

TWINELINE

2005 SPRING EDITION VOL. 27/NO. 2

The Teacher of Teachers

by Jill Jentes Banicki,
Ohio Sea Grant Communications



INSIDE TWINELINE

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

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Pioneer Sea Grant Researcher Concludes Extraordinary Career

Her numbers are beyond impressive—more than seven million dollars of research money generated over a 27-year career at Ohio State University; 57 graduate students; over 120 classes taught in two different Ohio State department appointments; 26 years of Ohio Sea Grant research funding; and the most published author of marine education research (87 articles) in the Educational Resources Information Center abstracting system.

But if you ask Dr. Rosanne Fortner what her biggest accomplishment is, she'll say only one thing—teaching current and future teachers science and marine education. “There is nothing more exciting than helping teachers see their potential as science educators,” says Fortner. “I have had the opportunity to meet and teach some of the most talented and extraordinary teachers.”

She began her own career as an earth science teacher, but it wasn't until her years as a marine radiologist at Oregon State that Fortner realized she wanted to specifically teach marine and ecology education. “It was amazing to see how the slightest amount of radiation affected even the most primitive marine organisms,” explains Fortner.

“It was in that aquarium-based lab that I got the marine education bug.”

Owing her interdisciplinary background to Georgia Sea Grant's Dr. Will Hon, her “inspirational icon,” Fortner completed her masters in geological oceanography and education and her doctorate in science education.

A National Marine Education Association conference led her to Ohio State in 1978. “I came here almost 30 years ago because of a Sea Grant project—the first Ohio Sea Grant project ever funded, actually,” states Fortner.

Working with Ohio State's Dr. Victor Mayer, the project introduced science teachers to a series of curricula that taught how to incorporate such ecology topics as pollution contamination, changing water levels, and lake fish and bird species into their existing science curriculum. The first of its kind, the OEAGLS (Oceanic Education Activities for Great Lakes Schools) series helped students connect oceanic issues to a regional place they knew—the Great Lakes. “With OEAGLS, middle and high school students learned why the Great Lakes are so important and could relate their characteristics to those of the world's oceans,” explains Fortner.

Over the next few years, OEAGLS expanded into more issue-oriented topics like PCBs, erosion, and

FOR YOUR INFORMATION

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June Water Levels

Lake Erie's level declined during June. The mean level was 571.92 feet which is .29 foot lower from last month's mean level and .06 foot below normal. The June 2005 level was .16 feet lower than the June 2004 level and 2.72 feet above the Low Water Datum elevation reference system.

Pledge to Become a Clean Boater On Line

Boaters who want to become an Ohio Clean Boater can now "sign" their pledge on line at www.ohio-cleanboater.osu.edu. A new feature on the site, boaters can fill out the pledge information on line and receive an Ohio Clean Boater decal. Since the program's start in September 2004, more than 300 boaters have pledged to become Clean Boaters. For more information about the Ohio Clean Boater Program, contact Leroy Hushak at hushak.1@osu.edu or 614.292.3548.

Ohio Sea Grant Strategic and Implementation Plans Available

Ohio Sea Grant's new Strategic Plan for the period 2005-2010 and Implementation Plans for 2004-2006 and 2005-2007 are now available on line at www.sg.ohio-state.edu. The plan follows the format of the National Sea Grant College Programs 11 thematic areas and addresses all of the nine priorities of the Great Lakes Governors.

New Ohio Clean Marinas Program Coordinator

Ohio Sea Grant welcomes Gary L. Comer Jr. as its new Ohio Clean Marinas Coordinator. For the past 10 years, Gary has been an Ohio State University Extension Educator in Logan County, Ohio, where he focused primarily on watershed management education. He received his A.A.S. at Hocking Technical College in Recreation and Wildlife Management, his B.S. at Arkansas Tech University in Fisheries and Wildlife Biology, and his



M.S. at Texas Tech University in Wildlife Science. For information about his program, contact Gary at 937.599.4227 or comer.27@osu.edu. Welcome, Gary!

Ohio Sea Grant Earns Multiple Awards

Gold and Bronze ACE Awards: Ohio Sea Grant Communications recently earned first and third place awards from the Association for Communication Excellence (ACE), an international association for agricultural communications. Stone Laboratory's promotional flyer and postcard series received an ACE Gold Award and perfect score in the Publishing Direct Mail category, while the new Stone Laboratory web site received an ACE Bronze Award in the web site category.

APEX Award: Ohio Sea Grant Communications received a communications award in the 17th Annual Awards for Publication Excellence. The Stone Laboratory web site won in the "Site Design" category, based on the site's excellence in graphic design, quality of editorial content, and the success in conveying the message and achieving overall communications effectiveness. Sponsored annually, the APEX Award is an international competition that recognizes outstanding publications and web sites in professional communications.

Blue Ribbon People's Choice Award

Communications won the Blue Ribbon People's Choice Award for best Individual Communications Product for its Stone Lab Promotional Campaign at the 2005 Sea Grant Week national conference in June. Eight products were submitted including the campaign's brochure, flyer series, postcards, pocket calendars, tabletop display, and the Stone Lab web site.

Congratulations go to the projects' developers, Graphic Designer Greg Aylsworth, Webmaster George Oommen, and Communications Manager Jill Jentes Banicki. To view Sea Grant's entries, go to www.sg.ohio-state.edu/slab/awards/.

TWINE LINE

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The Relatives

that Won't Leave

by Robin Taylor,
Ohio Sea Grant Communications

P*hragmites australis*, or common reed, is a towering 12-foot-tall perennial grass found worldwide that is also native to North American wetlands. Found in every state, *Phragmites* (frag-MY-teez) is most abundant in wetlands along the Atlantic coast, although, according to Cornell University's program web site for the Ecology and Management of Invasive Plants, *Phragmites* recently has been expanding its range across the U.S. In fact, despite its being native—implying that time has tempered it to coexist harmoniously with other native species—during the last 100 years, across the country, as well as in our own Lake Erie wetlands, *Phragmites* has been aggressively crowding out and replacing other native plants.

