational stipend for future coursework.

# Virtual Learning

## THE CREATIVE WRITING LABORATORY

Write your way through the pandemic and into connection, self-discovery, and expression

Lakeside Writer-in-Residence Alumna, Kartika Budwar developed the Creative Writing Laboratory as a way of coping with the pandemic.

<https://www.facebook.com/LakesideLab/posts/3357401614307403>

## Self-guided Inquiry

Typically Lakeside Lab would offer pre K through 12<sup>th</sup> grade programming for students in the northwest region of Iowa. In 2020, staff revised our traditional learning approaches to facilitate scientific inquiry using technology available to most students and parents. Beginning in early March, a daily nature challenge video was produced and shared through social media. These videos give a short prompt on the daily nature topic followed by instructions for self-guided exploration of the topic at home. Early feedback on this program indicated that teachers were also using the videos with their students to enhance learning objectives. Based on the number of questions received by teachers and students, Lakeside Lab created “Facebook Friday”. Each Friday, students, parents, teachers or interested citizens could watch a live presentation on a science topic and ask questions of the featured guest. Videos are archived for future use and learning guides are being prepared for K-12 teachers.

### Daily Nature Videos

- 100 videos (2-7 minutes) produced on a variety of topics including: soils, amphibians, rain, nature skills, Iowa wildflowers, insects, mammals and more.
- Appropriate for ages 3 up to adults (with parent/teacher instructions).
- Incorporated self-guided inquiry and hand’s on exploration.

### Facebook Friday Videos

- 20 Live Facebook Sessions with Scientists (15-30 min)
- Live Q &A with expert

### Social Media Changes (5 month period April—August)

- 1,275 Facebook followers to 2,006
- 1,282 page likes to 1,753
- Daily Max reach = 9,605
- Total Unique Facebook Views = 36,000

## Creative Writing Laboratory

In partnership with Kartika Budwar (MFA 2020, Iowa State University), Lakeside Lab launched the creative writing laboratory in August. In the writing lab, Budwar posts a short video on Monday coupled with a writing prompt Tuesday through Friday. Writers of all ages and abilities are encouraged to put pen to paper and write. The Creative Writing Laboratory is intended to be easily embedded in existing school curriculum.

# Research



*Ethan Rose (Iowa State University, Bachelor of Science in Biology and Wildlife Ecology) conducts a floristic assessment of prairie at the Dorothy Pe-caut Nature Center near his hometown of Sioux City.*

*Research was conducted in partnership with the Woodbury County Conservation Board.*

## Student Research

Lakeside received a record number of applications for research internships in 2020. Despite the pandemic, Lakeside created virtual research internships for several students to provide opportunities for students to gain experience in research and field methods. These students worked under the guidance of a designated faculty member and completed the research safely at home.

*A short synopsis of student research is provided in the next section.*

## Scientist-in-Residence Fellowship

The Iowa Great Lakes community is keenly interested in supporting research aimed at understanding local resource issues. The Scientist-in-Residence Fellowship (SIRF) program was created for early career scientists to build their research portfolio while working in the Iowa Great Lakes. The SIRF post-doc also mentors undergraduate students in research projects. Funding for the program is provided by the Friends of Lakeside Lab.

*A short synopsis of the Scientist-in-Residence Fellowship research is provided in the next section.*

