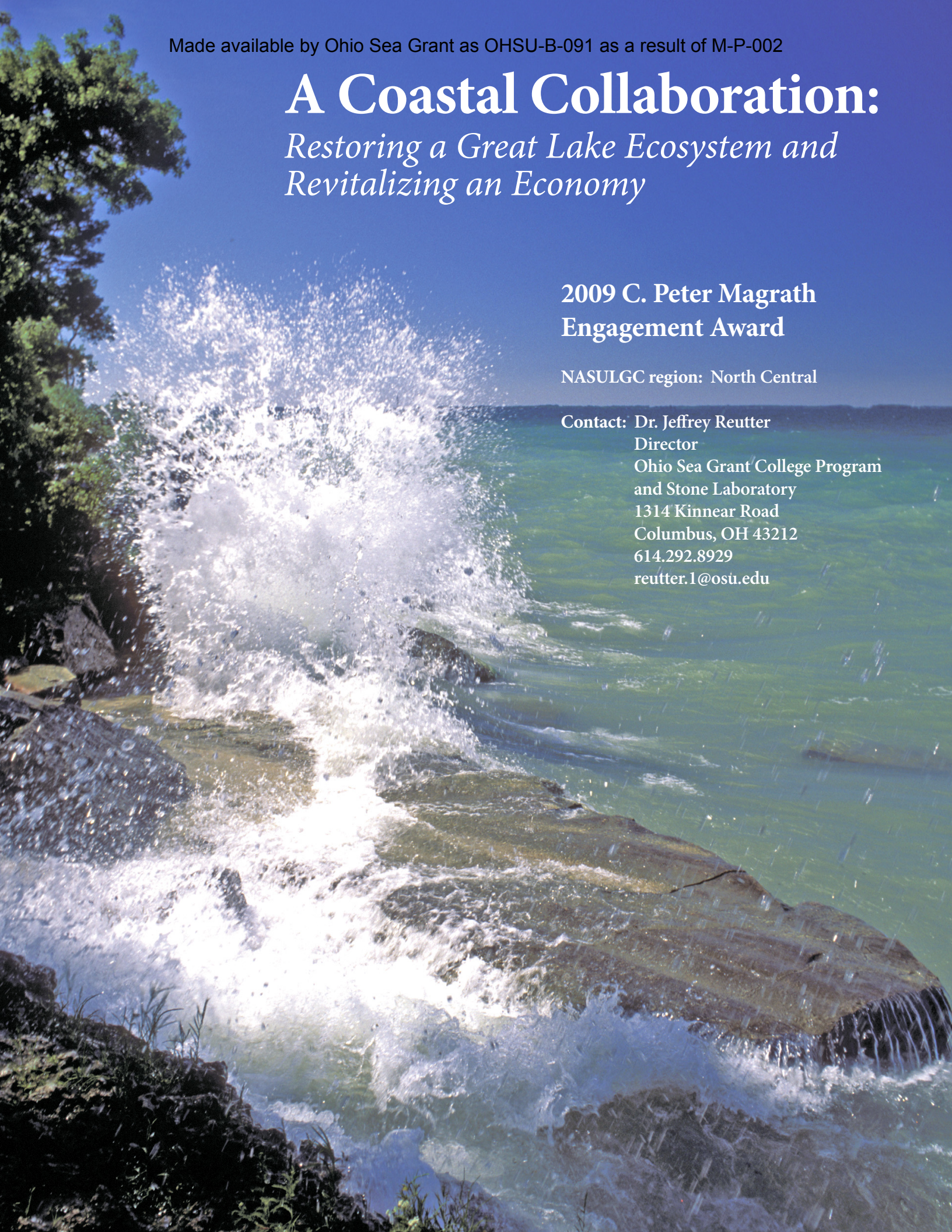
A Coastal Collaboration:

Restoring a Great Lake Ecosystem and Revitalizing an Economy



2009 C. Peter Magrath Engagement Award

NASULGC region: North Central

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1.1 Abstract

"I heard Lake Erie is the place where fish go to die" Johnny Carson

When Carson uttered those words in his monologue more than 30 years ago, Lake Erie was in a far different place than it is today. Its waters were undrinkable and unswimable from the high levels of contaminants coming into the lake. Its fishery, which had been some of the best in the country years ago, was severely degraded, and its tourism industry had very few visitors on its beaches.

For many, the Lake was considered dead to the citizens it was supposed to support, and its communities and specifically the Ohio State Legislature asked Ohio State University to help bring partners together to find solutions to its pollution problems. Ohio State answered the call with the creation of the Ohio Sea Grant College Program and Stone Laboratory, its research and education facility on Lake Erie. With a synergy of research, education, and outreach capabilities, Ohio Sea Grant and Stone Lab have empowered more than 300 coastal partners through a diverse range of projects to step-by-step improve the Lake Erie ecosystem and revitalize its economy.