What could cause a native plant suddenly to become aggressive? The explanation lies in the discovery that it is not the North American native *Phragmites* that is behaving aggressively, but a European relative. Such an invasion by nearly identical relatives, which scientists call a cryptic invasion, had been hypothesized by researchers but only now confirmed. Kristin Saltonstall at Yale University has identified 27 lineages of *Phragmites australis* worldwide, 11 of which are native to North America. These North American natives do live harmoniously in their communities and, although widespread, have been described as rare or not common. During the last 100 years, however, these native lineages have been replaced by a single European lineage,

referred to as Type M. In the *Proceedings of the National Academy of Sciences* (2002) Saltonstall describes Type M as "highly competitive and aggressive." Her comparisons of modern plants with old herbarium specimens show Type M plants, in just 60 years, have replaced entirely the three lineages native to New England. Type M is spreading west, is becoming prevalent in the Midwest, and now populates southeastern states, where native *Phragmites* had never been found.

As a result of now realizing this cryptic invasion—which Saltonstall surmises started in Atlantic ports and has been facilitated by railroads and highways—and as a result of understanding the larger invasion in North American wetlands, three things have occurred: 1) In 2005, Saltonstall and two co-authors determined the North American



Phragmites to be a subspecies, *Phragmites australis* ssp. *americanus*, distinguishing it from its European relative; 2) land managers have undertaken to protect native *Phragmites*, which are now subject to being outcompeted by Type M; and 3) land managers are looking for ways to eliminate or control Type M, which makes goal two all the more difficult.

Looking for ways to control *Phragmites* Type M in Lake Erie's East Harbor has been the work of Dr. Craig Davis and his graduate student Jennifer Morgan in Ohio State University's School of Natural Resources. Coinciding with 30 years of manmade changes around East Harbor, Type M has rapidly expanded in the marshes there. Where there were once historically small isolated populations of native *Phragmites*, now large monodominant stands of Type M shade out other plant species. Lost is not only plant diversity but animal diversity, because many different types of animals—here, covering the gamut from fish to fowl—require many different types of plants that only a diverse habitat can provide.

According to Morgan and Davis, land managers have tried a number of methods to control or eradicate the non-native *Phragmites*, such as herbicides, fire, and cutting. But herbicides kill many nontarget species along with the target, and fire (unless it burns the roots) and cutting can't touch what even weekend gardeners know to be a lifeline of many pestiferous plants—the underground rhizome. (You can cut a single plant to the ground, but new plants, or ramets, will come back from the rhizome.) One other remedy, particularly suited to lakeside marshes, is flooding. Plants cut to the ground and inundated are cut from their supply of oxygen, which induces a slow suffocation. A few seasons of



PHRAGMITES PG. 5 ►



► **FORTNER** from PG. 1

the politically-hot topic of climate change. “Ohio Sea Grant was ahead of the curve in 1993 in terms of introducing climate change into curricula,” says Fortner. “We were one of the first even though at the time, it was considered just too political to teach.”

In the late 1990s, the series was reformatted and updated into five distinct topic areas of ES-EAGLS (Education Activities for Great Lakes Schools), emphasizing new interactive Earth Systems applications of the tools. Teachers from around Ohio helped revise and add topics and activities.

It is teacher involvement that has been one of Ohio Sea Grant’s biggest contributions in science education, says Fortner. “Teachers know what will and will not work in their classrooms,” says Fortner. “Our role in the last 30 years at Sea Grant has been helping teachers recognize that they can develop amazing science curricula themselves.”

And that’s exactly what teachers learn in Fortner’s classes in Columbus and on Lake Erie at Stone Lab. Over the

years, teachers have created board games to teach food chain concepts, conducted social surveys about environmental issues of the lakes, and developed web pages to teach aquatic invasive species.

“The content is there—it’s just a matter of finding new ways to teach the information and ultimately get kids to see the important connections in nature,” emphasizes Fortner.

Teaching those connections is key to educating kids about science, says Fortner. Students can learn about biological processes of a lake, but they also need to see how such factors as farming and shoreline development are linked to environmental issues like water pollution. “That’s why getting students to see those linkages in nature is so important,” states Fortner. Educational activities like her *Decision Making Curricula for the Great Lakes* not only

teach students about an environmental issue, they help students identify how each stakeholder will be affected by the problem and help them find alternative actions to resolve the problem. “The test is to help kids find many alternatives, where all stakeholders can be satisfied with the outcome,” explains Fortner.

The ultimate goal for any science teacher is to get students to use the science evidence they learn in the classroom to make better decisions in life—whether that’s reviewing *Consumer Reports* before a car purchase, comparing candidate data before voting, or simply reading food labels before buying. “Today’s students are tomorrow’s voters and our job is to give them the science tools for their personal decision making in life,” says Fortner.

Fortner officially retires this summer, a day after completing her 21st straight summer of teaching at Stone Lab. But only officially. A new chapter of her career begins as she plans to continue teaching at Stone Lab, oversee her distance learning courses, and perhaps teach earth science in Cyprus.

In June, she was notified that the Great Lakes Sea Grant network received a \$2.5 million grant from the National Science Foundation and the National Sea Grant College Program to develop a Great Lakes COSEE (Center for Ocean Science Education Excellence) program where she will serve as its Director through 2010. **TL**

Author’s note: Dr. Fortner’s *Natural Resources 610* course was one of the first courses I took in the School of Natural Resources. First day of class, Dr. Fortner said (and I wrote), “It is one thing to understand the causes of climate change, pollution, and overpopulation, but it is another to effectively relay and teach others the information and possibly to get people to change because of it. That is environmental education.”

