A Perfect MATCH

Promising technology uses algae, sound waves to remove mercury
TABLE OF CONTENTS

2008 WINTER EDITION

VOL. 30/NO. 1

CONTENTS

Page

GLROC: Great Lakes Research and Outreach Consortium................................. 3
A Perfect Match ................................................................................................. 4
In Their Own Words: Lake Erie Discussion Board ........................................... 6
OSG Extension Promotes Shipwreck Education ............................................... 8
OSU Partnership Saves Stone Lab Water Supply .............................................. 10
New 2008 Stone Lab Courses ............................................................................ 11
Fall Fish-Sampling Techniques Workshop ....................................................... 12
FOSL .................................................................................................................. 13-15
  Student Spotlight
  Buckeye FOSL
Fish Lake Erie License Plate ............................................................................ 16

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Ohio Sea Grant is a statewide program that supports greater knowledge and stewardship of Lake Erie and the Great Lakes. It is part of the NOAA Sea Grant College Program (NOAA grant NA16RG2252, project M/P-2), which includes 32 state programs. Support of Ohio Sea Grant is provided by National Sea Grant, the State of Ohio, The Ohio State University, Ohio State University Extension, and participating universities, agencies, and businesses.
From Lake Superior in the west to Lake Ontario in the east, there are five Great Lakes. But there are seven Sea Grant Programs that serve the Great Lakes region, and this past June, the programs announced the formation of the Great Lakes Research and Outreach Consortium (GLROC). Three years in the making, GLROC is designed to foster communication, cooperation, coordination, and collaboration on research, education, and outreach projects that address regional problems and opportunities.

Issues such as water quality, invasive species, and fisheries often cross state boundaries. The formation of a consortium to connect the seven Sea Grant programs will provide the means for any one of the programs to propose and develop projects for the entire region as well as accept and distribute funds to the other six programs.

“The Great Lakes Sea Grant Programs have a great history of collaborating. GLROC will make it easier for us to collaborate, share and easily transfer leadership among the seven programs, and make it easier for sponsors to support all seven programs with a single award,” stated Dr. Jeff Reutter, Director, Ohio Sea Grant.

“Each of the lakes is bordered by several states and/or a Canadian province,” said Dr. Jack Mattice, Director of New York Sea Grant. “The issues that affect each lake often affect the region as a whole and can best be addressed by coordinated programs carried out simultaneously. Our new consortium is specifically designed to foster that kind of relevant program.”

The seven Sea Grant Programs in the Great Lakes region are: Illinois/Indiana Sea Grant College Program, Michigan Sea Grant College Program, Minnesota Sea Grant College Program, New York Sea Grant College Program, Ohio Sea Grant College Program, Pennsylvania Sea Grant Program, and Wisconsin Sea Grant Institute.

Sea Grant is the primary university-based program of the Department of Commerce’s National Oceanographic and Atmospheric Administration (NOAA), located in each coastal state, to promote better understanding, conservation and use of America’s coastal resources.
Great Lakes can mean great challenges. For more than 30 years, one of the greatest for those lakes has been mercury pollution. Mercury, a highly toxic heavy metal found mostly as a by-product from coal-burning electric power plants, typically migrates from industrial smokestacks and eventually settles into the Great Lake sediments. The problem is mercury doesn’t normally stay put, traveling up the food web by way of hungry plankton and insect larvae that nibble on that lake sediment, which in turn accumulates in the fish we consume.

But a new research process developed by two Ohio Sea Grant scientists could decrease the likelihood that mercury will end up in your fish dinner. Ohio Sea Grant researchers Drs. Linda Weavers and Richard Sayre of Ohio State University have found a way to efficiently extract mercury from lake sediment before it even gets a chance to trek up the Great Lakes food web. And the process makes use of a very unlikely pair: sound waves and engineered algae.

One Sea Grant Project Sparks Another

Four years ago, Dr. Linda Weavers, Associate Professor in Ohio State's College of Engineering, discovered that ultrasound or sonication could be used to very successfully break loose contaminants such as PCBs and heavy metals like mercury bound to Lake Erie sediments. “Sonication uses sound waves to trigger intense chemical, physical, and thermal reactions,” Weavers explains. “We realized we could harness the power these reactions create to loosen up contaminants once locked in sediments.”