Over the last 30 years, its partnered work with the Lake's governing agencies like the Ohio Department of Natural Resources, Ohio Department of Agriculture, and the U.S. Environmental Protection Agency has brought research solutions to many of the Lake's pollution problems and better management strategies for its future sustainability. Projects like the Lake Erie Artificial Reef Project connected the City of Cleveland, the Polish Fisherman Club, and the Cuyahoga County Commission with Sea Grant to not only come together to improve the area's fish habitat, but to find an economic and profitable way to do it, and other Great Lake cities followed with their own. The program's education program with its academic partners continue to broaden their reach to educate today and future leaders with 25 college science courses for college students, teachers, and high school students and a workshop program for grades 4 to adults.

The systematic progression of these successful engaged partnerships and their projects have brought Lake Erie, Ohio's most important natural resource, back to a road of recovery. As the region remembers the 40th anniversary of the Cuyahoga River's burning, the Ohio State University and its empowered coastal community partners can celebrate a recovered and revitalized lake that now provides drinking water to its 11 million citizens, a $1 billion dollar tourism industry, and a thriving fishery that produces more fish than all the other four Great Lakes combined.

Section 1.2 Significance

Problem: Lake Erie, arguably the most important lake in the world, had become severely polluted and was harming the coastal economy.

Solution: This huge and complex problem required, and still requires, the equally large and complex array of partnerships and collaborations of an engaged University.

Water pollution and ecosystem degradation have plagued this country for years. But it wasn't until Ohio's Cuyahoga River caught on fire in 1969, that it became a national issue. At that time Lake Erie was not recognized for its potential as an economic driver for local communities, the state, and the region. It was called a dead lake, "the place fish go to die" by Johnny Carson, and became the poster child for pollution problems for this country. Ultimately this led to the formation of the USEPA, NOAA, and the first Earth Day in 1970. Ohio State University was asked by the state legislature to focus on this issue. The University responded by forming the Center for Lake Erie Area Research (CLEAR) and ultimately applying to become part of the National Sea Grant College Program in NOAA.

Lake Erie is surrounded by four states, two countries, six major cities and over 20 electric power plants. Approximately 25 percent of Ohio's 11 million people live within the 8 coastal counties and 11 million people use it as a source of their drinking water. It is an economic driver for the state and region. Tourism, led by Lake Erie, is Ohio's third largest industry. Lake Erie is the southernmost, shallowest, smallest by volume, and warmest of the Great Lakes. The other lakes are all in excess of 750 feet deep while the deepest spot in Lake Erie is 210 feet. The watersheds around the other lakes are dominated by forest ecosystems. The watershed around Lake Erie is dominated by an agricultural and urban ecosystem. As a result, Lake Erie gets more sediment and nutrients than the other Lakes and this combination of traits makes it the most productive of the Great Lakes—producing more fish annually than the other four, combined. These traits also allow Lake Erie to serve as the crystal ball or barometer for all the Great Lakes.

The environment and the economy are often viewed as being in competition. The Ohio State University believes that with heightened education, the two can be, and should be, mutually beneficial. Our goal has been to bring about the rebirth of Lake Erie and the revitalization of Ohio's north coast economy. While the work is far from complete, and constant vigilance will always be necessary, we have experienced extraordinary success made possible by continually focusing on the 3 E's, the environment, economy, and education, using the land-grant elements of research, education, and outreach in partnership with

government, academia and the private sector, and by continually striving to be a fully engaged university and pass the 7-part Kellogg Commission test: responsiveness, respect for partners, academic neutrality, accessibility, integration, coordination, and resource partnerships. Our successes are not Ohio State University successes, they are clearly community successes made possible by extraordinary collaborations and partnerships.

Based on the University's accomplishments, Ohio State was designated this country's 24th Sea Grant College by the Department of Commerce in 1988. This gave us an extension and outreach capability allowing the University to address all Great Lakes issues and engage with our communities from Toledo to Conneaut and the entire state and region . The broad goals of the program were and remain simple: 1. restore the Lake Erie ecosystem; 2. revitalize the coastal economy based on a restored ecosystem; 3. improve science education and coastal decision-making. We believe that Lake Erie and Great Lakes education can be an attraction to the sciences and the STEM disciplines. The Sea Grant program allowed the University to use research, education, and outreach and its unique marine laboratory on Gibraltar Island to address these environmental, economic, and educational issues. The program has created over 300 partnerships to leverage its resources and capabilities to make this possible.

Section 2.1: Relationship and Reciprocity between the University and Community

Bringing about the rebirth of Lake Erie, the revitalization of the economy, and stimulating science education was, and is, a huge problem that Sea Grant and Stone Lab are addressing with over 300 partnerships and collaborations. Only a few of those collaborations and their impacts on partners and the university are highlighted in this document.

