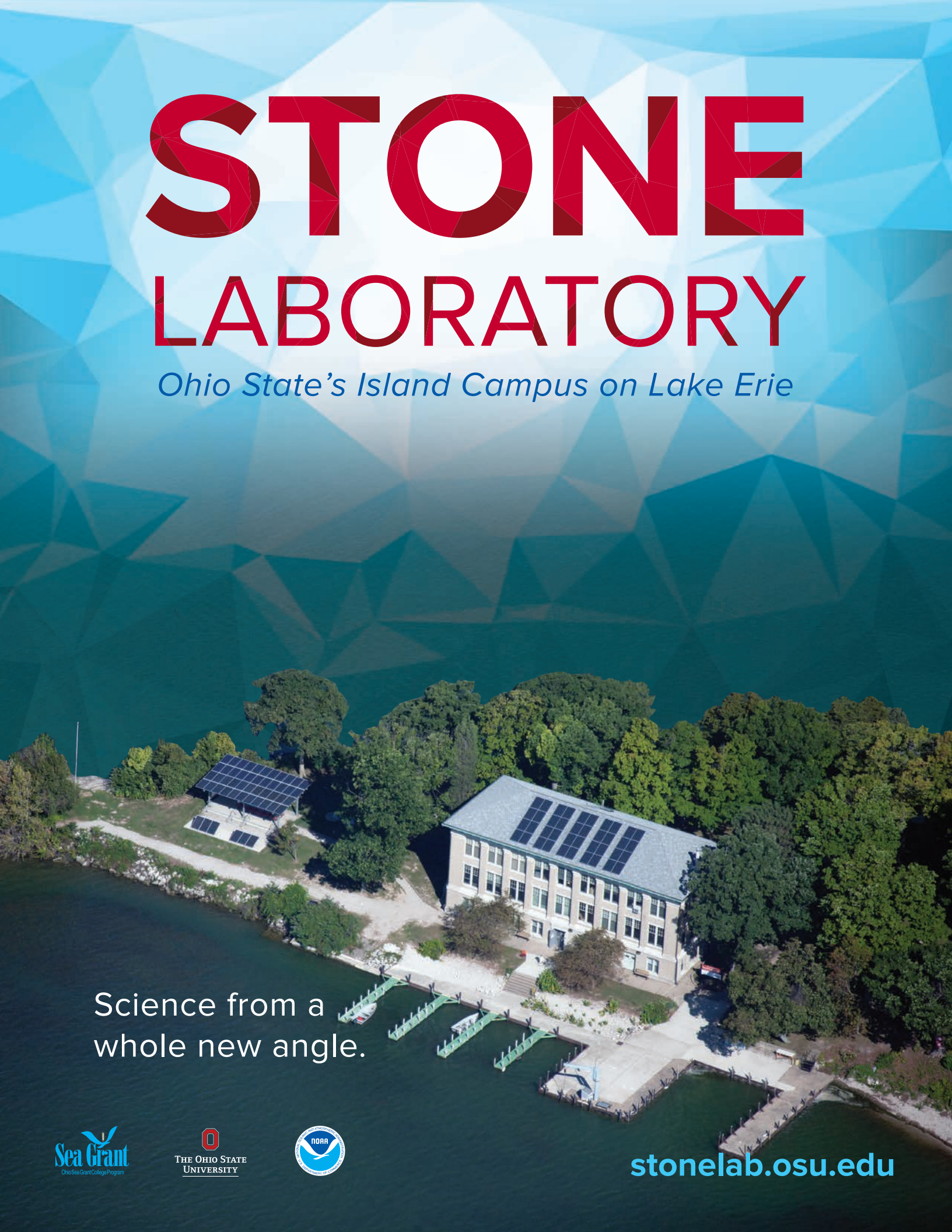
STONE LABORATORY

Ohio State's Island Campus on Lake Erie



Science from a whole new angle.

Sea Grant
Ohio Sea Grant College Program

The Ohio State University

NOAA

stonelab.osu.edu

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For more than 100 years, Stone Laboratory has been an invaluable asset in freshwater biology research, science education and outreach. A freshwater fieldstation since 1895 and part of The Ohio State University since 1925, Stone Lab programs have introduced thousands – from elementary students to adults – to the basics of field-based biological science. Professional researchers from all over the Midwest work here helping to solve the most pressing issues facing the Great Lakes, such as invasive species and toxic algal blooms.