The technology uses alternating compression and expansion cycles of ultrasound waves moving through water to create millions of tiny cavitation bubbles. The tiny bubbles expand, contract, and then violently collapse in a few microseconds to generate pressures up to several thousand pounds per square inch and temperatures as hot as the surface of the sun (up to 10,000 degrees Fahrenheit). “As the bubbles implode, they form tiny water jets that smash into sediment particles at 100 to 1,000 meters per second and remove contaminants,” Weavers states.

Weavers’ sound waves worked so well, in fact, that within two minutes, 33 percent of the mercury was extracted from the model sediment.

A problem, however, occurred at the 60-minute mark of the process, when the majority of the mercury was pulled from the sediment. “We discovered that mercury started reattaching itself back onto the sediment at that point,” says Weavers. “We needed to find something that could pull that mercury out of the water before it started reattaching itself.”

Combining Efforts: Sound Waves Unite with Algae

Meet Dr. Richard Sayre, Professor of Plant, Cellular, and Molecular Biology at Ohio State. For nearly 15 years, Sayre, has been using Chlamydomonas reinhardtii—a
A unicellular alga found all over the world—to do many unlikely things for Sea Grant, including separate heavy metals from Lake Erie sediment, vaccinate Lake Erie fish, and mass produce a bioterrorism antidote.

“Dr. Sayre likes to say that there isn’t anything his alga can’t do,” says Weavers. He might be right. When he first started his Sea Grant research on engineered algae, Sayre focused on bioremediation efforts. He discovered that *Chlamydomonas reinhardtii* could be genetically altered to recover harmful heavy metals locked in sediments.

It was the alga’s ability to detect and bind to these metals that gave Weavers the idea to use it as the means to extract the mercury from the Lake Erie water.

“Algae are ideal for sequestering heavy metals because they have large surface areas, and they have an intrinsic high metal binding capacity,” explains Sayre. “We were able to increase that capacity by genetically modifying the algae.” Sayre modified the alga so it would only focus its attention on absorbing mercury.

The end result? Combining algae and ultrasound (and several Sea Grant research efforts) turned out to be a perfect match.

Using Lake Erie sediment, algae, and water in lab experiments, Weavers and graduate student Ziqi He were able to extract 30 percent of the mercury in 30 minutes with the combination of sonication and algae. At the 30-minute mark, the algal cells became too saturated and their ability to pick up the mercury began decreasing. They plan to run further experiments to increase that removal rate. “We’re hoping that either adding more alga or limiting the amount of sediment to the system could result increase the removal rate of mercury,” says He.

As for the future of this technology, Weavers and Sayre picture a specialized system that could be attached onboard a Lake Erie ship for on-site treatment without harming wildlife. Boats could dredge sediment from contaminated waterways and clean it onboard using ultrasonic equipment and algae-based filters. Afterward, the clean sediment could be returned to its original location. Another option would be to place the equipment directly on the sediment to treat it in place.

“It may be feasible to efficiently clean heavy-metal-contaminated sediments without extensive dredging and bringing sediments to the surface for transport, treatment and/or burial at landfill sites,” adds Sayre. “It’s not only cheaper; it’s quicker than any current remediation options.”

Weavers plans to later expand the research to investigate other biological elements, like the algae, as a means to extract contaminants from sediments.”

For more information on this Ohio Sea Grant funded research, contact Dr. Linda Weavers at weavers.1@osu.edu, Dr. Richard Sayre at sayre.2@osu.edu, or Ziqi He at he.74@osu.edu.
Today there are 1.24 billion Internet users, more than 80 million web sites, and more than 70 percent of Americans with computers in their homes. Whether you’re checking sports statistics, sending e-mail, or chatting online, the Internet is the single largest source of information literally available at your fingertips. With more and more people turning to the Internet for news and information, Ohio Sea Grant saw an opportunity to not only join the age of technology but to use that technology to reach more people.