Rebirth of Lake Erie and Revitalization of the Economy. Ohio State was asked to focus on this issue by the State Legislature after the Cuyahoga River caught on fire in 1969. We partnered with, and were supported by US EPA in this endeavor. OSU scientists and agency scientists used Stone Laboratory as the base for their work. We led the field data collection and analysis while our agency partners led the modeling work. All agreed that phosphorus was the main problem and that we needed to reduce the loading from 29,000 to 11,000 tonnes annually. Then OSU, EPA, and state agency scientists and managers agreed that the strategy should be to reduce point source loading from sewage treatment plants. As the ecosystem improved, the walleye population increased, and Sea Grant developed business development programs to assist coastal businesses and individuals wishing to become charter fishing captains. Sea Grant would organize and chair

the programs but the majority of our speakers can from our private sector and agency partners.

Artificial Reefs. Every Sea Grant Extension agent/specialist has created an influential and energetic private sector advisory committee. The north central advisory committee asked Sea Grant for assistance in enhancing tourism and fishing opportunities in the Central Basin near Cleveland. They wanted fishing there to be as good as fishing in the Western Basin, but the Central Basin lacked the natural reefs and shoals and habitat diversity of the Western Basin. OSU faculty suggested constructing artificial reefs from clean rock, concrete, and brick rubble to enhance habitat diversity which would attract fish and anglers who would spend money in the local communities. Sea Grant led the program, but many local groups and communities contributed to the project including the Cuyahoga County Commissioners ($62,500), the City of Cleveland, and the Polish Fisherman's Club. Ford Motor Company and LTV Steel donated storage space for material on shoreline. The Ohio Department of Natural Resources (ODNR) donated $10,000 and agreed to put permits from the Army Corps of Engineers for reef sites in their name so donors could take tax deductions. Sea Grant outreach specialists developed education programs for the public and media to draw attention to the project and our partners.

State Legislature/Congressional Days. Our private sector business partners asked us to develop a special hands-on learning experience for Ohio's elected officials and decision makers to allow them to experience first hand the tremendous value of Lake Erie and the rebirth and revitalization that were occurring. Sea Grant and Stone Lab developed the program in collaboration with our private sector and agency partners and they paid for everything. It is called Ohio Sea Grant's State Legislature/Congressional Day on Lake Erie. The biennial, day long program began in 1982 and includes a donated walleye lunch at Cedar Point, scientific presentations, charter fishing trips, science cruises on Stone Lab research vessels, informal discussions with scientists and managers, ferry boat rides, and a reception and picnic dinner at Stone Lab. The state legislature, congressional delegation and their aides are invited.

Science Education and Outreach. Recognizing that the educational experience at Stone Laboratory had been the best in their college careers, a group of former students and faculty got together in 1981 to form the Friends of Stone Laboratory to raise funds and volunteer their time to create more opportunities for students and scientists working at the Laboratory. Until 1990, Stone Laboratory had been primarily a research facility and a summer program of courses for graduate students and upper level undergraduates. Parents of younger students and teachers asked us to develop opportunities for them. Former students and teachers felt the

hands-on approach to science education used at Stone Lab could make science more exciting for students and attract more students to the STEM disciplines. Faculty and teachers working together developed a hands-on field trip, workshop and conference program for grades four through adults at the Laboratory. They also developed introductory courses and allowed superior high school students to participate with college undergraduates and earn college credit while still in high school.

Clean Marinas Program. ODNR and the Lake Erie Marine Trades Association (LEMTA) asked Sea Grant to develop and lead a voluntary program for marinas encouraging them to become better environmental stewards and reduce pollution to Lake Erie. OSU faculty developed the proposal in collaboration with ODNR, OEPA, LEMTA, and private marinas. Best management practices were developed. The coordinator of the program is part of Sea Grant Extension with half the support coming from OSU Extension and half from NOAA. ODNR provides free office space and support.

Sea Grant and Stone Laboratory Awards. Sea Grant and Stone Laboratory have benefited greatly from collaborations and partnerships with our communities and we feel very indebted to our partners. Consequently in 1991 we began offering awards to individuals and groups that have gone above and beyond the call of duty to work with us and improve the economy, environment, and education.

Regional Collaboration. Sea Grant and Stone Lab have collaborated with the International Joint Commission, US State Department, to participate on and lead the Council of Great Lakes Research Managers. We partnered with the University of Windsor, USEPA, and Environment Canada to create the Lake Erie Millennium Network (LEMN), a voluntary network of research scientists around Lake Erie. We led an effort to duplicate LEMN on each of the other Great Lakes and create an overall network for the region—the Great Lakes Regional Research Information Network (GLRRIN). Each of the five networks for each lake is led by two people from academia and two people from agencies in the US and Canada. We also were elected to serve as one of the four Co-Chairs of GLRRIN. GLRRIN includes over 20 agencies and universities. We led the effort and collaborated with the seven Sea Grant programs in the Great Lakes and their home institutions to form the Great Lakes Research and Outreach Consortium (GLROC). The institutions involved are: The Ohio State University, State University of New York, Pennsylvania State University, the University of Michigan, the University of Illinois, the University of Wisconsin, and the University of Minnesota.

