

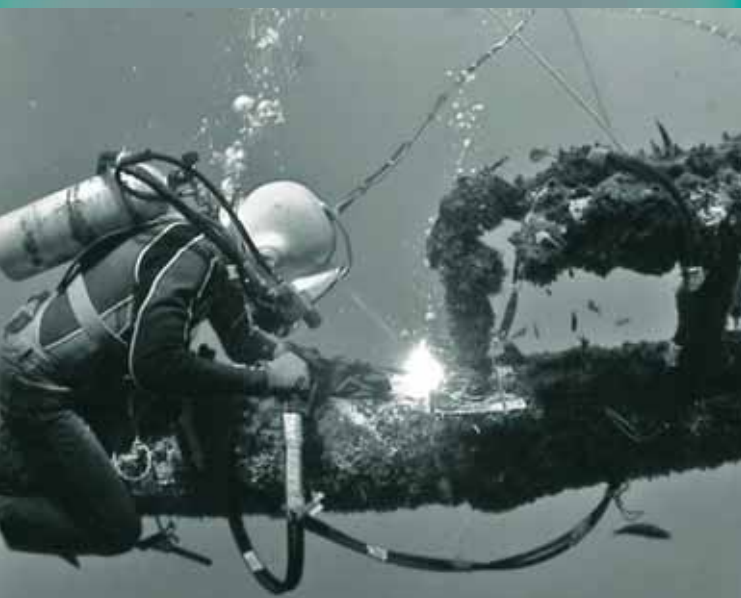
TWINE LINE

The educational newsletter of Ohio Sea Grant, covering issues, events, and research related to Lake Erie and the Great Lakes

The Welding Wizard

Researcher Builds Upon Achievements of Past Sea Grant Projects

by Jill Jentes Banicki, Ohio Sea Grant Communications



When Dr. Chon Tsai started his career in welding engineering over 30 years ago, “wet” welds—those made under water—were considered inferior to those made on land. Ships had to be dry docked to be fixed; underwater pipelines took too long to repair; and bridge construction and restoration were costly and inefficient. Now with cutting-edge research, a handful of international awards, and the only accredited college program of its kind in the nation, Dr. Tsai is a world leader in underwater welding technology.

And it all began in 1985 with one research project from Ohio Sea Grant.

“Our underwater welding program here at Ohio State started with that first Sea Grant project almost 20 years ago,” says Tsai. “The industrial community cried out for new underwater welding technology and Sea Grant saw the urgency and opportunity to advance it.”

First pioneering a method where a welding repair was done partly on land and partly underwater, Dr. Tsai’s work with underwater welding has developed as a series of steps in a long learning process. “Each Sea Grant project has built upon the achievements of the previous projects—as a problem was discovered by one of our projects, the next Sea Grant project would resolve it,” states Tsai.

One of the biggest hurdles to overcome, Tsai points out, has been the water itself. “Water creates problems for welders because it causes welded material to cool too rapidly,” explains Tsai. “The hydrogen in the water chemically reacts with the welded material,

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Twine Line Now a
Quarterly Publication

See page 2 for details.

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Highlighted Publications

- GS-020 Guides to Lake Erie's Historic Shipwrecks**
The Adventure, F.H. Prince, and W.R. Hanna
(\$15 for a set of three diver slates) (\$10 for orders of 20 or more sets)
- GS-005 Lake Erie Cookbook**
Information on how to select, handle, prepare, and store fish.
124 recipes for Soups, Appetizers, Sandwiches, Casseroles, & Main
Dishes using Lake Erie fish. 107 pp. (\$4)

A complete list of Sea Grant publications is available, as well as many downloadable publications, on our web site at www.sg.ohio-state.edu

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9/04

Name _____

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For Your Information

August Water Levels

Lake Erie's level declined seasonally during August. The mean level was 571.82 feet which is 0.16 foot lower than June's mean level and 0.10 foot above normal. The August 2004 level was .36 higher than the August 2003 level and 2.62 feet above the Low Water Datum elevation reference system. [TL](#)

Ohio Sea Grant Wins Two Communications Awards

Ohio Sea Grant Communications received two publication awards in the 16th Annual Awards for Publication Excellence sponsored by Communications Concepts. Jill Jentes Banicki's eight-part research review series highlighting current Sea Grant research won in the "Featured Series Writing" category. Stone Laboratory's promotional campaign, which included the Stone Lab brochure, flier, bus poster series, and display posters, won in the "Education & Training Campaigns & Programs" category. Sponsored annually, this national competition recognizes excellence in publications work by professional communicators. Congratulations to Sea Grant Communications. [TL](#)

Kelly Reisen Named New Fisheries Extension Coordinator

Ohio Sea Grant welcomes Kelly Reisen as its new fisheries extension coordinator. Kelly received her B.S. in environmental studies from Ohio Northern University where she interned twice for the Ohio Environmental Protection Agency as a fisheries intern and studied abroad at the University of Joensuu, Joensuu, Finland. After completing her degree, she began working as an aquatic workshop instructor with Ohio Sea Grant at Stone Laboratory. She later worked for Sea Grant as a research associate to help complete a steelhead trout angler survey in the streams of North Central and Northeastern Ohio. She went back to Stone Lab to lead our Science Workshop Program in 2003 for students from grade 4 through adults. Kelly's office is in the Lake Erie Nature and Science Center in Bay Village, Ohio. This unique partnership with the Center will provide Kelly with a ready-made audience of over 100,000 visitors annually. Welcome, Kelly. [TL](#)



Twine Line Now a Quarterly Publication

Since 1993, Ohio Sea Grant and the Lake Erie Commission have combined efforts to disseminate the latest Lake Erie information to our readers by combining and publishing our newsletters together six times a year—*Twine Line*, an eight-page newsletter with two pages devoted to the Friends of Stone Laboratory, and North Coast News—a four-page newsletter inserted into the middle of *Twine Line*. This partnership has been a very successful one with joint outreach projects and national communications awards.