Five years ago, Ohio Sea Grant Extension Specialist and Program Co-Leader Fred Snyder was surprised at the number of people inquiring about Lake Erie on the web. “People would pop up everywhere asking questions,” he recalls. “And the answers they were getting weren’t always the right ones. When I would see incorrect information, I would log on and post the correct information, always with my name and Sea Grant affiliation.”

As Sea Grant Extension specialists became more and more involved with existing sites, it wasn’t long before questions were directed specifically toward Snyder and his colleagues. Before he knew it, requests increased for him and other Sea Grant specialists to host real-time question-and-answer sessions on established sites, allowing Lake Erie enthusiasts to participate in live chat settings.

The growing demand for Sea Grant information online gave Snyder the idea to launch his own Lake Erie informational site. He posted a question on a popular discussion board asking Lake Erie supporters if they would use a Sea Grant information board.

“Within a two-week period, we had over 200 replies, all saying ‘yes, yes, yes,’” Snyder says. Before long, the Ohio Sea Grant communications staff had developed an easy-to-use web site. The Lake Erie Discussion Board provides an online venue for fishermen, boaters, and other Lake Erie supporters to ask technical questions about the lake and its resources and get answers directly from credible, unbiased program staff members.

“The Discussion Board differs from e-mail in that instead of responding to one person, it shares an answer with everyone,” Snyder explains. “It becomes a valuable teaching tool. One person asks the question, but hundreds might learn from it.”

Five Sea Grant staff members take turns answering Discussion Board questions each week, providing information on fisheries, water quality, lake levels, regulations, and policies. Questions are usually answered within a day or two. Also available on the board is a Lake Erie Travel Information forum, created by Ohio Sea Grant Extension Tourism Program Director Melinda Huntley. She answers questions for visitors interested in the natural, cultural, and historical sites along the lake.

“There are a lot of misconceptions out there about the lake,” states Snyder. “We’re not trying to provide fishing tips or evaluate gear. We’re giving technical, scientific information about how the lake and the ecosystem work.”
Last big snow
on: 03/17/08, 11:12 by jshbuckeye
The last big snowfall I think it was on March 7th that brought a lot of moisture from the south up to us. Can one storm like that help with the water levels in Lake Erie? I noticed it made a difference in a few of our reservoirs. Thanks. Jeff

Re: Last big snow
Reply #1 on: 03/17/08, 13:07 by GHoroky
I have heard that there is a prediction of a 6”-12” rise in Lake Erie this spring. Is this wishful thinking or a possibility?
Thank You
Greg

Re: Last big snow
Reply #2 on: 03/17/08, 15:49 by John Hageman,
Ohio Sea Grant Extension
Typically, any direct precipitation that falls onto the Lake's surface contributes very little to the Lake's volume. What is more encouraging is Lake Superior's higher levels, as most of Lake Erie's water comes from the Upper Great Lakes.

A slight increase in water levels are seen when we have an exceptionally wet spring/summer throughout the watershed. That can mitigate the normal seasonal drop in the Lake level that would occur during the summer/fall.

Re: Last big snow
Reply #3 on: 03/17/08, 16:06 by Fred Snyder,
Ohio Sea Grant Extension
Also, for the first winter in several years, the upper Great Lakes Basin has a very deep buildup of snow — some areas with over ten feet. As all this trapped water gradually melts this spring, Lake Erie's summer level is expected to substantially higher than was predicted this winter — yes, perhaps over six inches higher.

Public acceptance and usage of the Lake Erie Discussion Board has increased sharply over the last five years. The first few months averaged around 3,000 hits. Now, as Ohio Sea Grant's top viewed web page behind the entry-level home page, the discussion board averages anywhere from 80,000 to 100,000 hits per month, and is linked to many other popular fishing sites.

It's not only the public noticing the importance of the discussion board. The Lake Erie Discussion Board was the 2007 winner of the Epsilon Sigma Phi Tools for Teaching award, an award that acknowledges development in high-quality teaching materials for extension educators.