Stone Laboratory on Gibraltar Island, the South Bass Island Lighthouse and Aquatic Visitors Center in Put-in-Bay bring hands-on science and education to everyone who visits. In addition to field trips and guided tours to visitors, Stone Lab offers 25 college-credit science courses each summer, covering biology, geology and natural resources, among other topics. The island campus has also hosted conferences and educational programs for a variety of groups.

As Ohio State's island campus on Lake Erie, Stone Laboratory offers a powerful combination of science education and research.

OHSU-SLC-1569

A strong foundation

FOR THE NEXT GENERATION OF SCIENTISTS.

Stone Lab is the research station for the Ohio Sea Grant College Program – one of 33 NOAA Sea Grant programs dedicated to the protection and sustainable use of marine and Great Lakes resources.

The lab acts as the summer island campus on Lake Erie for The Ohio State University, offering 25 college credit courses and a variety of non-credit workshops each year to students from universities across the country. Gibraltar Island, just off the coast of South Bass Island, is a full-service campus with dormitories, a dining hall, classrooms, research laboratories, a library and a computer lab.

Two credits. One week.

INVALUABLE LEARNING.

Introductory-level courses at Stone Lab give you the chance to get your feet wet – both literally and figuratively. High school sophomores, juniors and seniors can earn college credit to get a head start on a degree, and college students can earn general education credits.

You'll spend most of your time in the field – not a classroom – while earning two semester credits in one week as you study biology, oceanography, ecology, plants, insects or even sport fishing. Field studies expand career choices for students with any major. You'll learn skills that translate to other fields, such as problem-solving, scientific analysis, data collection and presentation delivery.

COURSES

Sunday-Saturday. Open to high school sophomores, juniors and seniors and college students in any major. 2 credits.

June 12-18
Introduction to Biological Studies – Aquatic Biology
Ecology and Conservation of Birds
Field-Based Introduction to Oceanography
Lake Erie Sport Fishing

July 24-30
Introduction to Biological Studies – Aquatic Biology
Introduction to Biological Studies – Birds

July 31-August 6
Introduction to Biological Studies – Aquatic Biology
Introduction to Biological Studies – Local Plants
Introductory Insect Field Biology

FACULTY SPOTLIGHT

Dr. Justin Chaffin
Stone Lab Research Coordinator
Introduction to Biological Studies – Aquatic Biology

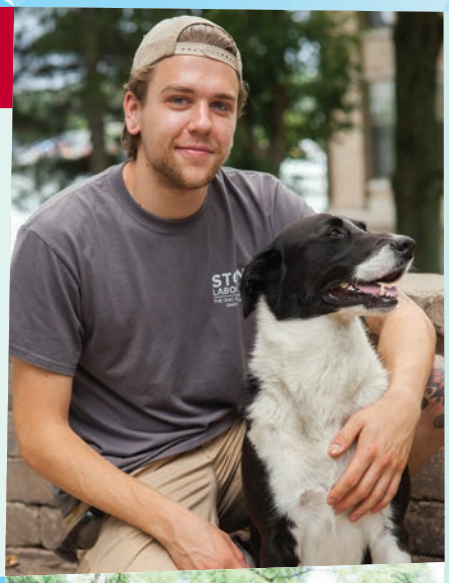
"It's much more hands-on than a regular high school classroom or even a typical introductory-level college class. The first-hand experience really helps students understand the material better. Students are on a field trip almost every day during class. We take trips on our large research boats. We go to the rivers on the mainland and we visit natural preserves. Students are much more enthused to be out in the field than in a classroom."

Your future in science takes shape.

You're a science major ready to dive deep into your chosen subject matter. We've got the courses you want to give you the knowledge you need for a future in your chosen career. Each course is an in-depth experience you'll share with a handful of classmates as dedicated to the subject as you are.

Ranging from a single day to five weeks, these classes give you the chance to practice scientific techniques in the field. At Stone Lab, the outdoors is your classroom and Lake Erie is your living laboratory. Whether you're studying biological sciences, education or natural resources, you'll gain invaluable skills and make lasting memories.