Unfortunately, because of budget constraints, the Lake Erie Commission can no longer offer North Coast News in a hardcopy form. We recognize that it is important to many of our readers to receive *Twine Line*, however, we must deal with the loss of funding from the Lake Erie Commission. Therefore, we have decided to reduce the frequency of *Twine Line* from six times a year to quarterly. We will continue to produce a 12-page newsletter, expanding Sea Grant articles to nine pages per issue and Friends of Stone Lab to three pages. In this way our readers will continue to receive 36 pages of Sea Grant information and 12 pages from the Friends of Stone Lab each year. North Coast News will still be available on line at: www.epa.state.oh.us/oleo/.

In the upcoming issues, we will expand our editorial sections and provide an updated look to *Twine Line*. And since we always welcome feedback from our readers, please share your comments with us.

One for the Record Books

Ohio Sea Grant Hosts 15th State Legislature/Congressional Day

Ohio Sea Grant set several records on July 16—it was the 20th anniversary of its first combined State Legislature/Congressional Day on Lake Erie and it was the largest group ever to attend the event.

Starting with its first Congressional Day in 1982, Ohio Sea Grant has brought elected officials and decision makers to Lake Erie to learn more about the Lake and its impact on Ohio. “We strive to show those elected officials who may never have been to the Lake, why this resource is so important to Ohio, the region, and the country,” explains Dr. Jeff Reutter, director of Ohio Sea Grant and Stone Laboratory. “By spending an afternoon fishing, learning about important issues and our research on the Lake, and touring the island, we hope our *learning by doing* event will help our elected officials and decision makers to make more informed decisions about environmental, education, and economic issues facing Lake Erie and Ohio.”

The event began with a walleye lunch at Cedar Point and remarks about the value of Lake Erie and the Great Lakes by U.S. Senator George Voinovich, Congresswoman Marcy Kaptur, Ohio Representative Chris Redfern, and Ohio State University President Karen Holbrook. Dr. Reutter then presented two awards during the luncheon. Cedar Point received the Ohio Sea Grant Partnership Award for hosting every opening luncheon for the past 20 years. Jack Waldock, a Sea Grant Advisory Council member, received the Ohio Sea Grant Superior Leadership Award for pioneering the first Congressional Day event in 1982 and serving as our co-host for every program up until this year.

After lunch, attendees had the opportunity to try their hands at an afternoon of

fishing, touring Perry’s Monument, or (new to the event) exploring the South Bass Lighthouse. Later everyone gathered for a Stone Lab tour where they were able to use microscopes to analyze plankton samples and learn more about Sea Grant’s research on aquatic invasive species, water quality, and mayflies. Children got a special treat this year with a visit from the Island Snake Lady, Kristin Stanford, who had a variety of snake species to hold.

Following a cheese and wine reception and a barbeque dinner, Ohio Representative Bob Latta along with Melinda Huntley of Lake Erie Coastal Ohio and Norm Schultz of the Lake Erie Marine Trades Association spoke about the importance of Lake Erie.

Dr. C. Lavett Smith later received the Stone Laboratory Distinguished Service Award for his outstanding service teaching Fish Ecology and Ichthyology beginning in 1959 and spanning six decades. The following charter captains were also honored with an Appreciation Award for their support to Sea Grant over the years: Captains Norm Schultz, Mike Matta, Park Schafer, Tom Mayher, Jim Speer, John Clemons, Karl Krawetzki, and Greg White.

Special recognition is due to the organizations that contributed their time and financial resources.

- Cedar Point for hosting and providing a wonderful walleye luncheon
- The Jet Express for providing ferry rides to and from Put-in-Bay
- Charter captains for donating their time, boats, and expertise
- The Ohio Wine Producers and Lake County Visitors Bureau for donating grape juice, wine, and cheese for our reception at Stone Laboratory
- The Friends of Stone Laboratory and Ohio State’s Office of Student Affairs for providing the Stone Laboratory dinner BBQ (with a special thanks to Chef Art for the fabulous kebabs!).

We would also like to recognize the hospitality of Andrew Ferguson and his staff at Perry’s Monument and the dedication of John Kleberg and Representative Bob Latta, who hosted the tours in the Lighthouse and Cooke Castle. Many members of our advisory committees contributed countless hours to make our 15th event one for the record books! [TL](#)



OSU President Karen Holbrook at Lake Erie’s South Bass Island Lighthouse



Pictured from left to right: OSU President Karen Holbrook, Ohio Sea Grant Director Jeff Reutter, Cedar Fair, LP President Richard Kinzel, U.S. Senator George Voinovich, and Cedar Point Executive Vice President Don Mears (retired)

making wet welds brittle and traditionally inferior to welds done on land."