"What we're essentially doing is bringing personalized Sea Grant information to the people," explains Snyder. "We have users in Wisconsin, California, and Canada who wouldn't be able to get these answers if it wasn't for the board. It allows us to create a personal dialogue with them."

It's also not just the personal touch that Sea Grant brings to the people; the Discussion Board keeps Sea Grant in touch as well. Because the Discussion Board serves as a historical record of the most pertinent issues affecting the Lake Erie region, Sea Grant agents are able to identify program needs and priorities for education and research based on what they see on the Board. "The Discussion Board allows us to keep our finger on the pulse of the people," states Dr. Jeff Reutter, Director of Ohio Sea Grant. "It's a way for us to monitor the issues the public feels are most important in order for the program to shape priorities to best serve those needs."

As the importance of the Internet grows rapidly in all facets of human life, including research and education, it becomes more and more important to utilize this new tool. "Media like this will be used a lot in the future," adds Snyder. "Besides, what other way can you reach thousands of people with just one answer?"*

To try the Lake Erie Discussion Board for yourself, go to ohioseagrant.osu.edu/discuss. Contact Fred Snyder, at 419.635.1022 or snyder.8@osu.edu.
Lake Erie is the shallowest of the Great Lakes, averaging depths of just 62 feet compared to its 483-feet Lake Superior counterpart. So it's no wonder that with that depth, you would find quite a few shipwrecks dotting its lake floor. But would you believe 1,700?

"People are always amazed when they discover that Lake Erie has the most shipwrecks of any of the Great Lakes," says Ohio Sea Grant Extension’s Dave Kelch. "You hear about exploring shipwrecks off the Keys or the coast of the Carolinas, but not many people would guess that they can do the same here in Lake Erie."

Part of the problem in the past has been that even with that caliber of maritime history, Ohio has never had a structured education and awareness program to promote its shipwrecks. "Ohio is the only Great Lakes state not to have one," explains Kelch. "That is a concern if we want to make the public aware of this great Lake Erie resource and educate people to preserve it."

Thanks to a grant from Ohio Lake Erie Commission and the Ohio Department of Natural Resources’ Office of Coastal Management, Kelch, along with fellow Extension Educator Joe Lucente, began researching and linking shipwrecks accessible from ports along Ohio that serve as the beginning of that structured program, identifying important sunken ships that the public can visit in Lake Erie.

A total of 28 Lake Erie shipwrecks are now showcased on a new brochure and a Lake Erie Shipwrecks & Maritime Tales
web site (www.ohioshipwrecks.org), which is being launched in the spring. The site features a map of all the Lake Erie shipwrecks, historical images of the ships, accounts of the vessels’ history, underwater video clips, and descriptions of what divers can see. The brochure also includes the locations of the lake’s lighthouses, maritime museums, and museum ships that are also a part of the lake’s heritage.

A few of the interesting ships people can now view include the Success, a reported prison ship from the late 1800s that is now in ten feet of water offshore of the Port Clinton beach. The Morning Star rumored to have $250,000 worth of gold, collided with the Cortland in 1868 and is eight miles off of Lorain. The Anthony Wayne, one of Lake Erie’s famous ghost ships, was found just this past year off the shores of Vermilion.

“What’s great about this is people who are interested in maritime history or plan to visit or scuba dive in Lake Erie, now can get on line and have access to some great detailed shipwreck information,” says Kelch. “Even if you are not a diver, you’ll be able to experience Lake Erie’s rich maritime history and actually view underwater images of its shipwrecks. The stories that have emerged are fascinating.”

The key to the project has been successful partnerships Ohio Sea Grant Extension established early on to guarantee the right shipwrecks were showcased. With hundreds of shipwrecks out there, they wanted to be certain they highlighted the most interesting and viewable ships. “We immediately turned to historical and maritime archaeological experts who know the vessels’ history, as well as reached out to the scuba community that regularly dives them,” says Kelch.