# Student Research

## FY 2020 Projects

- Sean Diehl (University of Iowa, B.A. 2020) developed a social entrepreneurship project for a mobile food pantry in the Iowa Great Lakes.
- Ethan Rose (Iowa State University, B.S. 2020) evaluated prairie restoration success at Dorothy Pecaut Nature Center in Sioux City.
- Rebecca Wojton (Geneva College, B.A. 2018) researched recreation conflict and resource management.
- Brooke Zibell (University of Iowa, undergraduate) received the James W. Cravens undergraduate research fellowship. Brooke examined the presence of algal toxins in drinking water of the Iowa Great Lakes.
- Joe Mohan (University of Maine, Ph.D. candidate) received a Becker Family Graduate Research Fellowship in 2020. Joe's research is a synthesis of diatom data collected at the Ashfall fossil beds in order to reconstruct the paleohistory of the area.
- Martin Simonson (Iowa State University, Ph.D. candidate) is examining common carp and buffalo fish population densities in Iowa lakes.
- Jessica Komperda (University of Iowa, undergraduate) documented the algal populations in Little Miller's Bay of West Lake Okoboji.
- Austin Holland (University of Iowa, Ph.D. candidate) received the Becker Family Graduate Research Fellowship in 2020. Austin is examining the conservation decisions in the Iowa Great Lakes and factors that motivate individuals and organizations to engage in conservation.
- Rikka Heimdal (Okoboji High School) completed a winter project analyzing 20 years of lake data to evaluate changes in lake pH and the role of changing pH due to zebra mussel infestation.
- Drew Hutchinson (University of Iowa, M.A. 2020) is creating a virtual Lakeside campus using a 360 degree camera and drone photography. The virtual campus can be used by students, visitors or researchers to see campus features remotely including unique plant species.
- Travis Scheirer (University of Iowa, B.A. 2018, Green Iowa AmeriCorps member) is evaluating the impacts of grazing strategies on water quality in Judd Wildlife Area.
- Jenna Bonistalli (University of Iowa, M.F.A 2020) completed her fellowship on the integration of sound, movement and light into her MFA thesis.

# Scientist-in-Residence

## Scientist-in-Residence Fellowship

Dr. Rebecca Kauten (University of Iowa, Ph.D. 2019: Geographical and Sustainability Sciences) is Iowa Lakeside Laboratory's first scientist-in-residence (SIR) under a new program created in partnership with The Friends of Lakeside Lab. The fellowship provides a post-doc position for early career scientists and start-up funds for their research. The SIR engages in research, which has been identified as a priority for the Iowa Great Lakes. Additionally, the SIR mentors undergraduate research projects and conducts outreach and education activities for the community. Due to Covid, Dr. Kauten's residency will not take place on the Lakeside campus, but will be accomplished remotely. Future SIR fellows will be living and working on site to facilitate working with Lakeside's student population.

Dr. Kauten's research projects for 2020-21 will focus on the recreation pressure on the Iowa Great Lakes and ecological restoration projects including the Neppel Fen restoration.



*Left: Dr. Rebecca Kauten discusses soil properties with students in 2019.*

*Right: Dr. Kauten demonstrates the collection of soil using a probe in native prairie.*



# Value to the Iowa Great Lakes Community



*Child explores science using the Friends of  
Lakeside Laboratory Nature Packet*

**Community Technical Assistance**

**Citizen Science**

**Educational Enrichment**

# Community Technical Assistance

Lakeside Lab is a valuable community partner in the Iowa Great Lakes providing scientific expertise on ecological and water quality issues.

## **Habitat and Shoreline Restoration**

Developing, Implementing, and monitoring habitat and shoreline restoration projects to protect water resources and the environment.

## **Stormwater Management.**

Documenting stormwater management practices and maintenance of those practices for the Dickinson County Clean Water Commission.

## **Curlyleaf Pondweed Management Task Force**

Working with the community to develop strategies to manage excessive aquatic plant growth in the Iowa Great Lakes.

## **Water Quality Monitoring**

Working with the Iowa Great Lakes community to evaluate the effectiveness of water quality improvement investments and to determine where future improvements will be the most beneficial.



*Lakeside Lab is working with the Natural Resources Conservation Service to document and assess the restoration success of the Neppel Fen near Estherville, IA.*

# Community Technical Assistance (continued)

## Lake Research Buoys

Measuring short-term changes in water chemistry is vitally important to the understanding and continued protection of the Iowa Great Lakes. Data have been used by drinking water supplies, natural resource managers, and recreation enthusiasts. Lakeside Lab secured grant funding from the Iowa DNR and the Okobojo Foundation in 2020 to deploy a second research buoy in Big Spirit Lake (the first buoy was placed in West Okobojo in 2015). The buoys build a one-of-a-kind network of water quality sensors to understand and protect Iowa's lake resources.

Iowa Lakeside LABORATORY  
Regents Resource Center

Okobojo and Big Spirit Lake Research Buoys

POWERED BY WQData LIVE

Tuesday, September 1st, 2020

WQData LIVE is a secure web datacenter providing an online interface for viewing environmental data. It offers 24/7 instant more

West Okobojo Lake ▾

Big Spirit Lake ▾

Download The Mobile App Now!