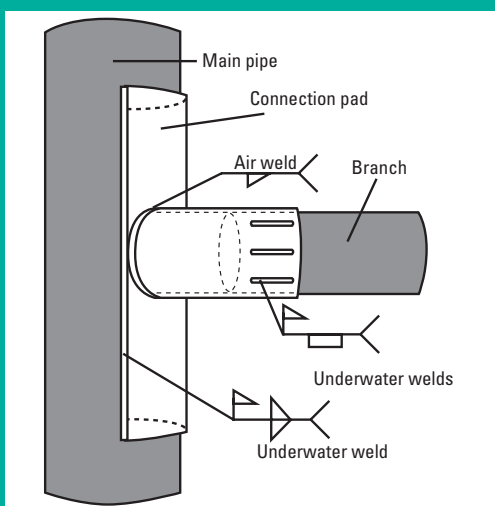
To decrease water's impact and presence, Tsai's first Sea Grant project limited the amount of wet welding in a repair by developing a method that combined air (land) welds with wet welds. The resulting product was a metal "pad" in 1989 that was first welded together on land and then submerged and attached to an underwater structure using wet welding (see Figure 1). By reducing the amount of wet welding, Tsai's innovative device decreased underwater welding costs by half.

But Tsai's goal was to get underwater welds equal in strength and ductility to the air weld. So he looked toward the existing technology.

Similar to land-based welding, underwater welding attaches pieces of metal by intense heat from an electric arc (see Figure 2). Shielded metal arc welding (most commonly used in underwater welding) uses a metal rod coated with minerals, metal powders, and organic materials (the flux) to create an arc of energy. As electricity flows through the rods to chemically react with the base metal, the arc protects the molten weld from the water by creating a gas "bubble" or "arc-bubble" around the arc area. "The rods being used in the early '90s, however, did not create an efficient arc-bubble to keep the water away from the weld," explains Tsai. Because of the rods' shortcomings, divers had to spend 70 percent of their welding time cleaning off the welding residue. Tsai wanted to find a way to improve those rods.

By enhancing the chemical make-up of the rod's flux (the chemicals that react with the arc and the base metal) and the waterproof coating, Tsai developed a new rod that decreased the water's effect on welded material. The improved flux created better and more efficient chemical reactions and arc and

Figure 1: By combining land welds with wet welds, Tsai's innovative metal "pad" cut underwater welding costs by half in 1989.



provided easier residue clean-up. Now used internationally, Tsai's new rods permit divers to double their welding time and cut their chipping time by half.

There were still problems with the existing technology—the rods only had a one-minute life; water still caused welds to be brittle; and welders still couldn't see their welds underwater.

Through another Sea Grant project in 1995, Dr. Tsai set out to eliminate the use of rods and instead incorporate an alternative technology called flux-core arc welding (FCAW). "Unlike the shielded metal arc process that requires changing the rod every minute, the FCAW arc is fed by a continuous wire feed which increases the welding time and ultimately the strength of the weld," states Tsai. Since there is a continuous energy source, FCAW reduces the weak spots in the weld left where the rods would be changed and reignited.

With an alternative to rods, Dr. Tsai still wanted to find a way to better shield the weld from the water and allow a welder to directly observe the weld. Enter Dr. Tsai's "Smartshroud" system in 1998. The product of several Sea Grant projects, the "Smartshroud" system is an intelligent system that integrates four basic elements: the

Achievements *(in chronological order)*

- 1985: First Sea Grant project is funded. Innovative Connection Pad design is estimated to save up to half the current costs of underwater welding.
- 1988: Conducts field evaluation of design and fabrication methods for underwater welding at Sea Grant's Stone Laboratory facilities on Lake Erie.
- 1990: The Thomas Edison Program of the State of Ohio joins Sea Grant in support of the development of new underwater welding electrode.
- 1991: Receives William H. Hobart Memorial Medal Award from American Welding Society (AWS) as a result of connection

- pad design and contributions to pipe welding, the structural use of pipe or similar applications.
- 1993: National Coastal Research Institute (NCRI) joins Sea Grant in support of the development of new underwater welding electrode.
- 1993: Conducts Sea Grant underwater welding technology dissemination workshop at the Ohio State University.
- 1994: U.S. Navy joins Sea Grant in support of a project for engineering assessment of weld joint design for underwater "wet" welds.
- 1995: Develops new underwater welding electrode that doubles welding time over existing rods.

- 1995: Receives Arsham A Mirikian Memorial Maritime Welding Award for underwater welding electrode design and improvement through the substitution of new methods in welding of maritime structures.



"Smartshroud," a spinning-arc joint tracking and arc status detection subsystem; an operation guidance console; and a helmet-mounted monitor. "By protecting the weld from the water and having the ability "see" the arc, we were on our way to make the wet weld just as strong and easy to monitor as a land weld," emphasizes Tsai.

The "Smartshroud" itself is an oval-shaped rod cover that shields the welding area and electric arc from water as the welder goes through a welding pass (see Figure 3). Equipped with welding parameter sensors and peripheral water curtain nozzles, the "Smartshroud" system allows a welder to monitor the welding current, arc voltage, and wire feed rate during the welding process. Water nozzles with flow control maintain a stable barrier to contain gas in the shroud. The spinning arc joint tracking system monitors the location of the arc, while the operation guidance console displays gaseous atmosphere inside the shroud, arc stability, and welding parameters. "Together with an in-helmet visual display, a welder can see whether his weld is on target and know exactly what parameters may need to be adjusted to make a good weld," emphasizes Tsai. "Being able to do this during the welding process is a big advancement over previous technology."

Tsai's team later enhanced the shroud by adding sponge or rubber layers to its base. This water jet shroud could better contour to the welding area and protect the arc from intruding water.

"We realized that not all welding surfaces are flat so we eliminated the sponge and added brush bristles to the shroud," explains Tsai. This shroud brush dam allowed the shroud to better shape to corners and hard angles.