Like many of her former students, she taught us how to get people interested in environmental issues by inventing new ways to visualize an environmental issue or by breaking down complex environmental concepts into easier-to-understand activities. For those of us who had the privilege to sit in one of her classes, we thank her. She is an extraordinary science educator.

Her legacy in environmental education is the curricula she has created over her career, but possibly more important, it is the teachers she has taught.



STONE LAB

Supports Ohio Teachers

A new program created by Dr. Rosanne Fortner and Ohio Sea Grant has named three Ohio teachers as the first Stone Lab Fellows. Georgia O'Hara of Centennial High School, Lyndsey Manzo of Westerville North High School, and Ed Ingman at the Graham School received full summer tuition, free books and fees, and three weeks of room and board to continue their graduate studies at Stone Laboratory this summer.

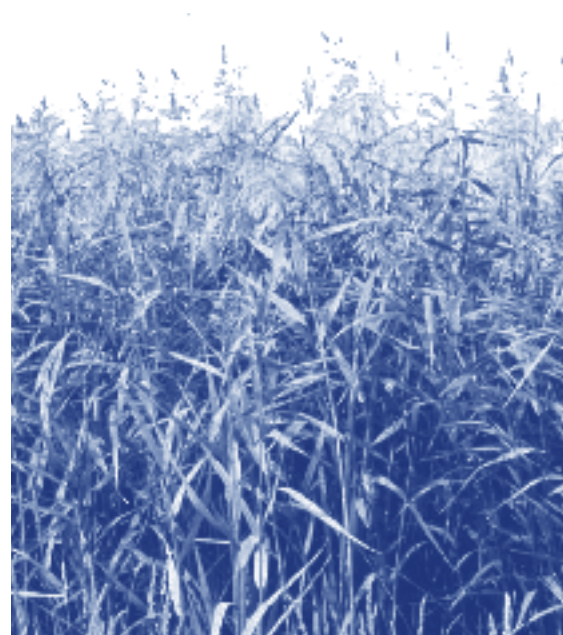
"Throughout its 28 years, the Ohio Sea Grant Education Program has called upon teachers for involvement in workshops, curriculum development, and research," says Rosanne Fortner, Ohio Sea Grant's Education Coordinator and former Stone Lab Associate Director. "Our program has grown through teachers' commitments to carry the Great Lakes education message to thousands of students we could not personally have reached. These Fellowships are a small way of saying to teachers how important they are, making it possible for them to develop their leadership potential through concentrated learning at Stone Lab."

Funded for the next two years, the fellowship program will allow up to eight teachers to take courses at the Lab in summer 2006. Teachers interested in this opportunity for next summer can apply by November 12, 2005. For more information, contact Dr. Fortner at fortner.2@osu.edu or visit www.stonelab.ohio-state.edu for a downloadable flyer.



Teachers (from l-r) Ed Ingman, Lyndsey Manzo, and Georgia O'Hara were introduced by Dr. Rosanne Fortner as Stone Lab's 2005 Fellows.

► **PHRAGMITES** from PG. 3



inundation may eventually destroy an entire stand. Like herbicides, however, flooding can be indiscriminant and nontarget plants in addition to Type M can suffer the consequences. To what degree nontarget plants suffer became the question of Morgan and Davis. More specifically, they asked, how much water does it take to effectively "drown" *Phragmites* and what will be the effect of this flooding on the desirable native species community?

Working in the East Harbor marsh in the growing season of 2003, Morgan and Davis established 24 plots of 8 different treatments created through a combination of soil treatment (excavating and plowing, plowing [which breaks up the rhizomes] or neither), water depth (25 cm or 70 cm), and *Phragmites* (cutting down emergent plants or not). At the end of a single season the researchers concluded that the fewest *Phragmites* plants were growing in plots that were plowed, inundated to 70 cm, and in which the *Phragmites* stems were cut as they emerged. This supports in the field what other researchers have found in the lab, that deep water may provide a means of controlling or eliminating non-native *Phragmites*.

Flooding does have its costs, however. Many more plants can grow in damp or wet soil than in deeply flooded soil, and this study supports others by showing that deep water changes the plant community. It creates an environment that supports only a certain type of plant—members of the submersed and floating aquatic guild (SFA). The total numbers of plants (stem density) may go up, therefore, but plant variety, that is species richness, goes down. But, say the researchers, such loss of plant diversity need only be temporary. Seeds from the damp/wet plant community are stored, or banked, in the flooded soil, and after two or three years of flooding to kill invasive *Phragmites*, a plot can be returned to its original water level, allowing the reemergence of damp/wet species. TL

FOOD:



Knots in the Web, Kinks in the Chain—

AND A TWIST

by Robin Taylor, Ohio Sea Grant Communications

Ask researchers and anglers on Lake Erie, and they will both tell you that the lake has changed hugely in the past 20 years. The waters of Lake Erie have become clearer, partly due to reductions in nutrients entering from agricultural and urban lands. With greater water clarity, more sunlight could penetrate and stimulate algal growth on the lake's bottom, termed the benthic zone. As a result, more aquatic insects feed on the benthic algae, more prey fish eat these insects, and more benthic sport fish eat these benthic prey fish. Not surprisingly, many researchers will describe the lake at present as benthic-oriented.

Anglers would probably agree that fishing has become more benthic-oriented, too. Since 1990, Ohio anglers spent more time trying to catch benthic sport fish, such as yellow perch and smallmouth bass, and less time fishing for walleye, a more open-water species. As far as anglers are concerned, these changes are pretty straightforward, and if benthic sport fish are in greater supply than, say, walleye, they should catch more benthic sport fish and be happy, right?