3.1 Impacts on Community Partners

Rebirth of Lake Erie and Revitalization of the Economy. The amount of phosphorus entering Lake Erie was reduced from 29,000 to 11,000 tonnes as described above with a number of new regulations and federal, state and local funding and resulted in almost a 50-fold increase in the walleye harvest from the Ohio waters of Lake Erie (112,000 to almost 5 million). Sea Grant's annual charter boat conference is the largest in the country. The combination of an improved ecosystem, larger walleye populations, and business management assistance has allowed the charter fishing industry in Ohio to grow from 34 small businesses to almost 800.

Artificial Reefs. OSU faculty and their graduate students evaluated the artificial reefs biologically and economically and found that they attract 12-66 times as many fish (93% smallmouth bass) as the surrounding non-reef areas and pay for themselves economically 2.75 times per year. To date, 10 artificial reefs have been constructed between Lorain and Euclid including three when old Cleveland Browns Stadium was torn down (Sea Grant designed and supervised the project, but the City of Cleveland paid for the construction). This program has also found valuable uses for hundreds of thousands of tons of material that would have gone to landfills.

State Legislature/Congressional Days. This program began in 1982 as our Congressional Day. Several State Legislators heard about it and asked to participate in 1983. Our collaborators decided to do the first combined event in 1984. The National Sea Grant College Program has participated and lists this as a National Best Management Practice for education programs for elected officials and decision makers. This program has aided elected officials in casting more informed votes on issues affecting Lake Erie. For example, information shared at this event in 1990 resulted in six additional votes and passage of the detergent phosphorus ban in the Ohio watershed of Lake Erie in the Ohio Legislature. This reduced phosphorus loading to Lake Erie. Similar day-long events have been developed for coastal county commissioners, mayors, and decision makers.

Science Education and Outreach. Nine new courses were developed for teachers and six new introductory courses were developed that allow participation by high school students. Students have come from 360 high schools since 1990. The workshop program attracts 150 groups and 7000 participants annually. The Friends of Stone Laboratory have awarded over 900 scholarships since their formation. Students that have participated in these courses have greatly improved their management skills and are now working in federal and state agencies, school systems, and universities.

Clean Marinas Program. Forty marinas have voluntarily demonstrated compliance with 39 best

management practices and been certified as Ohio Clean Marinas with a certificate from the Governor. They use this certification in their advertising. This has helped ODNR comply with non-point source pollution reduction programs. The Sea Grant Extension Clean Marina Coordinator has developed a cooperative boat shrink-wrap recycling program that has recycled one million pounds of shrink wrap into road guardrails using a business from Marietta, Ohio (see appendix).

Sea Grant and Stone Laboratory Awards. The awards program has expanded greatly from the one award in 1991. We now offer 10 award categories and have presented 119 awards since 1991. Our partners are very appreciative of this recognition.

Regional Collaboration. The Binational Executive Committee between the US and Canada uses LEMN and GLRRIN to assist with identification of research priorities and needs, communication of research results to decision makers and the general public, communication with the regional research community, and much more. We were asked to serve as the US Co-Chair for all of these programs and the Council of Great Lakes Research Managers. These organizations have used Stone Laboratory as a meeting site. Our ability to bring together academic and agency investigators from four states and two countries around Lake Erie has been very helpful to federal agencies. We have conducted needs assessment workshops, priority setting workshops, and hosted programs for new investigators in the region. As an example of the kind of regional coordination we do, we recently hosted a series of video conferences and conference calls with 75 scientists from over 15 agencies and universities that resulted in the submission of seven coordinated research projects focusing on phosphorus pollution in Lake Erie. LEMN, GLRRIN, and GLROC are considered national models of effective regional collaboration.

Section 3.2 Impacts On University Partners

Rebirth of Lake Erie and Revitalization of the Economy. Many students received graduate degrees working on this project and have gone on to influential positions within USEPA, Ohio EPA, ODNR, NOAA, colleges and universities, etc. The charter fishing industry has elected two Sea Grant specialists to their Hall of Fame. Sea Grant and Stone Laboratory have been honored by the Governor, State Legislature, Congress, and Lake Erie Protection Fund for their role in this effort. However, we value our good relationships and partnerships with the many organizations who were involved much more highly than any awards. We played an important role, but the wonderful end result would not have been possible without the leadership and collaboration of our many partners.

Artificial Reefs. Several graduate students have used this work for their theses and several of our partners have created endowments within OSU designed to benefit Sea Grant and Stone Lab research, education and outreach.