Further tests analyzing the porosity and the strength of the weld confirmed that the "Smartshroud" system produces a strong weld. "Welders can now produce air-quality welds using the "smartshroud" system," says Tsai.

With a new goal in mind, Dr. Tsai continues his research by introducing the "Smartshroud" system to the deeper water environment. "Now that we have the weld equivalent to the air weld, we need to get the technology down to areas where it is difficult for welders to venture," says Tsai. His next step is to make the "Smartshroud" attachable to a mechanical arm. "Our hope is that with such technology, welders will safely reach and repair welds that are deep in our waters without

physically going down there," concludes Tsai. Considering Dr. Tsai's track record, that goal will likely be reached.

For more information about Dr. Tsai's Sea Grant research, contact him at tsai.1@osu.edu or 614.292.0522. [TL](#)

Figure 2: A rod used to repair underwater structures, is coated with a water-proof layer and the flux. As the flux chemically reacts to the components of the base metal, an arc of energy is produced to protect the molten weld from water. Tsai's new electrode in 1995 enhanced the chemical make-up of the rod's flux which doubled welding time over the existing rods.

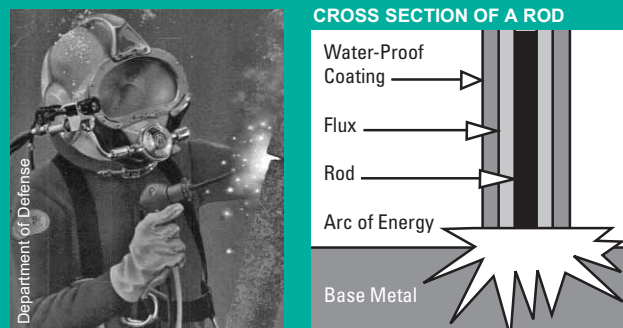
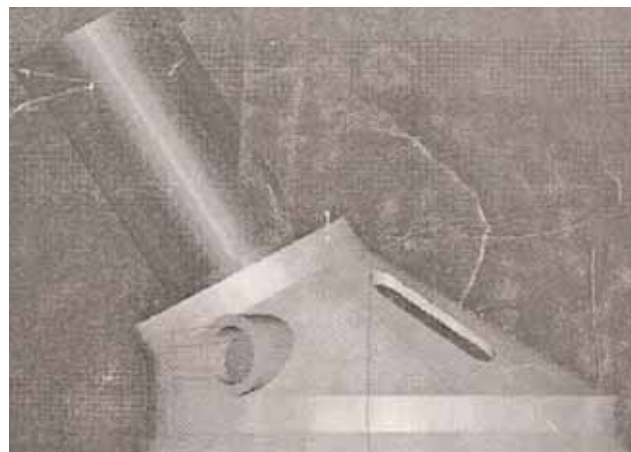


Figure 3: Tsai's "Smartshroud" is an oval-shaped cover (attached to the end of a rod) that holds the arc-bubble in order to shield the weld from the water. This device along with a tracking system, guidance console, and an in-helmet visual display, allow a welder to literally "see" a weld in progress and adjust parameters to make a good weld. Using Tsai's innovative "Smartshroud" system, welders can now produce air-quality welds.



- | | | |
|---|---|--|
| 1995: Establishes welding industry consortium, Ohio Underwater Welding Center, through support of Ohio State's Office of Research; College of Engineering; Industrial, Welding, and Systems Engineering Department; and Ohio Sea Grant. | 1997- Receives the A. F. Davis Silver Medal and Award twice in consecutive years for the excellence of papers on underwater welding repairs and joint design in the field of maintenance and structural design. | 1999: Leads Sea Grant sponsored national workshop at Put-in-Bay testing new underwater welding technologies. |
| 1995: Conducts a one-day underwater welding clinic at the Ohio State University. | 1997: Develops smart underwater "wet" welding gun for underwater GMAW and FCAW welding process that improves bend ductility of the weld. | 2000: Leads Sea Grant co-sponsored international welding workshops in Taiwan. |
| 1996: Incorporates new FCAW process into Sea Grant and University research to use flux-cored wire for semi-automatic underwater welding and increase strength of wet welds. | 1998: Leads a joint US and Canadian construction diving team testing the new underwater welding electrode in the diving tank at Edison Joining Technology Center at the Ohio State University. | 2000: Develops microprocessor-based joint tracking and operation guidance system to increase arc stability. |
| | | 2000: Elected to American Welding Fellow in recognition of outstanding and distinguished contributions that have enhanced the advancement of the science, technology and application of welding. |
| | | 2002: Develops the "Smartshroud" system, a four element system that ultimately produces air-quality weld. |

Virtual workshops

Direct to your school from Ohio State University's

Stone Laboratory on Lake Erie



Excite your science class with an experience in aquatic ecology without leaving the classroom! Meet required grade level Benchmarks and Indicators with activities using local organisms and issues to teach global concepts in life science.

Staff from Ohio State University's Stone Laboratory on Gibraltar Island will guide students in a 45-minute class period filled with live demonstrations and discussions about life in the lake, and how lake studies show environmental changes over time.

Choose from the following programs for this academic year:

Ins and Outs of Lake Erie Fish

Students will learn how to use a dichotomous key to identify Lake Erie fish and dissect a fresh fish to identify internal organs.

Macroinvertebrates, Mayflies and Monitoring

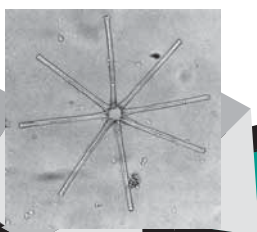
Students will discover how biological monitoring can be done by collecting and identifying macroinvertebrates.