You would expect the answer to be a simple yes. But decreased nutrient input, pollution, and three alien species—zebra mussels (*Dreissena polymor-*

pha), quagga mussels (*D. bugensis*) and round gobies (*Neogobius melanostomus*)—complicate the simple yes into a knotty issue of maybe yes/maybe no. The tangle begins with how these new organisms in the lake affect one of the most fundamental aspects of any ecosystem—the existing food chain (or food web) of who eats whom. The newest knot, or kink, may involve polychlorinated biphenyls (PCBs), newly introduced round gobies, and native smallmouth bass (*Micropterus dolomieu*).

Back when life was simple, or at least well established, before pollution and exotic invasions, zooplankton (microscopic animals) ate phytoplankton (microscopic plants), little fish ate zooplankton, bigger fish ate little fish, and humans ate the bigger fish. When pollutants were added to the lake inadvertently, and the focus here is on PCBs, phytoplankton became tainted with PCBs by being in contact with the water; zooplankton magnified the PCBs in their bodies by eating the phytoplankton; little fish magnified the PCBs in their bodies by eating the plankton; bigger fish magnified the PCBs in their bodies by eating the little fish; and humans..... began to worry.

When dreissenid (zebra and quagga) mussels were introduced in the lake in the late 1980s, even



though they lived on the bottom of the lake, in addition to filtering the PCB-tainted sediment around them, they filtered the water column *above* them for plankton. Now *they* were magnifying PCBs in *their* bodies. They were also stealing plankton from fish. So dreissenid mussels, in addition to costing the public millions of dollars each year to eliminate them from water intake pipes, competed with fish for food. On the other hand, the naturally sessile mussels helped sequester PCBs at the bottom of the lake where they remained anchored. They ate tainted sediment and plankton, they stayed put, and they were unpalatable because of their hard shell. Hardly anything ate dreissenid mussels....until now.

Enter the round goby, a small exotic fish that became established in the Great Lakes in the mid-1990s. It comes from the same part of the world as dreissenid mussels and already has them as a natural part of its diet. Where dreissenid mussels once locked PCBs—and nutrients—at the bottom of the lake in the benthic zone, now round gobies might be bringing them back up..... and up, if smallmouth bass eat round gobies in sufficient quantity. This could be a good thing if nutrients get back into the food web, a bad thing if PCBs do.

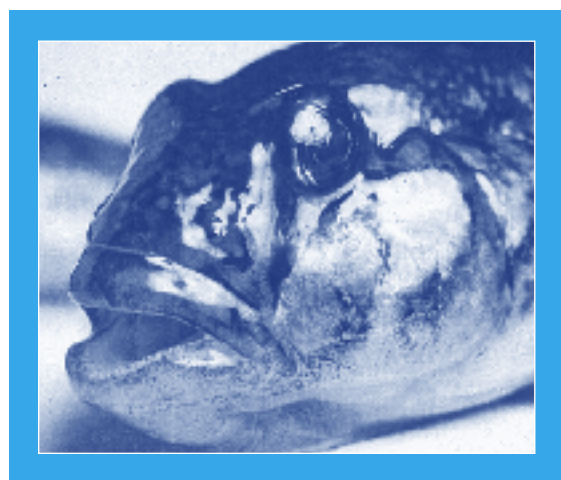
And here the story takes an odd twist. Since 1990, Ohio angler effort, harvest, and catch rate for yellow perch have all increased. And up until around 1998, the same could be said about smallmouth bass. Since 1998, however, just three years after round gobies became established in Lake Erie, effort, harvest and catch rate for smallmouth bass began to decline steadily. And yet these are both benthic sport fish, and smallmouth bass, it has been suggested, gain nutritionally from eating round gobies. Why have these fisheries gone in opposite directions? Answering that question has been part of the goals of Ohio State University Ph.D. candidate and John R. Knauss Marine Policy Fellow, Gene Kim, working under Drs. Roy Stein, Elizabeth Marschall, and Susan Fisher on a project funded by Ohio Sea Grant and the Lake Erie Protection Fund.

For part of his dissertation, Kim asked three straightforward questions: 1) Given a choice of round gobies and their native prey, minnows or crayfish, would smallmouth bass continue to choose native prey or replace it with gobies? 2) When smallmouth bass eat PCB-tainted round gobies, how much of the PCBs do they concentrate into their own tissues and return to the food web, and 3) by eating gobies, how much energy do they return to the food web?

For the first question, Kim brought Lake Erie smallmouth bass into the laboratory to determine if smallmouth bass prefer this new food item over traditional Lake Erie prey items. If the smallmouth

bass eat round gobies, then either nutrients or PCBs or both can work their way back up the food chain from dreissenid mussels that trapped them in their body tissues. Kim and Matt Gearhiser, project research technicians, analyzed smallmouth bass feeding behavior when given equal numbers of round gobies, minnows, and crayfish in a large laboratory observation tank. They recorded how much time smallmouth bass spent pursuing each prey type, their success rate of catching and eating each prey type, and prey avoidance behaviors. What did they find? Smallmouth bass appeared to prefer minnows to gobies by making more attempts to catch them. But they wind up eating more gobies (49%) than minnows (42%) because minnows have a better-developed avoidance behavior—typical between prey and predators that have coexisted for a long time. Crayfish (9%) accounted for a small part of the prey. These results were similar to field data collected by Kim and others, and they reflect what smallmouth bass are actually consuming in the lake. Stomach contents of field-caught smallmouth bass from 1999 to 2000 show that gobies made up 33 to 100% of the diet (by weight), peaking in mid-summer. Minnows were less prevalent and no crayfish were found. Between 1997 and 2001, gobies in smallmouth bass diets increased from 17% (1997) to 75% (2001), reflecting their year-to-year growing abundance in the lake.