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Disclaimer:  
Uncertainty and potential for error can be associated with environmental monitoring data. Data users are cautioned

Real-time water quality data for Big Spirit Lake and West Okobojo Lake are available at <https://wqdatalive.com/public/470>  
Data are available from early May to late October and are taken at 15-minute intervals from the lake surface to the lake bottom.

# Citizen Science

The Cooperative Lakes Area Monitoring Project (CLAMP) is a volunteer lake monitoring program started in 1999. Volunteers collect water samples throughout the summer on nine lakes in the Iowa Great Lakes. The goal of CLAMP is to provide long-term monitoring data for resource managers, communities impacted by the lakes, and to educate local citizens about lake ecology.

Covid protocols in 2020 limited the number of volunteers participating in the CLAMP program. Volunteers were required to be in the same household, complete safety training, and utilize the Lakeside contactless delivery system as part of the new safety precautions. Twenty eight volunteers collected water samples from early June through September in 2020 and dedicated more than 300 hours to the program.



*CLAMP volunteers deliver water quality samples to Lakeside Laboratory for analysis*

# Educational Enrichment

Summer Nature Camps and other educational activities were not allowed on campus due to the Covid-19 restrictions. However, research suggests that time outdoors in nature is a low-risk activity and helps to alleviate some of the anxiety and stress associated with the pandemic. Finding ways to guide children, parents and community members to outside activities that encouraged scientific exploration became the focus of summer educational outreach activities. To achieve this purpose, a family nature packet was produced each Friday, which included a variety of activities and resource guides. Nature packets were distributed through contactless methods. The Friends of Lakeside Laboratory distributed more than 650 family nature packets from May 8<sup>th</sup> to July 24<sup>th</sup> and more than 180 nature backpacks from July 31<sup>st</sup> to August 14<sup>th</sup>.



Iowa Lakeside Laboratory



*We had a great time working on some of our water experiments today! ~ Katie, parent*



*Friends of Lakeside Laboratory provided nature packets to local children to encourage and support summer science exploration. The Creative Writing Laboratory guided kids of all ages to immerse themselves in nature and writing.*

# Budget

IOWA LAKESIDE LABS REGENTS RESOURCE CENTER	FY16 Actual	FY17 Actual	FY18 Actual	FY19 Actual	FY20 Actual	FY21 Budget
<b>REVENUE</b>						
Carry forward	(27,569)	(14,106)	35,621	98,576	154,203	134,116
Regent university allocation	592,061	592,061	592,061	598,778 <sup>2</sup>	592,061	592,061
Room and Board	63,176	66,326	39,206	78,007	15,196	55,000
Center revenue	107,794	87,776	126,704	106,426	67,045	55,000
Friends & Other Support	88,085	89,506	100,333	102,337	95,772	60,400
Course Fees	-	-	-	-	-	-
<b>TOTAL REVENUE</b>	<b>823,547</b>	<b>821,563</b>	<b>893,925</b>	<b>984,123</b>	<b>924,277</b>	<b>896,577</b>
<b>EXPENDITURES</b>						
Salaries and benefits	412,473	464,452	506,152	497,618	441,813	446,500
Travel and hospitality	50,793	49,058	55,288	53,283	27,759	35,000
Supplies and Other	21,044	21,519	29,708	31,166	24,105	38,000
Utilities	47,738	53,158	63,110	74,914	71,778	85,000
Maintenance and repairs	235,803 <sup>1</sup>	141,076 <sup>1</sup>	91,468	100,491	193,816	238,077
Equipment	20,066	22,108	3,867	34,252	20,291	25,000
Marketing	2,046	1,373	999	889	611	1,000
Scholarship Expense	47,690	33,198	44,756	37,309	9,988	28,000
<b>TOTAL EXPENDITURES</b>	<b>837,653</b>	<b>785,942</b>	<b>795,349</b>	<b>829,921</b>	<b>790,161</b>	<b>896,577</b>
<b>NET BALANCE</b>	<b>(14,106)</b>	<b>35,621</b>	<b>98,576</b>	<b>154,203</b>	<b>134,116</b>	<b>-</b>

<sup>1</sup> Improvement costs donated house: FY15: \$127,785, FY16: \$108,180, FY17: \$74,833

<sup>2</sup> Includes one time GEF proceeds for fire damages