Plankton Pros and Cons

Students will learn how to collect and identify plankton samples from Lake Erie and discuss current concerns about *Microcystis* and the Dead Zone.

Specifics about each program including an overview of the program and course materials used can be found at

www.sg.ohio-state.edu/osgrant/education.



Presenter:

John Hageman, Stone Lab Manager

Time:

45 minutes (adjustable by +5").
Choose your own time of day to match class needs.

Grade/subject:

Best suited for high school biology or middle school life science.
Meets Ohio science benchmarks and indicators for Life Science grades 5-12.

Technology:

Broadcasting from PictureTel over three BRI's H.320 @384Kb. Bridge generated through UNITS at Ohio State; no Off Net dialing available.

Sea Grant
Ohio Sea Grant College Program

Contact:

John Hageman [Hageman.2@osu.edu or 614.247.6500] to arrange dates and times in April-May or September-October.



Teacher Fellowships

at Ohio State University's Stone Laboratory on Lake Erie

The Ohio Sea Grant Education Program will support three teachers as Stone Lab Fellows for 2005 and up to eight in 2006.

The program offers:

- Full-time summer tuition at The Ohio State University [10 credits minimum, up to 19+ possible]
- Stone Lab enrollment in at least three Educator courses and Seminar [required]
- Room and board for three weeks at Stone Lab
- Stone Lab Fellow recognition at events during the year
- Academic year involvement in curriculum development on-line
- Potential for second year of support for Stone Lab courses

Qualifications for the positions:

- Classroom science teacher in any of grades 5-12
- Demonstrated use of multimedia in class

- Professionally active [membership in NSTA, SECO, EECO, etc]
- Interest in integrating the science curriculum around Great Lakes topics
- Eligibility for admission or current enrollment in a graduate degree program
- Not limited to Central Ohio teachers, but tuition is for Ohio residents

Applications should consist of:

- Letter stating reasons for wanting to be a Stone Lab Fellow
- Current resumé
- GRE scores, preferably in the last 5 years
- Transcripts of undergrad and other graduate work [copies ok]
- Sample of material developed for teaching or presentation
- Two reference letters commenting on professional activities, integrative and innovative teaching

Deadline for application:

February 11, 2005

Contact Dr. Rosanne Fortner for additional information as needed.
[fortner.2@osu.edu]

On-line Course for Teachers



NR690D: Alien Species Education

Winter and Spring Quarters 2005, credits: 2 U, 2 G & 2 CEUs

A new course offered through Ohio State University's School of Natural Resources is designed to educate teachers about exotic and invasive species and to provide activities and methods for integrating exotic species education into education settings. The course is offered online with no required class meetings. Most activities require interaction with students.

Objectives:

Teachers who successfully complete this course will be able to:

- Describe the entry mechanism and impacts of at least eight different types of exotic species that have entered the U.S. ecosystem;
- Identify sources of accurate, current information about exotic species;
- Demonstrate ways to educate their students about exotic species and the threats such species pose to their local environment;
- Design a curriculum activity to teach about exotic species in their classroom.

Format: The course is taught online, asynchronously. The web site is available at <http://earthsys.ag.ohio-state.edu/alien.htm> and you must have a username and password to login [available from the instructor at registration]. The course materials will be available January 3 to March 11 and March 28 to June 3.

Course materials: All course materials are available online from the course web site. You must have computer and Internet access to complete the course. Most pages have printable formats for working offline if needed.

Topics to be addressed in the course include:

Origin, ecosystem impacts, and control of exotic species
Methods for learning about local and regional exotic species threats
Ways to integrate exotic species education into your school and community

Course activities:

Exotic species match-up [your own pretest]
Web evaluation activity
Final project [development of an activity, guidelines provided]

Activities to be completed with your students:

Task One: Exotic species match-up
Task Two: Monsters in the Lakes?
Task Three: Backyard activity
Task Four: Painting a picture of exotic species
Zebra mussel decision activity

Evaluation: Grade contract can be negotiated.

A letter grade, not simply S/U, is earned by submission of:

Task 1 class results, tabulated 10%
Tasks 2-3 class activity reports 15% each
Task 4 samples of student work 10%
Web site evaluation 10%
Development of an activity 40%

Instructor:

Rosanne W. Fortner
OSU School of
Natural Resources

[fortner.2@osu.edu]

Open for Business

Ohio Marinas and Boaters Pledge to Keep Ohio Waterways Clean

Ohio marinas and boaters can now take action to improve waters with the help of two new programs, the Ohio Clean Marinas and Clean Boater Programs. Officially launched at the North American In-Water Boat Show in September, the two new programs show people how they can keep waterways clean.

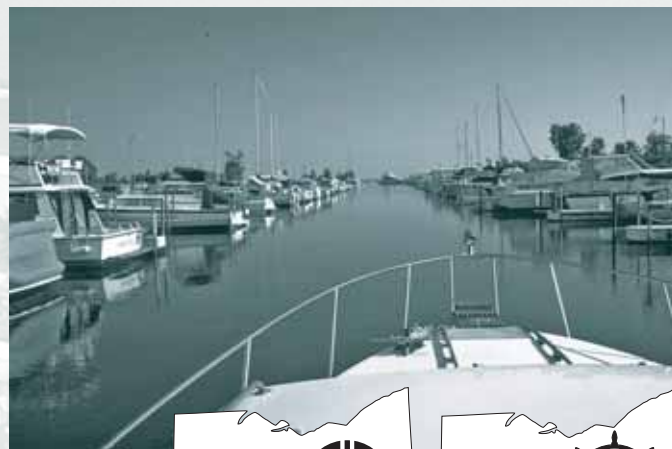
"Lake Erie is arguably the most important lake in the world, but since 1996, the ecosystem has been on a downward spiral," stated Dr. Jeff Reutter, Director of Ohio Sea Grant. "The Clean Marinas and Boater Programs will allow marinas and boaters—people who depend on Lake Erie for their livelihood and their recreational enjoyment—to do their part to improve the Lake Erie ecosystem. I encourage Lake Erie boaters to use marinas that are Clean Marinas."