So data from both the laboratory and from fieldwork in Lake Erie show that smallmouth bass do eat more round gobies than other prey types on their revised dinner menu. To address the declining catch rates of smallmouth bass, Kim and his colleagues will next investigate the consequences of an increased goby diet on smallmouth bass growth and PCB concentration. They are finishing work to see what the nutritional levels and PCB levels are in round gobies from Lake Erie and in the laboratory. This way, they can forecast the results of smallmouth bass eating more and more gobies. **TL**



Lake Erie Coastal Ohio, Inc.

by Frank Lichtkoppler, Ohio Sea Grant Extension; and Melinda Huntley, Lake Erie Coastal Ohio



What does the Hubbard House Underground Railroad site in Ashtabula, Kitty Todd Nature Preserve in Swanton, and the Great Lakes Science Center in Cleveland have in common? All are now stops along the official Lake Erie Coastal Trail Scenic Byway, and all are locations where visitors can learn more about Lake Erie and its awesome effects on our natural world, our heritage, and our culture.

The new Lake Erie Coastal Trail—Ohio's 21st Scenic Byway—connects more than 300 museums, natural areas, and historic sites within close proximity to the lakeshore. Signage for the new trail will not be erected right away, however, because the scenic byway route is now being considered as an All-American Road, the “gold medal” designation awarded by the America's Byways™ program of the Federal Highway Administration. If this national designation is granted, the region will benefit from additional national publicity, access to funds dedicated to enhancing byway regions, and a wealth of educational resources developed at the national level.

Spearheading the planning and nomination process for scenic byway designation is Lake Erie Coastal Ohio, Inc., a non-profit organization created three years ago by the coastal visitors bureaus. Tourism officials created the new organization to develop a better way to market the Lake Erie region using a regional approach, particularly as it positions itself to attract travelers interested in heritage, outdoor recreation, and nature. Recent projects include a web site, newsletters, innovative public service announcements, key market research, and workshops for local officials and for managers of museums and natural areas.

Ohio Sea Grant stepped up and offered its assistance from the very beginning. In 2001, Ohio Sea Grant Agents Frank Lichtkoppler and Fred Snyder served on a Lake Erie Heritage Tourism Committee to look at the nature-



Both Snyder, who helped develop the original Lake Erie Protection Fund grant, and Lichtkoppler, who heads up the scenic byway committee, have provided ideas, information, and research data to the new organization as charter members of the board. Additionally, Lichtkoppler acts as Secretary and serves on the Lake Erie Coastal Ohio Executive Committee.

How does a road become a scenic byway? An initial Scenic Byway application to the Ohio Department of Transportation was submitted and accepted in 2003. More than three dozen legislators and community officials wrote letters of support for the Scenic Byway designation

when it was nominated.

In order to secure byway status, a written plan for addressing future opportunities and challenges is required. The Lake Erie Coastal Ohio Byway Committee, led by Lichtkoppler, developed a Corridor Management Plan, which was developed with local community input and modified as requested by local officials to provide maximum visitor access and



increase the economic impact to local communities.

The new Lake Erie Coastal Trail Scenic Byway route will eventually take the place of the existing Lake Erie Circle Tour route within Ohio. The Lake Erie Coastal Trail Scenic Byway will link with corresponding scenic byways in coastal Pennsylvania and New York, creating new ways to promote coastal recreation. The Lake Erie Circle Tour route was originally mandated to follow only the state or federal highways closest to the shoreline. By contrast, the Lake Erie Coastal Trail Scenic Byway gives travelers greater access to lake views and unique maritime communities.

Lake Erie Coastal Ohio is the governing body for the Lake Erie Coastal Trail, responsible for responding to visitor inquiries, promoting the regional route, and helping to enhance a visitor's experience while traveling. Visitors will have access to up-to-date information concerning the more than 300 attractions along Ohio's Lake Erie coastline. At the same time, byway designation provides tools and status for protecting those qualities that make the coastal region unique.

A major method of informing the traveling public about the Lake Erie Coastal Trail is the Lake Erie Coastal Ohio web site at www.coastalohio.com. The site currently attracts more than 19,000 unique visitors a month and generates more than 345,000 monthly hits. **TL**



based opportunities for coastal Lake Erie. This effort evolved into Lake Erie Coastal Ohio, and the plan received initial funding from a three-year Lake Erie Protection Fund from the Ohio Lake Erie Commission and the seven coastal county tourism bureaus.

A Warm Winter Reception

The Friends of Stone Laboratory and the Ohio Sea Grant Program sponsored the annual Winter Program on February 23, 2005. The reception was well attended by many FOSL members, faculty, staff, and students. This event is a great opportunity for people to get together in a social setting and share their interests in Stone Laboratory. The highlight of the evening was a silent auction that featured more than 80 items. This great event succeeded in raising more than \$3,000 for Stone Laboratory.

A diverse program of speakers briefly spoke on a variety of topics relating to the programs at Stone Laboratory. Ohio Representative Chris Redfern spoke of the continuing need for environmental education and support of Great Lakes issues, but stated that the current economic status of the state budget was not favorable for such programs. He urged everyone to become an advocate for the environment and to

contact their Representatives and Senators to express their feelings about future support of environmental issues.

Shirley Bowser, former Chair of OSU Board of Trustees, was honored for her support and influence in establishing the Dunlap Educational Development endowment. Shirley sits on the Board of the Kellogg Foundation and orchestrated grants from the foundation as well as a challenge to FOSL, which resulted in the establishment of the new endowment in the amount of \$125,000.