STUDENT SPOTLIGHT



Max Frankenberry
Junior, Evolution & Ecology major, The Ohio State University
Evolution, 2015

"The island itself is such a cool atmosphere because you have a group of people that are all extremely interested in the same things you're interested in. You sit in the Dining Hall talking about an invasive species moving in for an hour. ... In terms of Ohio State campuses and programs, especially environmental sciences and evolution and ecology, this is definitely the best that it gets."

See more of Max's Stone Lab story at ***go.osu.edu/max****.*

COURSES

Open to college students studying biological sciences, education and natural resources as well as science teachers.

Five-Week Courses – 4 credits
Monday, Wednesday and Friday OR Tuesday, Thursday and Saturday.
June 19-July 23

MWF
Behavioral Ecology
Evolution
Ichthyology

TRS
Aquatic Ecosystems – Ecology of Inland Waters
Ecology
Field Zoology

One-Week Courses – 2 credits
Sunday-Saturday.

June 12-18
Field Herpetology

July 24-30
Field Ecology

July 31-August 6
Spider Biology

Other Courses
Thursdays, June 16-August 4, 1 credit
Current Topics in Environment and Engineering (Guest/Research Lecture)

August 8-9 or August 10-11, .5 credit
Algae Identification Workshop

August 4-19, 2 credits
Field Course: Environmental Science on the Flagship *Brig Niagara*

Intense Research.

IMMEASURABLE REWARDS.

Our Research Experience for Undergraduates scholarship program offers an incomparable chance to live the life of a professional researcher while you study at Stone Lab.

Under the tutelage of top scientists, our REU students carry out independent research projects from start to finish, including specimen collection, data analysis and a final presentation. The five-week Stone Lab REU program runs concurrently with our five-week term and must be paired with one of the five-week upper level courses (see page 7).

Stone Lab REU alumni have gone on to master's and PhD programs at colleges across the country and are working scientists in a host of fields.

The approximately ten students chosen for the REU program receive full tuition, room and meals.

STUDENT SPOTLIGHT

Jeffry Hayes
Forestry, Fisheries and Wildlife major, The Ohio State University
Herpetology REU, 2015

"My project is related to the Lake Erie Watersnake, studying under Dr. Kristin Stanford. I think going into the future there have been a lot of experiences here that I can put on a resume – bird banding, fish seining, PIT tagging, mark-recapture. Those are all things that employers look for. I have a feeling it's going to work out great for me."

See more of Jeffry's Stone Lab story at ***go.osu.edu/jeffry***.

Summer 2016 REU Application Deadline: February 18, 2016

For more details visit *stonelab.osu.edu/reu*.

This year students will lead the following projects:

- Ecology of the round goby: analysis of the condition of this Western Lake Erie Basin invader (Ichthyology)
- Ecology and conservation issues in northern Ohio crayfish (Ecology)
- Survival of birds inhabiting the Lake Erie Islands (Ornithology)
- Fish investigations to inform fisheries management (Fisheries Research/Management)
- Exploration of Lake Erie nutrient loading, hypoxic events (the "dead zone") and harmful algal blooms (Limnology)*

* Two of the four Limnology REUs will have the opportunity to work with Dr. Justin Chaffin, Ohio Sea Grant's research coordinator, in the Stone Lab Water Quality Laboratory to extend their REU from 5 weeks to 8 weeks. These students will earn an additional credit hour, work full-time in the water quality lab, be paid an hourly salary for 20 hours/week and have their additional tuition and room and meals provided.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Gibraltar Island

Gibraltar got its name because of its resemblance to the famous British fortress at the western end of the Mediterranean Sea. The island's location at the entrance to Put-in-Bay Harbor allows it to serve as a natural breakwater to South Bass Island.