Representatives from the Great Lakes Historical Society (Peachman Lake Erie Shipwreck Research Center) in Vermilion, Bowling Green State University’s Historical Collection of the Great Lakes, Ohio Historical Society, the Lake Erie Coastal Ohio Trail national scenic byway, as well as scuba experts from the Maritime Archaeological Survey Team and Cleveland Underwater Explorers worked with Extension to identify the sunken ships.

“This project reinforces that from its lighthouses dotting the shorelines to its depths of maritime heritage, Lake Erie is an amazing place with lots to offer,” says Lucente. Ti.

For more about this Ohio Sea Grant Extension project, visit www.ohioshipwrecks.org or contact Dave Kelch at 440.326.5851 or Joe Lucente at 419.213.4254.
Ohio State University
Comes to the Aid of Stone Lab
by Daniella Nordin, Ohio Sea Grant Communications

Conventional wisdom would lead you to believe that an island surrounded by water and so close to mainland would have no problem getting a supply of fresh, drinkable water. But for Ohio State’s Stone Lab, an efficient and ecologically friendly way to get such water was, indeed, difficult.

For years, Stone Lab used a reverse osmosis water treatment system and a well to supply its residents with water. With new water regulations in place for the Put-in-Bay area in 2006, Stone Lab switched to a combination of bottled water and Put-in-Bay water by barge. “We wanted to find the best, most cost effective alternative to supply our students and researchers with water, so we were extremely happy when Ohio State departments offered their guidance, expertise, and financial support to find a solution,” says Jeff Reutter, Director of Stone Lab. Thanks to the leadership of OSU Facilities and Operations department, Stone Lab now has a supply of water that is not only more cost-effective but also more environmentally friendly.

Bo Zhang, Project Manager for Ohio State’s Facilities Operations and Development, and his team of engineers used a directional boring technique to place a 1,300-foot long, 14-inch wide, high-density polyethylene pipe 10-50 feet below the Lake floor from Gibraltar Island to Put-in-Bay. The polyethylene pipe, which is the longest underwater sewage line in OSU history, prohibits pollution leakage into the lake. According to construction manager, Mark Scott, “The only thing that degrades these pipes is sunlight, and since this pipe won’t see sunlight because it’s underwater, it could last anywhere from 50 to 100 years without needing to be replaced.”

The directional boring technique is used when trenching or excavating isn’t practical and disruption to the surrounding environment must be minimized. “The directional boring machine pushes a moving tip through the ground, creating a new pipeline,” explains Scott. “The moving head turns two degrees in any direction and grinds through the mud. OSU was worried about the environmental sensitivity of the site, so we worked with the Ohio Department of Natural Resources (ODNR), the US Army Corps of Engineers, and the Ohio Environmental Protection Agency to ensure there would be minimal damage to plants and animals and to meet environmental regulations.”

One animal in particular was a concern to native islanders: the Lake Erie water snake (LEWS). LEWS are a federally threatened, state endangered species. “We were especially concerned about the effects that all the construction and digging would have on LEWS habitat,” clarifies Kristin Stanford, Stone Lab researcher and lecturer and LEWS outreach coordinator for ODNR.

Stanford, hired as a consultant for the construction project, captured 30 adult snakes before the digging started. During the course of the project, more than 600 offspring were born in captivity, and all were tagged. “Next year when we do our annual census, we’ll take a look at all the babies we tagged and have a better estimate of LEWS juvenile population and their survival rates on Gibraltar Island,” says Stanford. “The best part about it is that there was no adult mortality; OSU really went above and beyond the call of duty to protect LEWS.”

The new sewage line is a drastic change from the sewer sand filtering system previously used by Stone Lab. But Stone Lab staff is in talks to develop a unique way to turn something old into something new and useful. Plans are underway to remove the sand from the filtering system and convert the old sewage system into experimental ponds and aquaria.

“Having experimental ponds on site will allow us to manipulate lab settings and experiments,” says Matt Thomas, Stone Lab Co-Manager, who suggested the recycling idea. “It will add to Stone Lab’s amenities and make us more appealing to researchers and students.”