John Meyer, Associate Vice President for University Development, related how the University is assisting Stone Laboratory in identifying new sources of support. John said that Stone Laboratory has a great story to tell and he is helping find influential people to whom the story can be told.

Charlene Prochazka, President of Friends of Stone Laboratory, welcomed everyone and thanked them for their sup-

port of the evening. She related many of the successes of the past year and acknowledged the hard work of all of the Stone Laboratory staff.

Rosanne Fortner, Associate Director of Stone Laboratory, revealed a new fellowship program that she has established. She introduced the first three teachers participating in the program this summer, Georgia O'Hara, Lyndsey Manzo, and Ed Ingman.

The final presentation of the evening was given by John Kleberg, OSU Office of Student Affairs. Resident expert on the history of Cooke Castle, John gave an abbreviated version of his presentation, "The History of Stone Laboratory's Cooke Castle and Gibraltar Island." Even people who have been around the Castle for years and thought that they knew its history encountered many new facts, stories, and pictures of the castle's and island's rich legacy. TL

A special recognition and Thank You to the following donors of items to the FOSL silent auction.

Ohio Academy of Science
Scottie MacBean Inc.
Mel McKinley
Scramblers
Lone Pine Publishing
Orange Frazer Press
Spud's Bar and Grill
Anatolia Café
Imperial Garden
Lydia Bailey
Perry's Cave
Mohican Resort and Conference Center
Fats a Billiard Emporium
The Boardwalk
Joan Bradley
Lauren Bradley
Eugene Braig
Jeff Reutter
Cord Camera

Columbus Symphony Orchestra
Red Lobster
Lake Erie Islands Historical Society
Bonita and Vince Cordi
The Refectory
Donald & Suzanne Cruickshank
Gander Mountain
Debbie Hawthorne and Mike Heniken
Max & Erma's
Heineman Winery
Tony's Place
Carole Holomuski
Jill and Joe Banicki
The Honorable Merle Grace Kearns
Turkish Cuisine
Kris Laszlo, With Nature in Mind
Pheasants Forever, Erie-Ottawa-Sandusky Co. Chapter

Fran Link, California Historical Society
Early Music in Columbus
Patsy Main
United Dairy Farmer, Inc.
The Boathouse Bar and Grill
Nancy Cruickshank
Columbus Museum of Art
Columbus Zoo and Aquarium
Miller Boat Line
Mary Nahan, Brohl Cottage
Bravo Italian Kitchen
Charlene Prochazka
Tierney Reider
Great Wolf Lodge
Kristin Stanford
COSI
Blumen Garten Florists
Shadowbox Cabaret
Zoe Titchener

Benna Waterfield, Casto
Ohio Wine Producers Association
Dr. Milton Wyman
Columbus Dispatch, Dispatch Events
Don Arcuri
Terri Harper Photography
Guy Harvey Publishing
The Buckeye Corner

We wish to also extend a special "thank you" to the following individuals for their help in acquiring donations for the auction: Eugene Braig, Joan Bradley, Lisa Brohl, Bonita Cordi, John Hageman, Leroy Hushak, Mel McKinley, Lydia Schlegel, and Keith Waterfield.

FRIENDS OF STONE LABORATORY

Dear friends,

The Friends of Stone Lab are honored to recognize some outstanding accomplishments that support and enhance us. First, our thanks to Ohio Representative Chris Redfern for initiating the new license plate "Fish Lake Erie." The Ohio Sea Grant and Stone Lab programs will benefit from its proceeds.

The Winter Program had a very successful silent auction, thanks to Nancy Cruickshank in our Columbus office for organizing and helping to set up the event and to all of the generous donors and bidders.

Congratulations to the communication staff of Ohio Sea Grant, recently recognized by the Association for Communication Excellence (ACE) with a gold and bronze award for their lively publications and brochures. They have made new graphics for the web site and have simplified navigation.

We would also like to congratulate Bobby Moser, Vice President for College of Food, Agriculture, and Environmental Sciences, for his recent induction into the International Adult and Continuing Education Hall of Fame, and Tom Rosol on his promotion as the new Dean of the College of Veterinary Medicine, previously Senior Vice President for Research for Stone Lab. They have worked tirelessly to promote Stone Lab.

Congratulations also go out to you, the members of FOSL, for generating \$1,000,000 in endowments in only 20 years. As president of FOSL I am proud to be part of that milestone.

I would also like to challenge our educators to get students excited about the Stone Lab program, particularly at the high school level. My own daughter attended summer classes and couldn't say enough about her experience. Our ten-year-old Kelly Prochazka Scholarship is now an endowment and will provide a lasting commitment to Stone Laboratory on her behalf.

Believing that I can make a difference to the FOSL board of directors, I invite your comments and ideas for our continued improvement and growth. I am also interested in new partnerships and challenges to raise funds for the Stone Lab program and scholarships. Email me at cpro@eriecoast.com.

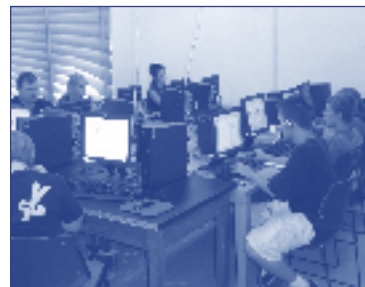
*I am looking forward to hearing from you.
Sincerely,*

Charlene Prochazka
FOSL President

cpro@eriecoast.com

New Computers for Stone Lab

With support from NOAA, thanks to Senator Dewine, and a gift from Jeff and Heather Stewart, Stone Lab was able to purchase 12 new computers for student use this summer. This was a tremendous enhancement to our computer capabilities and a great benefit to all students, faculty, and researchers working at the Lab this summer.