1. **Bayview Office**
   Stone Lab's office on South Bass Island.
2. **Peach Point Research Laboratory**
   Houses the Water Quality Laboratory, a bunkhouse, holding tanks for aquatic organisms and general field-support space.
3. **Aquatic Visitors Center**
   Open June through August, this former fish hatchery has educational displays, aquaria filled with fish and a public fishing dock.
4. **Peach Point Cottage and Sycamore Cottage**
   Staff and instructor housing.
5. **Glacial Grooves**
   Deep striations, remnants of the last great North American glacier more than 10,000 years ago.
6. **Solar Pavilion**
   Fourty-four 240-watt solar panels provide energy and shade a few picnic tables below.
7. **Stone Laboratory**
   The main instruction building on the island. Contains laboratories, classrooms, office space, a meeting room for special lectures, a library, a computer lab and the Stone Lab bookstore. Forty solar panels were added to the roof in 2013.
8. **Main Dock**
   Students pick up the water taxi to South Bass Island here.
9. **Dining Hall**
   Stone Lab staff caters all meals for summer courses, field trips and special events. Solar thermal installed on the roof in 2012 provides nearly all the hot water needed for the Dining Hall.
10. **Gibraltar House**
    Housing for seasonal lab staff and researchers.
11. **Research Buoy**
    This research buoy collects data including water temperature, Ph and pigment and transmits it live to the Stone Lab website.
12. **Stone Cottage**
    Housing for instructors, visiting scientists, guests and seasonal staff members.
13. **Harborview House**
    The main residence hall for students, featuring 12 five-person units with private bathrooms and a laundry room.
14. **Barney Cottage**
    Student housing.
15. **Cooke Castle**
    built in 1865 by Jay Cooke, a Civil War financier, this 15-room Victorian home is currently undergoing renovations.
16. **Swimming Beach**

The building blocks of education.

Get up-to-date education techniques and information on Great Lakes issues with our courses designed specifically for teachers, informal educators and education majors with a rank of junior or above.

Earn continuing education units (CEUs) or credits toward your advanced degree. Each course features activities to engage your students in scientific discovery and learning. You'll come back re-energized and with plenty of teaching strategies to introduce topics like climate, ecology and wildlife into your classroom.

Educators are eligible for tuition assistance and are encouraged to submit a scholarship application with their course application. Courses can be taken for credit or as non-credit workshops for CEUs.

*** Alphyl Scholarships established by Dr. Vic Mayer are available for educators taking these courses. For an application and more information, email Lawrence Krissek at *krissek.1@osu.edu*.**

COURSES

Open to college students studying education and both formal and informal educators. 2 credits.

July 16-22
Field Geology for Educators:
Geologic Setting of Lake Erie*

July 24-30
Group Studies: Water and
Wildlife Training for Educators*
Field Ecology

July 31-August 6
Ornithology for Teachers

You want to come to Stone Lab.
WE WANT TO HELP.

Each year, Stone Lab awards nearly 40 scholarships to students and educators with financial need and superior academic records. All those taking for-credit courses are eligible for scholarships ranging from $200 to $2,500 per application. The average scholarship last year for high school students was around $600, while undergraduate students were awarded an average of about $1,200. You can apply for scholarships online during the Stone Lab application process. Initial scholarship recipients will be chosen by early April, though funds may still be available after the deadline.

Strengthen your resume.

Earn while you learn. Students in five-week Stone Lab courses can apply for part-time positions to cover housing and meals during their stay. These student lab assistants may work with researchers, help run the Stone Lab shop, help in the dining hall, or assist with programming at the Aquatic Visitors Center and South Bass Island Lighthouse.

Full-time employment from April through October offers an hourly wage plus housing and most meals. Internship credit may also be available through a student's home university. Biological field station assistants play an essential role in daily Stone Lab operations, from leading public tours to helping with meal preparation for students and guests. Full-time research assistants work with Stone Lab scientists.

More information and application materials are available at ***stonelab.osu.edu***. All job applications must be received by **March 6**. Interviews will be held March 15-17 at the Stone Lab Columbus office.

Study at Stone Lab.

FOR APPLICATION DETAILS AND DEADLINES, VISIT STONELAB.OSU.EDU/APPLYNOW.