To become an Ohio Clean Marina, marinas take the Clean Marina Pledge and agree to within one year bring their marinas into compliance with all state and federal regulations along with management goals identified by the advisory board. In exchange, marinas can advertise themselves as clean marinas and be eligible for components of the Ohio Clean Marina incentive package.

Ohio Clean Boaters on the other hand are expected to abide by the Best Boater Practices listed within the program's clean boater brochure. "These practices include simple tasks like disposing of trash and fish waste properly and remembering to keep your boat's engine well tuned to avoid oil and fuel leaks," stated Leroy Hushak, administrator of the Ohio Clean Marinas Program. "Our hope is that people will easily incorporate these practices into their normal regime and in the process keep our Ohio waters clean."

Initiated for only a month, the two programs have been well received with eight Ohio marinas and over 200 boaters already taking the Clean Marina and Clean Boater pledges.

Clean marina workshops are currently being scheduled for the fall and include a November 16 workshop at the Lake Erie Nature and Science Center in Bay Village, Ohio from 10:00-3:00. To sign up for a workshop, call Leroy Hushak at 614.292.3548 (hushak.1@osu.edu) or Dave Kelch at 440.326.5858 (kelch.3@osu.edu). Check the web site as more workshops are



being planned for January and February.

For more information about how you can become a clean boater or marina or to download reference materials, go to the Ohio Clean Marinas web site at www.ohiocleanmarina.osu.edu or the Ohio Clean Boater web site at www.ohiocleanboater.osu.edu.

Administered by Ohio Sea Grant with funding from NOAA, the Ohio Clean Marinas and Boater Programs are collaborative efforts between agencies and organizations involved in the boating industry, including Ohio Sea Grant, Ohio Department of Natural Resources, Ohio Environmental Protection Agency, Ohio Department of Health, Ohio Department of Commerce, U.S. Coast Guard, Ohio Lake Erie Commission, the Lake Erie Marine Trades Association and the Greater Cleveland Boating Association. The Ohio Clean Boater Program is a component of the Clean Marina Program and funded by a grant from Ohio Lake Erie Commission's Lake Erie Protection Fund.

2004 Ohio Clean Marinas Pledge

The Ohio Clean Marina Program promotes and facilitates voluntary adoption of measures to reduce pollution from marine and recreational boats. Designated "Clean Marinas" are recognized as environmentally responsible businesses.

As the first step toward achieving Clean Marina status and on behalf of:

(Name of marina or boater(s))

I pledge to do my part to keep Ohio's waterways free of harmful chemicals, excess masts, and debris.

I will identify opportunities and implement practices to control pollution associated with:

- Fuel management and repair
- Fuel management
- Storage handling
- Oil, fuel, and hazardous waste
- Storm water runoff
- Facility management

I currently do not actively practice full standing as an Ohio Clean Marina. Within one year of the date below, I will implement appropriate environmental stewardship practices and will apply to the Ohio Clean Marina Program for recognition as an Ohio Clean Marina.

Name of Marina Owner _____ Date _____

Name of Marina Manager _____ Date _____

Donate Now to FOSL's Silent Auction

The Friends of Stone Laboratory (FOSL), the support group for Ohio State University's Stone Laboratory is seeking items for its annual Silent Auction on February 23, 2005 at Ohio State's Fawcett Center.

"Donating to the Silent Auction demonstrates a commitment to the program and our research, education, and outreach activities on Lake Erie," says Dr. Jeff Reutter, director of Stone Laboratory. "I want to thank and commend all past donors as their gifts have provided scholarships for students, purchased equipment for classes and research, and much more. Through their continued generosity and the generosity of new donors, I hope we can have an even larger silent auction in the future."

Auction items range from fine dining and vacation getaways, to vintage lab equipment and other Lake Erie related items. Proceeds from the auction go directly to supporting existing programs.

For more information about how to donate tax-deductible items for the auction, send an email to Nancy Cruickshank at cruickshank.3@osu.edu.



Dr. Chris Stanton

Dear Friends,

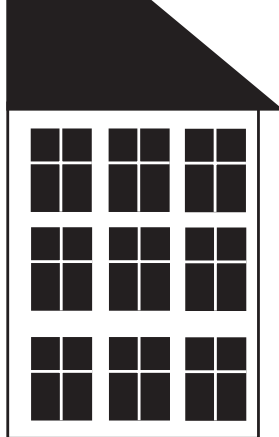
Looking back over the past year I am encouraged by the improvements that FOSL has been able to make to Stone Lab and its programs. Many individuals have donated a lot of time and effort to maintain the success that is found on Gibraltar Island in introducing Lake Erie to new students, citizens, scientists and policy-makers. I am confident that this trend will continue this coming year with our new FOSL Board members.