Show Your Pride—Promote Stone Lab

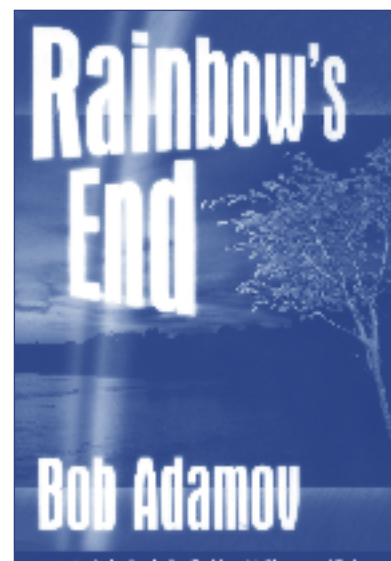
A wonderful new opportunity will soon be available to help support the Ohio Sea Grant Program and promote Lake Erie. Through the hard work of Ohio Representative Chris Redfern, a new specialty Ohio license plate will soon be available. In recognition of the fact that Lake Erie is the most productive fishery in the Great Lakes, this new license plate will proudly proclaim "Fish Lake Erie." The proceeds from its sale will go to support the Ohio Sea Grant Program/Stone Laboratory and their goals of research, education and outreach. There are still a few items to be completed before the license plate is a reality. Look for the new plates to be available this summer. Drive your pride by purchasing the new plate for all of your vehicles.

You may thank Representative Redfern for all of his past and continuing support of Ohio Sea Grant, Stone Laboratory, and Lake Erie issues by dropping him a note at:
The Honorable Chris Redfern, Minority Leader
Ohio House of Representatives
77 S. High St., 14th Floor
Columbus, Ohio 43215-6111

2005 Open House with a Rainbow Twist

Mark your calendar for this year's Stone Laboratory Open House and FOSL annual meeting weekend. Once again, the Open House is being held the same weekend as the Put-in-Bay Historic weekend. The Open House will be held on September 10. Come and enjoy all of the islands' activities.

We will be having a special guest this year at the Open House. Bob Adamov is an accomplished author from Cuyahoga Falls, Ohio with two novels already published and a third due out in May. Bob's novels are suspense stories in which Put-in-Bay plays a prominent role. In his first novel, *Rainbow's End*, Stone Laboratory and Gibraltar Island play an essential part in the story line. The second novel, *Pierce the Veil*, also has references to Stone Laboratory. Come and meet the author as part of the Open House activities. You can learn more about Bob and his books by going to the web site, www.packardislandpublishing.com.



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 unequalled 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

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Lydia Bailey, Treasurer
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F.T. STONE LABORATORY FIELD STATION

The Ohio State University
PO Box 119, Put-in-Bay, OH 43456
419.285.2341, 614.247.6500, Fax 614.247.6578
www.stonelab.ohio-state.edu

STONE LAB STAFF

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Eugene Braig, Assistant Director (braig.1@osu.edu)
John Hageman, Laboratory Manager (hageman.2@osu.edu)
Matt Thomas, Asst. Lab. Manager (thomas.347@osu.edu)
Arleen Pineda, Program Coordinator (pineda.2@osu.edu)
Kelly Dress, Office Associate (dress.3@osu.edu)

Dates to Remember

Stone Lab Open House/FOSL Annual Mtg.
September 10-11, 2005

Buckeye Island Hop—October 1-2, 2005

Winter Program and Silent Auction
February 22, 2006

Momentous Milestone Made!

Little did we know when the Friends of Stone Laboratory was first formed over 20 years ago that we would someday celebrate the milestone of having generated \$1,000,000 in our now 15 endowments. The million-dollar milestone is both amazing and humbling. The past few years have been successful for FOSL in establishing new endowment funds, the result of hard work and cooperation of many individuals. Some have served on the FOSL Board of Directors, and some have simply been interested in Lake Erie and all of its resources. Some have sought a way to memorialize loved ones. Others simply have desired to see the legacy of Stone Laboratory continue on for future generations of students and researchers. The assistance of the Director(s) and all of the staff of Stone Laboratory/Ohio Sea Grant has been unwavering in helping FOSL reach this mark. The support of the College and University has also been an integral component of this cooperative effort.

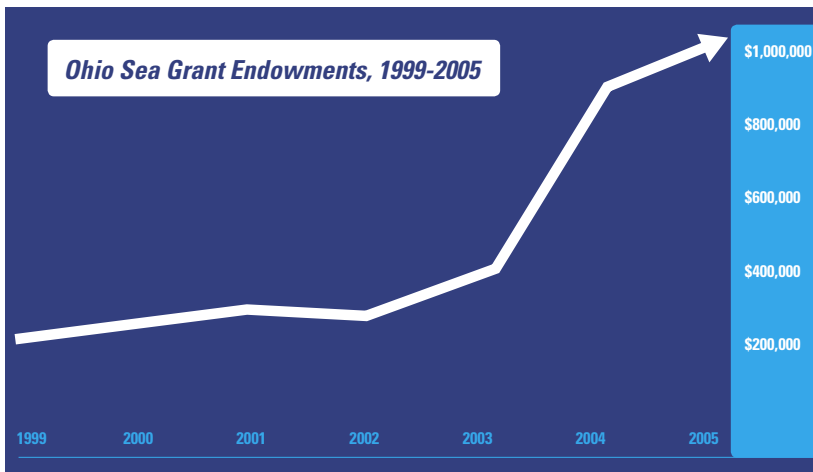
As much as we would like to rest on our laurels, the need is still great. Endowments annually yield approximately 5% of their value in the form of spendable funds. The cost of tuition, materials, and room and board continues to rise. The scholarship endowment generates only enough money to cover a small fraction of the students' needs. The need to replace basic laboratory

and field equipment is always present as well as the need to purchase new and more current technologies. The facilities themselves are drastically due for an upgrading to allow Stone Laboratory to conduct research with 21st century methods and technologies.