State Legislature/Congressional Days. A line item was created in the state budget to support Sea Grant and Stone Lab research, education, and outreach in 1983 and has been in the budget annually ever since. University faculty are frequently asked to testify on issues in the Ohio Legislature and individual members of Congress and the Legislature frequently use us as a source of unbiased information regarding issues within their districts.

Science Education and Outreach. Enrollment in courses at Stone Laboratory is up more than 300%. Eighteen endowment supporting research, scholarships, outreach, and development have been created.

Clean Marinas Program. The Sea Grant Extension Program has grown from 1 agent in 1978 to 11 today through creative partnerships such as this one. These partnerships allow us to influence and be influenced by needs and opportunities within our partner agencies and organizations. This program has enabled the University to interact in a very positive way with boaters, agencies, and the marine trades industry.

Sea Grant and Stone Laboratory Awards. It is probably only somewhat surprising, but in trying to recognize and thank people and organizations for their accomplishments, hard work and support, we seem to be stimulating them to even harder work, greater accomplishments, and more significant support.

Regional Collaboration. OSU has received much recognition and prestige for the leadership role we play on LEMN, GLRRIN, GLROC, and the Council of Great Lakes Research Managers. We are frequently asked to serve on panels, speak at conferences and meetings, and lead regional groups. We serve on the Ocean Research and Resources Advisory Panel (ORRAP) for 13 federal agencies, chair the ORRAP Ocean Education Subpanel, and served on the ORRAP Research to Applications Task Force because of our success in producing high impact research results. We were asked to serve on the Extension, Outreach, and Education Work Group for the NOAA Science Advisory Board to help NOAA improve its EOE programs.

Section 3.3 Impacts on Engagement Scholarship

Bringing about the rebirth of Lake Erie, the revitalization of Ohio's coastal economy, and enhancing science education are significant issues that cannot be solved by any single group or organization. They require large and extraordinary partnerships and are most satisfactorily solved when the solutions are mutually beneficial to the partners and the issues, e.g. environmental improvement can also be good for the economy. The Sea

Grant Program and Stone Laboratory have been successful in engaging with diverse communities and in addressing these three issues by establishing extremely influential and effective partnerships in which all partners benefit and are involved, appreciated, and play important roles. From this experience, it is clear that in the best long term partnerships, the roles of the partners have to be able to change over time and with the issue that is being addressed. Furthermore, in the best partnerships, the partners must be involved from the beginning. They must collaborate on the development of the program and must remain intimately involved throughout the completion of the effort. They must also regularly review their satisfaction with the partnership and with their strategy and be willing to change midstream if the situation warrants. Good partnerships also recognize the needs of each partner and allow each of the partners to get appropriate recognition for their role. However, it also is clear that in the best partnerships, the partners agree on, and are focused on, the goal and are not out for individual recognition and rewards.

Sea Grant and Stone Laboratory have passed the 7-part test of the Kellogg Commission and shown how over 300 partners from government, academia and the private sector can work together to reduce phosphorus loading to Lake Erie, that led to ecosystem recovery, that improved water quality and increased the production of valuable fish species, that was beneficial for public health and enhanced tourism and business development, and thereby stimulated the economy. At the same time, collaborative education programs were targeting elected officials and decision makers to allow them to make more informed decisions, and science education programs were striving to attract more students to the STEM disciplines and thereby create more problem solvers and capable resource managers. Both education efforts have been successful, and more knowledgeable decision makers and more capable resource managers have resulted in further improvements to the ecosystem and coastal economy.

While the ultimate goals are being accomplished, these partnerships have also been very beneficial to the partners and to The Ohio State University—student enrollment at Stone Lab is up 300% over the 1980s, education programs now target grades four through adults, and 18 new endowments have been created to support research, education, and outreach. Based on our success in forming good partnerships and being a good partner, we have also been asked to Co-Chair a number of regional and binational research, education and outreach committees, councils, and panels. This has brought great prestige to the University.

Section 4.1: Lessons Learned and Best Practices

Trying to improve and protect the Lake Erie ecosystem, stimulate the economy, and enhance education

in partnership will over 300 organizations is a huge challenge, but we feel the benefits have been worth it to all involved: 900 scholarships, 18 new endowments, new courses at Stone Laboratory, increases in the Ohio walleye harvest from 112,000 to 5 million, 10 new artificial reefs that are attracting fish and paying for themselves 2.8 times per year, numerous graduate fellowships and degrees, improved water quality, regional and national recognition, improved STEM education, wetland preservation, and much more. While it was difficult to select the seven efforts emphasized in sections 2 and 3 above, each represents a best practice and a program that could be duplicated in other areas. However, we have learned some valuable lessens along the way.