The final restoration and landscaping of the grounds that were disturbed by construction will be completed this spring. For now, Stone Lab is celebrating the completion of a successful and historical project. “The new pipeline will allow Stone Lab to function much more smoothly and efficiently in the future,” states Reutter. “It certainly demonstrates OSU’s commitment to our programs, Lake Erie, and our research, education, and outreach initiatives.”

For more information about Stone Lab, go to stonelab.osu.edu.

Ohio State University
Comes to the Aid of Stone Lab

Water, water everywhere, but not a drop to drink...
Stone Lab’s New Summer 2008 Courses
by Daniella Nordin, Ohio Sea Grant Communications

Stone Laboratory, Ohio State’s Island Campus on Lake Erie, offers more than 30 science courses for educators, as well as undergraduate, graduate, and high school students. New this summer are four courses that will add to the already diverse offerings available at the nation’s oldest freshwater biological field station.

**EEOB 694: Bird Census Techniques**
Lake Erie, one of the top birding spots in North America, hosts millions of migratory birds each spring. This summer, students will have the opportunity to learn various census methods including point counts, line transects, spot mapping, nest searching, mist netting, and many others starting June 8. The one-week course includes an all day excursion to the mainland to test census techniques, and late night surveys on South Bass Island. “This course is unique in that very few colleges or universities offer a course like this, yet many graduate students use these techniques in their research,” says Dr. Andy Zuwerink, Assistant Professor of Biology at DePauw University, and instructor for the course.

**EEOB 440: Introductory Ethology**
Beginning July 17, students will delve into the world of animal behavior for the first time with Drs. Andy Zuwerink from DePauw University and James Marshall from Denison University. During the five-week course, students will choose an animal from the Lake Erie region to conduct an ethogram, an in-depth description of the animal’s behavior, as well as several other behavioral experiments. “Stone Lab is ideal for this course because we have easy access to a wide variety of organisms,” explains Zuwerink. “I look forward to making this class a fun and great learning experience for the students.”

**ENR 567: Communicating Environmental Information**
Students interested in honing their visual, written, and oral communication skills will have an opportunity to do so for the first time this summer at Stone Lab. From July 17 to August 16, Dr. Greg Hitzhusen from OSU’s School of Environment and Natural Resources will lead students as they develop a “Researcher Profile” section for the Stone Lab web site, create display panels to communicate and identify issues of importance in the Lake Erie basin, and travel to research sites related to these issues. “With the tradition and resources of Stone Lab on hand, we’ll be able to focus on specific current research topics,” states Hitzhusen. “It will provide students with a great base for their own research and will allow them to move forward quickly into applied writing projects.”

**ENR 629: Ecology and Management of Wetland Birds**
The coastal wetlands of Lake Erie support one of the most diverse ranges of waterfowl in North America. During the week of July 6, students will visit Old Woman Creek National Estuarine Research Reserve, Sheldon’s Marsh Nature Preserve, and Winous Point Marsh Conservancy to collect and identify plants and aquatic invertebrates, call in marsh birds with recorded calls, and experience the long-standing waterfowl hunting tradition of the Lake Erie marshes. Partial day side trips to wetlands on the Bass Islands to observe wetland bird behavior and learn the external and internal anatomies of Canada geese are also planned. “Stone Lab is a great place to immerse oneself in the lives and habitats of the world’s most interesting birds—ducks, geese, swans, shorebirds, herons, egrets—you name it, we talk about it,” says Dr. Robert Gates, Associate Professor of Wildlife at OSU, and instructor for the course.

For a complete course listing and dates, visit [stonelab.osu.edu/courses](http://stonelab.osu.edu/courses).
Fisheries biologists use some pretty specialized equipment in their line of work. Unfortunately for many undergraduate students, opportunities to gain practical experience with those tools before pursuing seasonal positions in fisheries fields are relatively scarce. To provide this kind of valuable, professional experience, Stone Laboratory, in collaboration with the Ohio Environmental Protection Agency (OEPA) and Ohio Department of Natural Resources-Division of Wildlife (ODW), offered a first-ever workshop on the Fish Sampling Techniques of Ohio’s State Agencies at Stone Lab October 6-7, 2007. Participants included students from Kent State, Notre Dame, and Ohio State University.