SUMMER 2016 TUITION

Undergraduate*

Credit Hours	Resident Total	Non-Res Total
0.0-0.5	$198.75	$559.75
1.0	$397.50	$1,119.50
2.0	$795.00	$2,239.00
3.0	$1,192.50	$3,358.50
4.0	$1,590.00	$4,478.00
5.0	$1,987.50	$5,597.50
6.0	$2,385.00	$6,717.00
7.0	$2,782.50	$7,836.50
8.0	$3,180.00	$8,956.00
9.0	$3,577.50	$10,075.50
10.0	$3,975.00	$11,195.00
11.0	$4,372.50	$12,314.50
12.0-18.0	$4,770.00	$13,434.00

* includes all high school students

Graduate

Credit Hours	Resident Total	Non-Res Total
0.0-0.5	$372.75	$981.25
1.0	$745.50	$1,962.50
2.0	$1,491.00	$3,925.00
3.0	$2,236.50	$5,887.50
4.0	$2,982.00	$7,850.00
5.0	$3,727.50	$9,812.50
6.0	$4,473.00	$11,775.00
7.0	$5,218.50	$13,737.50
8.0 +	$5,964.00	$15,700.00

Most courses charge an additional lab fee per course.
Tuition numbers are estimates. All costs are subject to change.
For fees, room & meal costs and updated information, visit ***stonelab.osu.edu***.

F.T. Stone Laboratory
1314 Kinnear Road, Area 100
Columbus OH 43212-1156
614-292-8949
stonelab@osu.edu

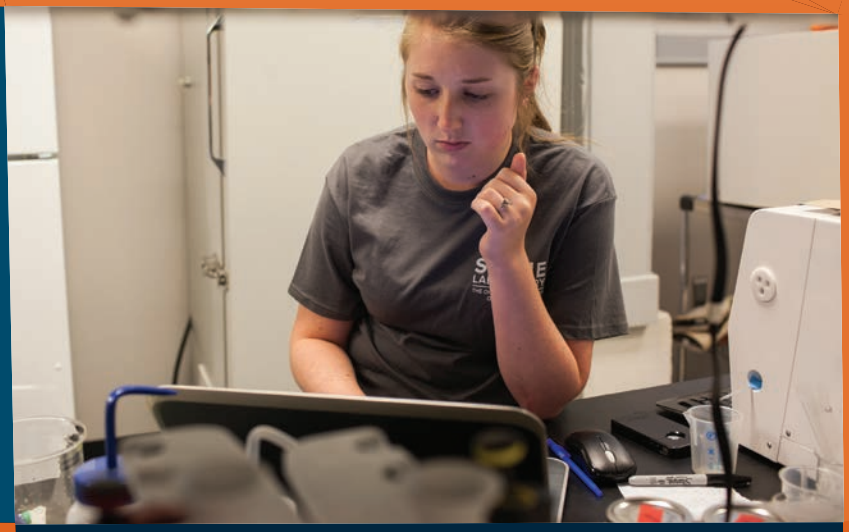
Your home for Great Lakes research.

Scientists have been conducting research on Lake Erie and the Great Lakes at Stone Lab for more than 120 years. The laboratory's unique location and well-stocked facilities make it a popular destination for researchers from all over North America. Approximately 50 scientists use Stone Lab facilities each year.

AVAILABLE EQUIPMENT

- two remotely operated vehicles
- dive equipment
- flow-through aquaria with lake water
- 10-gallon aquaria
- chemistry equipment and bench space
- two underwater cameras
- wire tagger
- telemetry gear
- benthic sampling equipment
- water-quality sondes
- a variety of nets

The Water Quality Laboratory, which opened in 2013, allows researchers to identify plankton, measure chlorophyll content and cyanobacteria toxins, analyze organic and inorganic suspended solids, and test for nutrients such as phosphorus and nitrogen. These tests enable scientists to tackle the issue of nutrient loading and harmful algal blooms in Lake Erie better than ever before.



LAB EQUIPMENT INCLUDES:

- high-speed centrifuge
- spectrophotometers
- sonicator
- -80C freezer
- temperature- and light-controlled incubators
- 96-well plate reader
- micropipettors ranging from 0.2 microliters to 10 milliliters
- automated nutrient analyzer
- flow-through microscope

In addition, the lab has several research boats, including larger vessels such as:

- ***R/V Gibraltar III***, a 42-foot research vessel for open-lake sampling and trawling
- ***M/V BioLab***, a 37-foot trap-net style vessel for open-lake sampling and trawling
- ***R/V Erie Monitor***, a 25-foot research vessel ideal for scuba, towing underwater equipment and small sampling equipment

Stone Lab has two cottages near the research laboratory on South Bass Island for visiting researchers who are planning overnight stays. Housing is also available on Gibraltar Island and in the Aquatic Visitors Center.