- All partners in a partnership must benefit and be recognized and rewarded.
- Depending on the program, roles and relationships must change, i.e. sometimes you will lead and sometimes you will follow.
- Two organizations working together as a team can accomplish much more and produce a better final product that one organization alone.
- Partners who are recognized and rewarded and who feel valued and appreciated will work even harder and be better partners. However, they also recognize insincerity.
- Our State Legislature/Congressional Day has been one of the best things we have ever done. Every program should consider doing one.
- The best research is done in collaboration with the intended user, not for the intended user.
- We were very fortunate early in our development to be required to form private sector advisory committees for each of our extension staff.
- Making Stone Laboratory part of the Sea Grant Program was a huge benefit. Other states with NAML Laboratories should consider doing the same. They would benefit greatly.

Section 5.1 Future Outreach and Engagement

Trying to be a good partner has some very exciting benefits. Agencies, organizations, and individuals now seek us out as partners on programs. In this regard, we are trying to be the first state in the country to develop a joint strategic plan between its Sea Grant Program, its Coastal Management Program, state agencies, and a NOAA National Estuarine Research Reserve. We hope to develop a joint strategic and implementation plan for our programs rather than four individual plans. This is well underway and should be completed by summer.

We are entering into a new partnership with ODNR to lease the State Fish Hatchery at Put-in-Bay adjacent to the Stone Laboratory Research Building from them for $1 per year. We intend to use the facility for

research, education and outreach to the 1 million tourists who visit Put-in-Bay annually. We believe we can create internship opportunities for working in the facility for students at Stone Laboratory which will greatly enhance the quality of the learning experience for both the student and the tourist in a very cost-effective way. This will result in a more informed electorate and stimulate interest in the STEM disciplines.

We are also entering into a new partnership with National Park Service (NPS) and Perry's Monument at Put-in-Bay. They will hire two student interns from Stone Laboratory who will develop a new Lake Erie ecology program for visitors. We will also develop a Lake Erie ecology training program for the Park Service Rangers to enhance their ability to answer Lake Erie related questions from visitors. Also, in collaboration with ODNR and NPS, we are trying to develop educational tours that will include Stone Lab, Perry Monument, the Fish Hatchery, and the South Bass Island Lighthouse which is also part of Sea Grant and Stone Lab. Two Sea Grant Extension Specialists are leading this effort.

Section 5.2 Use of Award Dollars

If we are fortunate enough to win the regional and national awards we propose to use our current partnerships to immediately match them. We are sure we can do this. After leveraging the awards in this fashion, we propose place the funds into the Sea Grant and Stone Lab Outreach Endowment and use the annual interest for a student scholarship to Stone Laboratory recognizing an outstanding high school applied research project at the Ohio Academy of Science's State Science Day, and to create a new permanent awards program within our existing awards program. The new awards we are proposing would have NASULGC in the title to add prestige and would recognize:

- an top research project that demonstrates engagement and impact with private sector and/or management agency or decision-maker,
- an outstanding effort by an Sea Grant Extension Specialist or staff member for their engagement and partnership effort,
- an outstanding effort by a coastal community that both improves the environment and stimulates the economy.

Section 5.3:

Letter of endorsement from President E. Gordon Gee, The Ohio State University (Page 13)

Letter of endorsement from community partners (Page 14 and Appendix C)

THE OHIO STATE UNIVERSITY

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February 23, 2009

Ms. Jean Middleton
Chief of Staff
National Association of State Universities
and Land Grant Colleges
1307 New York Avenue, NW, Suite 400
Washington, DC 20005-4722

Dear Ms. Middleton:

As the nation's largest land-grant university, The Ohio State University is firmly committed to creating strong partnerships with our communities. The university's outreach and engagement programs directly help 1.5 million Ohioans each year, and our Ohio Sea Grant Program and F.T. Stone Laboratory exemplify that commitment to our citizens.

When the Cuyahoga River in northern Ohio caught fire in 1969, the State Legislature and local communities looked to Ohio State and the expertise of our faculty to find a solution to Lake Erie's escalating pollution problems. Over the years, the Ohio Sea Grant Program and Stone Laboratory have exercised the perfect synergy of research, education, and outreach efforts to bring academia, government, and private sector partners together, not only to help find solutions to a mounting environmental problem, but also to provide the coastal Lake Erie communities with long-term support as they worked to address the pressing environmental issues that directly affected economic development in the area.

To foster the lake's recovery and restore its ecosystem, the Ohio Sea Grant Program and Stone Laboratory worked with coastal communities to construct artificial reefs in Lake Erie that provide food, shelter, protection, and spawning habits for fish, resulting in a reinvigorated fishing industry. With the formation of numerous partnerships in the area, the Ohio Sea Grant Program and Stone Laboratory have been working to find innovative solutions to clean the drinking water supply, increase fish production, and boost Lake Erie's tourism industry.

To ensure that tomorrow's leaders are able to respond to Lake Erie's continued needs, the Ohio Sea Grant Program, Stone Laboratory, and their numerous partners work together to educate students and teachers. Through its 25 college credit courses, teachers as well as high school and college students are trained on all aspects of Lake Erie science. Hands-on fieldtrips and workshops bring science to life for more than 7,000 students (grade four through adult).