The workshop was co-taught by four professional biologists: Ben Rich, an Environmental Specialist with OEPA, who demonstrated boat-based electrofishing; Eric Weimer, a Fisheries Biologist with the ODW’s Lake Erie Fisheries Research Unit in Sandusky, who instructed participants in trawling and gill netting techniques; and Eugene Braig, Assistant Director of Stone Laboratory and organizer for the workshop, who taught fyke netting. The safe deployment of all techniques was a common theme.

“This workshop is a great opportunity to foster the development of future professionals,” said Rich.

Recalling his years as an aquatic biologist, Smith noted the importance of gaining knowledge and experience in the field. “Some of my earliest experiences with aquatic fieldwork occurred during the time I spent at Stone Lab. It was rewarding being able to provide a brief exposure to fish sampling techniques to folks just starting out here, where I got my start. Hopefully, some of the folks attending the workshop will decide to pursue a college internship with the Ohio EPA as a result of this experience.”

During the two-day workshop, students were able to demonstrate techniques fisheries biologists commonly use in the field. “There is no other forum that I’ve ever heard of that gets the students’ hands on so many different kinds of sampling gear in such a short period of time,” Weimer emphasized. “This exposure provides a clear advantage when interviewing for entry-level positions and really makes a difference for some students when it comes time to find employment. We were also able to provide some insight and experience to a graduate student looking to design a sampling program for his research, which may result in important advances in fisheries science.”

After a successful pilot, the workshop will be offered again in Autumn 2008. See you there!
"I spent a total of 10 weeks on Gibraltar Island in the summer of 2004 as an OSU undergrad," he recalls. "I participated in the Research Experience for Undergraduates (REU) program, researching the effects of the round goby on young-of-year smallmouth bass, and took Fish Ecology, Ichthyology, and Limnology."

Foltz, who completed 18 college credits that summer, says Stone Lab was just the opportunity he needed. "I changed my major late in school and needed to knock out some course work," he explains. "Taking classes at a research field station seemed like a great idea, much more interesting, in depth, and hands-on than in a classroom setting. I chose Stone Lab over another field station because of its affiliation with OSU, so there was no hassle with transferring credits."

An OSU School of Natural Resources graduate, Foltz is currently pursuing his Master's degree in Engineering Science. His research examines environmentally relevant concentrations of toxic pollutants and their effects on trout and salmon. "Stone Lab reinforced my desire to continue in a scientific research field and to continue my education," he says.

When thinking about graduate school, Foltz knew his experience at Stone Lab would be an asset. "Expectations for students are high at Stone Lab. I learned how much I could accomplish in a short time—this has certainly helped me in grad school," he explains.

Foltz's time at Stone Lab not only helped him realize what he could accomplish under time constraints, but it also gave him confidence in his field of study. Working closely with Chris Winslow, his Stone Lab REU advisor, Foltz was exposed to scientific collaboration and teamwork. "The REU experience allowed John to learn about his strengths and interests," says Winslow. "Perhaps more importantly, it instilled a passion for learning, inquiry, and a deeper sense of what it takes to succeed in the scientific arena."

Describing his summer as "excellent," Foltz would have been able to attend Stone Lab without financial assistance, but accepting aid made the decision much easier for him. "I know that my Stone Lab experience, which was positive in so many ways, was a direct result of financial support," he states. "A person who donates to the Lab may or may not gain any direct benefit, but the knowledge a student gains at Stone Lab could lead to research that may benefit society."

When asked if he plans to return to Stone Lab in the future, Foltz admits that life after grad school is wide open. "I would love to attend Stone Lab again. If I could ever tie future research in with Lake Erie and, therefore, Stone Lab, I would," he says. "Where traditional classes try to simulate real world experience, you are a part of the experience at Stone Lab."