In addition to my service to FOSL, I also teach for the Stone Lab summer program. This past summer my class had eight motivated students but this number is low compared to past years. Only one of the students was from my home institution (Baldwin-Wallace College). Looking over the numbers, the non-OSU Stone Lab faculty has not done a good job in recent years recruiting students from their home schools. This coming year I plan to significantly increase the number of Baldwin-Wallace students attending Stone Lab in Summer 2005 and I encourage other faculty to improve their numbers as well. I feel that the Stone Lab faculty has a responsibility to help fill their classes, avoid course cancellations, and continue the teaching excellence so many students have experienced. Otherwise, much of the dedication and hard work accomplished by FOSL and others will go unnoticed and not fully appreciated.

So let's step up recruitment efforts, increase the number of summer students, and make FOSL's hard work really pay off next summer!

Sincerely,

Chris Stanton
FOSL (Past) President
cstanton@bw.edu



FRIENDS OF STONE LABORATORY

Stop, Look and Read!

Each year, thousands of visitors to Put-in-Bay and South Bass Island explore the island. As most of these visitors travel along the bay and make their way out to Peach Point, they become aware that The Ohio State University has some sort of facility there. Often die-hard Buckeyes paused long enough to have a photo taken, as a remembrance, next to the OSU sign. Now visitors to this part of the island can stop, rest, and learn what Stone Laboratory and the Ohio Sea Grant Program are all about.

An informational kiosk was constructed this past summer in the area across from the Bayview Office and next to the Research Building. The kiosk area offers visitors a nice place to sit and relax, while viewing this beautiful perspective of Put-in-Bay. The kiosk contains informational displays which showcase the educational program at Stone Laboratory, Lake Erie environmental issues, as well as the Friends of Stone Laboratory and Ohio Sea Grant. Visitors to this part of the island now have the opportunity to become more aware of the activities of OSU, Ohio Sea Grant and Stone Laboratory in relation to the areas of education, economy, and the environment of Lake Erie.



Outreach Experiments

This summer Stone Laboratory experimented with some new ways to inform the general public about Lake Erie issues and the programs at Stone Laboratory. Starting in July, Stone Laboratory offered a mini-open house each Wednesday afternoon. Visitors could come out to Gibraltar via the water taxi. For a nominal fee, visitors were given a tour of Gibraltar and offered some hands-on experience in the laboratories. The program started slowly but gained momentum as time went on.

Due to the success of this offering, Stone Lab partnered with the Lake Erie Islands Historical Society, ODNR's Aquatic Visitors Center, Perry's International Peace Memorial, and the water taxi to offer something called the "Eco-History Passport." This passport offered a well rounded, family oriented series of activities for the visitors to Put-in-Bay. Passport holders could pay one very affordable fee and take a tour that includes the Monument, Historical Museum, Aquatic Center, Stone Laboratory, and even the South Bass Island Lighthouse. These activities were both educational and entertaining for everyone!

In late September and early October, Stone Laboratory also offered special events targeted to attract potential students to the lab's summer programs. One open house was specifically geared for high school students and their parents and teachers. This program made prospective high school students aware of the courses available to them at Stone Lab while still attending high school. Teachers were made aware of the introductory classes available to their high-

achieving students, as well as the upper level courses that are specifically geared to the teachers themselves. Many teachers utilize these courses to complete graduate degrees, become certified in additional subjects, or just to become more informed and prepared for their classrooms.

A second open house was also aimed at teachers to make them aware of the Stone Lab's Science Workshop Program offered during the spring and fall seasons. Both programs offered hands-on experience for the participants, allowing them to get a glimpse of what student life is like at Stone Laboratory. These programs were offered free of charge to the target participants.

Dr. Smith Honored

Dr. C. Lavett "Smitty" Smith was honored during Ohio Sea Grant 15th State Legislature/Congressional Day on Lake Erie. Dr. Jeff Reutter presented Dr. Smith with the F.T. Stone Laboratory Distinguished Service Award.

Dr. Smith was recognized for his long and outstanding career of teaching Fish Ecology and Ichthyology. He began teaching at Stone Lab in 1959 and this past summer marked his final summer, a remarkable career spanning six decades.

Dr. Smith is now the Emeritus curator of the Department of Herpetology and Ichthyology of the American Museum of Natural History, New York City. His career has included teaching and research throughout the United States and the world. He has published numerous fish related books, both for the scientific and lay communities. He continues to maintain his research activities even in retirement.

Dr. Smith is representative of the caliber and quality of professors that Stone Laboratory continues to attract. He is one of a long list of "colorful" personalities that have brought their expertise to the students at the Lab. We are very lucky to have scientists and researchers, like "Smitty", who are willing to share their time and knowledge with us.

Island Beautification

Many thanks to Barnes Nursery of Port Clinton and Huron, for the landscaping work they did on Gibraltar Island this summer. The island was spruced up in preparation for the State Legislature/Congressional Day. Several areas around the island, particularly the dining hall and the Waldock Gazebo, were worked on. The landscaping gave a colorful upgrade to the surroundings, in keeping with the island's natural setting.

Master Jugglers

We all know that Stone Laboratory houses the oldest freshwater biological field station in the country. The

summer academic programs are second to none in the quality of the education and experience gained. The spring and fall seasons are when the science workshop programs expose literally thousands of grade school, middle school and high school students to the Stone Lab experience. While all of these long standing programs are taking place, the expert and professional staff are also juggling the details necessary to host a wide variety of other groups and meetings at Stone Lab. This past season, Stone Lab hosted the Ohio Sea Grant's 15th State Legislature/Congressional Day, Great Lakes Aquatic Ecosystem Research Consortium (GLAERC), National Wildlife Federation – Outdoors Writers Conference, Coastal Resources Advisory Council, Stone Laboratory Open House, Great Lakes Sea Grant Network Conference, 3rd Annual Buckeye Island Hop, as well as visiting scientists from Sweden, Norway, England, Canada, Kenya, Hong Kong, and Korea. Coordinating all of the details of boat schedules, meals, and room space is a daunting task. Thanks to the teamwork of all of the work units and their respective staff, Stone Laboratory presents a very impressive program to all of these esteemed visitors.