"A Coastal Collaboration: Restoring a Great Lake Ecosystem and Revitalizing an Economy" is a shining example of how a University can come together with the community to solve very complex issues that have long-term societal, environmental, and economic implications. We are extremely proud of this initiative and believe it clearly demonstrates what it means to be a 21st century land grant-engaged university. I strongly endorse this application for the 2009 C. Peter Magrath Engagement Award.

Sincerely,

E. Gordon Gee
President

February 28, 2009

Ms. Jean Middleton
Chief of Staff
NASULGC
Suite 400
1307 New York Avenue, NW
Washington DC 20005-4702

Dear Ms. Middleton:

It is appropriate that as The Ohio Sea Grant College Program, including Stone Laboratory, celebrates its 30th anniversary, it also receives recognition by The Ohio State University as its nominee for the C. Peter Magrath Engagement Award. Stone Lab is this country's oldest biological field station, and it, along with the Ohio Sea Grant College Program, has been an instrumental partner in bringing about the rebirth of Lake Erie, the revitalization of our coastal economy, and significant improvements in the quality of education in the STEM disciplines.

The program has accomplished this by creating innovative partnerships and collaborations with local governments, state and federal agencies, a multitude of universities, many businesses and industries, non-governmental organizations, and private individuals. We, the undersigned, are pleased to have been engaged with Sea Grant and Stone Lab on numerous programs and projects over the years. On many projects, we have been inspired by Sea Grant's leadership, sometimes they have been a collaborator and member of our team, and at other times we have simply sought and used their unbiased science-based information and opinion to improve our programs and projects.

Many of us gladly serve on Sea Grant and Stone Lab's numerous advisory committees and freely contribute many hours of our time to their valuable programs. This is clearly an action-oriented program that uses information, education, and research to bring about significant changes and improvements on Ohio's north coast. We have been pleased to use and partner with this program. Undoubtedly Sea Grant strives to focus its attention to the needs of local communities, businesses, and resource managers. We are very pleased with, and fully support, the nomination of this fabulous program for the 2009 Peter C McGrath Engagement Award.

Sincerely,
See complete list of supporters in appendix C (page 20)

Appendix A

Ohio Sea Grant and Stone Laboratory

Restoring a Great Lake Ecosystem and Revitalizing an Economy

For more than 30 years, the Ohio Sea Grant College Program has worked with its university, governmental, and private sector partners to lead projects that have brought research, education, and outreach together to help restore Lake Erie, Ohio's most important natural resource. Below are several partnered projects that are creating that impact and helping Ohio State University empower the citizens of Ohio and the Great Lakes region.

Environmental Protection and Economic Development Can Go Hand-in-Hand

Primary Partners: City of Sandusky, ODNR, U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, Ohio Sea Grant

In the early 1980s, a 110-acre condominium, hotel, restaurant, and marina development on Pipe Creek in Sandusky was held up because 17 acres of wetland would be destroyed. The City of Sandusky asked Sea Grant for help. By showing them the benefits of a human-made wetland on the other side of the creek, Ohio Sea Grant proposed a project that would also protect the city's water treatment plant from erosion and provide a depository for dredged material from marina construction. Upon project completion Sea Grant was hired to manage and evaluate the new wetland for several years before it was turned over to the Ohio Department of Natural Resources (ODNR) as a permanent wildlife refuge. In the end, a 17-acre wetland was lost and replaced by a 94-acre wetland that has attracted a threatened species of tern, bald eagles, numerous other plants and animals, and more than $100 million in economic development.

Clean Marinas Program Produces Valuable Products from Marina Waste

Primary Partners: Ohio Sea Grant, Lake Erie Marine Trade Association, ODNR, Mondo Polymer, Inc.

As protection against the winter elements, plastic shrink wrap is used to enclose boats stored outdoors in many Great Lakes communities. Disposal of this plastic in landfills comes at a high cost for marinas and the environment. Ohio Sea Grant's Clean Marinas Program with its partners Lake Erie Marina Trade Association and Ohio Department of Natural Resources identified an Appalachian-area Ohio company, Mondo Polymers Inc., that now recycles the shrink wrap into plastic blocks used to construct highway guardrails. As a result, more than 1 million pounds of shrink wrap and greenhouse plastic have been recycled in guardrails that now protect nearly 200 miles of Ohio's highways. This effort has not only created jobs in an area outside Lake Erie, but has produced a reusable product and saved Ohio taxpayers and individual marinas money and reduced the volume of material going to landfills.