From the Eiffel Tower in France to the Parthenon in Greece to Gibraltar Island in Lake Erie, John Foltz is no stranger to exotic places. But the Washington State University graduate student says there's no place in the world quite like Stone Lab.
Dear friends,

Another summer of courses and research has passed and fall workshops have ended. Twenty-five classes were offered this summer and 190 students learned valuable information and gained an appreciation for the island we hold dear. The 2007 REU projects continued to impress. Projects ranged from predicting dissolved oxygen ratios to continued research on the Lake Erie water snake to investigating round goby nocturnal activity. This year marked the beginning of a new entomology project investigating the emerald ash borer on the islands. Approximately $37,000 was awarded to students this summer.

FOSL's passion for the island continues to be contagious. Motivated REU students from 2007 have created a student organization at Ohio State dedicated to promoting the island and keeping alumni together. Buckeye FOSL is led by President Aloah Pope (OSU Senior), Vice President Aaron Wibberley (OSU Sophomore), and Treasurer Max Castorani (OSU senior). Buckeye FOSL plans to focus its attention on public awareness, encouraging a link between the lab and students, and facilitating alumni contact.

Our 10th Annual Winter Program/Silent Auction was in February. As usual, the event was held at the Fawcett Center on the OSU Columbus Campus and raised $1,436, which will benefit Stone Lab programs and scholarships.

Mark your calendars for the next Stone Lab Open House, September 6th-7th.

In closing, don't forget to support the education and research programs of Ohio Sea Grant and Stone Laboratory by donating online at ohioseagrant.osu.edu/donate. I look forward to seeing soon.

Sincerely,

Christopher J. Winslow
FOSL President

Buckeye FOSL Created
by Aloah Pope, Buckeye FOSL President

Buckeye FOSL, the newly created student branch of Friends of Stone Lab (FOSL), intends to serve as a link between Stone Laboratory and the students of Ohio State University. This new FOSL student club promotes Stone Laboratory and creates a social networking organization for OSU students who have an interest in the lab. Eugene Braig, Assistant Director of Stone Laboratory, is the faculty advisor.

It is our mission to educate students about the opportunities available at Stone Lab, including classes, scholarships, the REU program, and employment opportunities. We hope to attract students of similar interests in a fun and informative way. This should enable interaction of current and future students with the faculty and staff of Stone Lab, as well as FOSL.

One goal of the club is to hold a fund-raising activity every quarter and donate the proceeds to the FOSL-Tuition Reduction Endowment Fund. This particular endowment was chosen because it gives us the opportunity to help reduce tuition costs for all Stone Lab students. We will also be hosting informational meetings and social nights to attract more students to Stone Lab. The club meets the first Thursday of each month. For meeting times and locations, please contact Aaron Wibberley at wibberley.1@osu.edu.

Bragging Rights

So you think you spent some time on the rock? Well we want to find out who just might be Stone Lab's most attentive student. Dig out those old transcripts or dust off the memory banks. We want to hear from you. We are looking for students/alumni, researchers, or faculty who might fall into any of these categories:

- Who has taken the largest number of courses at Stone Lab?
- Who has spent the most time at Stone Lab taking courses? (This may be different than the first category, as some classes have been 1, 2.5, or 5 weeks in duration.)
- Who has spent the most time as an active researcher at Stone Lab?
- Who first attended Stone Lab the longest ago as a student, researcher, or faculty member?
- Any other category that you think merits bragging rights!

Please send your contributions to the Stone Lab office in Columbus or e-mail them to Mike Heniken at mheniken@yahoo.com. All nominations will be carefully tabulated and the winners will be announced in a future newsletter.
The Friends of Stone Laboratory (FOSL) began in 1981 as a support group to “bring Stone Laboratory into the 21st century with the best possible facilities, equipment, and professors, and make this an unequaled learning experience available to all outstanding students.” Members of the Friends provide a way for former students to support the facility by raising awareness and funds for scholarships, research, and equipment.

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Kelly Dress, Office Associate (dress.3@osu.edu)

Dates to Remember
Stone Lab Open House &.......................... 09/06/08
FOSL Annual Mtg.
Buckeye Island Hop.............................. 10/4-5/08
Ready to be Reeled in...