A goal has been set to triple the value of the endowments supporting the Ohio Sea Grant Program over the next five years. This is an ambitious goal but one that is necessary for Stone Laboratory and Sea Grant to continue to have an impact in the future.

To everyone who has helped FOSL reach the million dollar mark, we sincerely thank you. Whether you have contributed time, efforts, materials or money, we couldn't have done it without you. Rest assured that the money generated by the endowments is utilized in a manner which maximizes the benefits to everyone.

Ohio Sea Grant Endowments, 1999-2005





REUs: A New Program at Stone Laboratory

by Jeffrey Reutter,
Ohio Sea Grant Director

The Friends of Stone Laboratory created the Thomas H. Langlois Research Endowment in 1986 in honor of the fifth director of Stone Laboratory. The John L. Crites Research Endowment and the Franz T. Stone Research Endowment were created in 2002 to honor one of the Laboratory's top professors/researchers and the grandson of our namesake, respectively. The total value of these endowments recently surpassed \$500,000, with over \$490,000 having been added since 2000. These endowments are greatly benefiting the Laboratory's programs in research and education and our students and research scientists, and they are helping us address important environmental issues affecting the Lake Erie ecosystem. Using these endowments, in 2005 we created an exciting new program,

Research Experience for Undergraduates (REUs).

The majority of our upper-level, five-credit-hour courses are taught from 8:00–4:00 every other day (M, W, F or T, Th, S) for 4.5 weeks. Undergraduate students in the new REU program take one of our upper-level courses and participate on research projects on their three

off-days. They receive three hours of independent study credit for this research experience, and their tuition for the full eight hours and their room and board at the Laboratory are paid. Students are free to choose their courses and research experience: "fisheries research" studies smallmouth bass and round goby interactions; "herpetology research" studies the endangered Lake Erie water snake and fox snakes, and "limnology research" studies the Dead Zone. In a tough competition, a total of 15 REUs valued at over \$49,000 were awarded to students from as far away as Arizona. Although a number of students are still completing their REUs for the summer, it is already clear that the program is a huge success. Please watch the Sea Grant and Stone Lab web sites for information on how to apply for the program next year. **TL**



Dr. Erin Quinlan of Ohio State University takes a light profile in Sandusky Bay from Stone Lab's R/V *Erie Monitor*.



April Sidoti of Baldwin-Wallace and Kelsey Reider of Ohio State University capture water snakes under an artificial cover mat.



Support Lake Erie with your Fish Lake Erie specialty plate.

A portion of the cost of the plates will support the education (grades 4—adults) and research programs of Ohio Sea Grant and Stone Lab. Go to our web site at www.ohioseagrant.osu.edu for updates about the plate.

EXPLORE SCIENCE

and discover yourself at Stone Lab.

*Application Materials for
2006 Summer Courses
Available this Fall.*



Publication Request (A complete list of available and downloadable publications is available at www.ohioseagrant.osu.edu)

Name _____ E-mail address _____

Street address _____

City _____ State _____ ZIP _____ (_____) _____
Daytime phone number

Please send me the following:

- | | |
|--|----------------|
| <input type="checkbox"/> Publications Brochure (free) | \$ 0.00 |
| <input type="checkbox"/> TWINE LINE subscription (1 year/4 issues for \$10) | \$ _____ |
| <input type="checkbox"/> Stone Lab Course Materials | \$ _____ |
| _____ | \$ _____ |
| _____ | \$ _____ |
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Mail to:
Ohio Sea Grant Publications
1314 Kinnear Rd.
Columbus, OH
43212-1194

\$ _____

2005 **Make checks payable to:** The Ohio State University

Total Enclosed (U.S. Dollars)

Friends of Stone Laboratory Donation Form (Donate on line at www.ohioseagrant.osu.edu/donate/)

First Name _____ Middle/Maiden Name _____ Last Name _____

Street address _____ Apt. No. _____

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E-mail address _____ (_____) _____ (_____) _____
Daytime phone number Evening phone number

My gift is designated for the following fund (please indicate on your check's memo line):

- | | |
|--|---|
| <input type="checkbox"/> Stuckey Plant Course | <input type="checkbox"/> Langlois Research Fellowship |
| <input type="checkbox"/> Crites' Research Fellowship (print w/\$250) | <input type="checkbox"/> Special Publications |
| <input type="checkbox"/> Cooke Castle Renovation | <input type="checkbox"/> Franz Stone Research |
| <input type="checkbox"/> Director's Discretionary | <input type="checkbox"/> V. Ray Frederick Memorial Scholarship Fund |
| <input type="checkbox"/> Frederick Memorial Scholarship (non-OSU) | <input type="checkbox"/> Sally and Jackson Koepp Smith Scholarship Fund |
| <input type="checkbox"/> FOSL General | <input type="checkbox"/> Kelly Prochazka Memorial Scholarship Fund |
| <input type="checkbox"/> FOSL Scholarship | <input type="checkbox"/> Wilbert Baumler Memorial Scholarship Fund |
| <input type="checkbox"/> FOSL Sustaining (equipment, supplies, etc.) | <input type="checkbox"/> Sea Grant Endowment |
| <input type="checkbox"/> FOSL Visiting Professor | <input type="checkbox"/> Artificial Reef Endowment |

Mail to:
*c/o Friends of Stone
Laboratory (ATTN: John Tripp)*
1314 Kinnear Rd.
Columbus, OH, 43212-1194

\$ _____

2005 **Make checks payable to:** The Ohio State University Foundation

Total Enclosed (U.S. Dollars)