Endowments Grow

Stone Laboratory is very pleased to announce the establishment of the Jackson & Sally Smith Scholarship Endowment. This new endowment is a general scholarship award for students at Stone Lab. The Smiths are from Toledo and regularly sail Lake Erie's waters in their sailboat *Serendipity*. Their wonderful gift will benefit many students in the future.

Open House 2004 and 2005

This year's Stone Lab Open House/ FOSL Annual Meeting was held the weekend of September 11. Organizational plans were put in place early on Saturday and visitors began arriving on Gibraltar shortly before 11:00. The two research boats ran continuously, shuttling visitors back and forth for the entire afternoon.

Numerous Staff and FOSL volunteers did their best to provide visitors with a glimpse of the history and programs available at Stone Lab. By the end of the afternoon, the tally of visitors to Gibraltar and the Lighthouse exceeded 1,300 people. This was the largest crowd ever to have passed through the facilities during an Open House program. It is very rewarding to see the interest and smiles exhibited by all of the many visitors and their families, as they come to understand what Stone Lab is all about. Many thanks go out to all of the staff and volunteers for helping to create this effective outreach and educational opportunity. Mark your calendars as next year's Open House will be on September 10, 2005 and will again include tours of Gibraltar and South Bass Island Lighthouse.

Because of the event's success, the actual business meeting for FOSL always seems to get abbreviated. It is difficult to get all of our visitors off the island, so the Friends can have their special time. Nevertheless, all of the Friends did spend the remainder of the day learning about the past year's activities and some of the goals for the future. Summer attendance has been dropping somewhat over the past few years. We need for all members of FOSL to do what they can to promote Stone Lab to their friends, local high schools, and potential college students. On very positive notes, there continue to be many improvements made to the facilities, two new staff people were added this summer, research at Stone Lab continues to be very strong, and FOSL endowments have grown over the past year. The proposed FOSL Board for 2004-05 was approved prior to adjournment. Everyone then enjoyed a great dinner prepared by the amazing and talented Chef Art. The remainder of the evening saw the annual chaos of the "Carp Cup," followed by a very interesting presentation by Matt Thomas, Assistant Lab Manager, on the geographic scope of Stone Lab research programs conducted in Lake Erie. *FOSL*



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Franz Theodore Stone Laboratory, Ohio's Lake Erie laboratory, offers intensive, hands-on university field courses from June to August in biology, geology, education, and natural resources. Workshops and group field studies are offered from mid-April through October. Research in aquatic, terrestrial, and island sciences has been conducted year round since 1895.

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.

FOSL Board of Directors

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Joan Bradley, *Secretary*
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Lisa Bircher
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Donation Form

9/04

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- ☐ Frederick Memorial Scholarship (*non-OSU*)
- ☐ FOSL General
- ☐ FOSL Scholarship
- ☐ FOSL Sustaining (*equipment, supplies, etc.*)
- ☐ FOSL Visiting Professor
- ☐ Langlois Research Fellowship
- ☐ Special Publications
- ☐ Franz Stone Research

Make check payable to: Ohio State University Foundation
Return this form to:

c/o Friends of Stone Laboratory, (Attention: John Tripp)
1314 Kinnear Road, Columbus, OH 43212-1194



The Ohio State University
1314 Kinnear Road
Columbus, OH 43212-1194

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*For answers to Lake Erie-related questions,
visit the Lake Erie Information Discussion
Board at www.sg.ohio-state.edu/discus*

Walter Williams, Cleveland

What is Regenerative Development?

Regenerative Development is building active and sustainable communities based on social justice and mutual respect. It is a natural systems approach that comprehends and builds on the complex human, natural, and economic relationships that creates and sustains the vitality and viability of a place. It is about understanding engaging with, and perhaps altering power structures to remove those barriers that prevent people from participating meaningfully in social affairs and decision making processes that affect their lives.

The creation of thriving, economically sustainable, environmentally-friendly, and socially-integrated communities requires foresight and vision. Communities wishing to engage in this type of development must receive commitments from the local government, the business community, and work cooperatively with an environmental group(s).

In reality, those efforts to solicit the commitments from the residents, city officials and environmental groups are more difficult since the downturn in our economy in 2001. Many communities have faced the dilemma of choosing either a healthy economy or a high quality of life. In Northeast Ohio, our civic officials realize that degrading the quality of life by trashing the environment for the sole purpose of increasing investments and job growth could possibly prevent future investment and job growth. Communities that protect their quality of life and natural assets increase their chances of prospering in the long term.



Local Regenerative Development

The Cuyahoga County Planning Commission is implementing the Cuyahoga Valley Initiative. This initiative successfully incorporates regenerative development concepts of social, economic and ecological health and recognizes that they are interdependent and mutually beneficial.

This initiative has Maingate Development (a local Community Development organization) taking the initiative to attract businesses that will eventually utilize the by-products of one company as the raw materials for another company. At the same time, efforts to create recreational opportunities, connect neighborhoods and restore the natural environment are currently taking place. Bridges and other physical structures are being designed to blend naturally within the environment.

For more information about the Cuyahoga Valley Initiative, go to www.cuyahogavalley.net. TL