For more information or to arrange use of the facility or equipment, contact Research Coordinator Justin Chaffin at ***chaffin.46@osu.edu***.

Get messy.

Bring your class to Stone Lab and bring science to life. Students in grades 5-12, college students and groups of adults can make reservations for field trips in April, May, early June, August, September and October. Half-day AVC Adventure field trips are available on Mondays and Tuesdays from June through August.

While at Stone Lab, each group spends two hours aboard a Lake Erie research vessel, collecting environmental and biological data. Afterward, they return to Gibraltar Island, where they don lab coats to dissect fish and examine the lake's microorganisms through microscopes.

Groups can choose from up to 10 additional specialized activities to create a one-day trip lasting up to eight hours or a two-day overnight trip which includes a stay at the island dormitory and meals at the Dining Hall. Field trips can accommodate up to 80 people.

Available activities for school-year field trips: Invertebrate Collection Walk, Exotic Species Slide Show, Insect Collecting, Island Geology Tour, Herpetology Overview, Ornithology Hike, Fish Seining, Climate Expedition, and Aquatic Visitors Center.

PLAN YOUR FIELD TRIP AT
stonelab.osu.edu/tripsandtours.

AVC ADVENTURES

Can't bring your group for a visit during the school year? AVC Adventures are four-hour summer field trips for up to 30 people and are held at the Aquatic Visitors Center, just a short walk from downtown Put-in-Bay on South Bass Island. Choose up to four one-hour activities from the following: Erie Island Cruise, AVC Tour & Fishing Fun, Birds for Beginners, Water Quality Walk, Ins and Outs of Lake Erie, Reptiles & Amphibians.

A unique location.

Hold your next event, conference or meeting at Stone Laboratory.

Secluded meeting spaces on Gibraltar Island and at the South Bass Island Lighthouse offer spectacular views of Lake Erie. Stone Lab staff can help you incorporate field trip activities such as a sampling trip on a research vessel, historical tours and other team-building activities.

Stone Lab can accommodate 50-75 people with a conference room that can be set in classroom, theater or U-shaped styles. We also offer indoor and outdoor reception facilities.

Dormitory-style double rooms accommodate up to 40 people for overnight stays. A full-service dining hall provides meals and breaks for guests, if desired.

The South Bass Island Lighthouse offers meeting space and reception facilities for groups of up to 10 people.

A kitchen, living room and two porches provide comfortable living space for guests.

Presentation support includes:

- Computer and projector with audio
- High-speed wireless internet
- Teleconferencing/ web conferencing
- TV displays

For more information, contact Kelly Dress, 419-285-1800, or email ***dress.3@osu.edu*** or ***stanford.147@osu.edu***.

Stone Lab has hosted groups such as Girl Scouts of the USA, 4-H camps, The Nature Conservancy and The Ohio State University Comprehensive Cancer Center.

PUBLIC TOURS AND EVENTS

Educating the public on Lake Erie history and current issues

The **Aquatic Visitors Center** gives people of all ages a chance to examine Lake Erie's ecosystem up close. Children under 16 can borrow fishing gear and fish for free off our dock. AVC tours are free and open to the public from 10 a.m.-5 p.m. Wednesdays through Saturdays June 22 through September 10, 2016.
go.osu.edu/aquatic

The **South Bass Island Lighthouse** is open from 11 a.m. to 5 p.m. on Mondays and Tuesdays June 20 through August 9, 2016. Visit during these hours to learn the history of the lighthouse or arrange a scheduled tour April through November. The lighthouse grounds are open to the public from dawn to dusk daily.
go.osu.edu/lighthouse

Gibraltar Island tours are available from 11 a.m. to 1 p.m. Wednesdays June 22 through August 10, 2016 for up to 75 people on a first-come, first-served basis. Groups tour the island, including Perry's Lookout, the glacial grooves and Cooke Castle before learning more about Stone Lab research.
go.osu.edu/gibtours

Friends of Stone Laboratory (FOSL) Open House
Saturday, September 10, 2016

Sea Grant
Ohio Sea Grant College Program

The Ohio State University

NOAA