Recycled Rubble Attracts Fish and Fishing Dollars

Primary Partners: City of Cleveland, Polish Fisherman's Club, Cuyahoga County Commission., Ohio Sea Grant

Ohio Sea Grant's private sector advisory committees identified the need to increase sport fishing opportunities and sport fishing economic impact in Lake Erie's central basin near Cleveland. Using economic incentives and donated materials, Sea Grant constructed 10 artificial reefs between Lorain and Cleveland, including the old Cleveland Municipal Stadium rubble, in partnership with local communities, businesses, clubs, and state agencies. Sea Grant research has shown that the reefs attract 12 to 66 times as many fish as non-reef areas and continue to pay for themselves 2.75 times each year from sport fishing revenue.

Research Partnerings Help to Solve Lake Erie's Pollution Problems

Primary Partners: U.S. EPA, NOAA, OEPA, ODNR, Environment Canada, IJC, Ohio Sea Grant

For more than 30 years, Ohio Sea Grant and Stone Lab have collaborated with regional lake governing agencies as well as university researchers to investigate why dead zones—areas with little or no oxygen—occur in Lake Erie. These dead zones and now the increasing presence of harmful algal blooms affect not only fish and plankton communities, but the 11 million people who rely on Lake Erie for their drinking water. Thanks to these partnered research initiatives, scientists are discovering what factors fuel the frequency and duration of the dead zones, as well as creating new Sea Grant technology to remove toxins that algal blooms release.

Improving Lake Erie Access Creates Quality Communities

Primary Partners: City of Mentor, ODNR, OEPA, Cleveland Museum of Natural History, local citizens on the Marsh Board, ODNR, Ohio Sea Grant

Ohio Sea Grant helped the City of Mentor acquire Mentor Lagoons to increase public access to Lake Erie. For the City of Mentor, spending more than $10 million to acquire the 450 acres of beach, marsh, forest, and a little-used marina was controversial. Ohio Sea Grant facilitated awareness of alternative public vs. private land uses, provided technical information for public debate, and helped organize and empower local interest groups. In 1996, Mentor citizens voted to acquire the property. The city now owns and manages a 500-dock marina and a lakefront nature preserve. In 2006, Mentor was named "One of the 100 Best Places to Live in America" by *Money*© magazine.

Protecting Lake Erie by Cleaning Up its Tributaries

Primary Partners: US EPA GLNPO, OEPA, US Army Corps of Engineers, Ashtabula City Port Authority, Ohio Sea Grant

Ohio Sea Grant was a founding partner of the Ashtabula River Partnership (ARP) in 1994, a partnered effort of dozens of individual citizens and more that a score of businesses, industries, consultants, and local, state and federal offices including the US EPA GLNPO, Ohio EPA, US Army Corps of Engineers, and Ashtabula City Port Authority. Sea Grant helped the ARP achieve its long-term goal of removing more than 635,000 cubic yards of contaminated sediment from the Ashtabula River. Completed in 2008, this $75 million effort will protect Lake Erie from contamination, allow increased commercial shipping, and provide new tourism business opportunities. To date this is the largest environmental cleanup funded by the Great Lakes Legacy Act.

Science Improves Lake Erie Fishing

Primary Partners: ODNR, Great Lakes Fishery Commission, Ontario Ministry of Natural Resources, Ohio Sea Grant

Learning more about the Lake Erie fishery helps identify challenges, as well as solutions, for keeping our fishery the most productive in the Great Lakes. By examining DNA strands, Sea Grant scientists identify spawning grounds and behaviors of walleye and yellow perch, providing valuable insight for fisheries management. DNA sequencing has also helped determine the origins of invasive species, such as round gobies and zebra mussels. Sea Grant scientists have shown how zebra mussels can accumulate harmful contaminants, transferring them to round gobies and then to smallmouth bass when the gobies eat the mussels and the bass eat the gobies. Other Sea Grant scientists have demonstrated new technologies to more accurately determine the age of fish. They've increased production in state fish hatcheries five-fold without increasing costs and are working diligently on new technologies to vaccinate fish against dangerous diseases.

Charter Captains Gain Business Tools to Lure New Customers and Profits

Primary Partners: ODNR Division of Wildlife, Lake Erie Charter Boat Association, Lake Erie Coastal Ohio, Ohio Sea Grant

The annual Ohio Charter Captains Conference helps Lake Erie charter boat businesses be more successful through training in business management, marine technology, regulatory requirements, and environmental issues. Surveys of attending captains show that 70% achieved higher profitability by implementing practices and information learned at the conference. And 96% of the captains report the adoption of improved business practices from the program. This helps many of Ohio's nearly 800 charter captains remain successful during periods of economic uncertainty, allowing their customers to spend more than $52 million per year in restaurants, hotels, retail shops, bait shops, and other are businesses. The Conference is developed each year through a partnership with Ohio Sea Grant Extension, the Ohio Department of Natural Resources – Division of Wildlife, the Lake Erie Charter Boat Association, the National Oceanic and Atmospheric Administration, and Lake Erie Coastal Ohio.

Stone Lab Hooks Students on Science

Primary Partners: Ohio Sea Grant, 15 OSU colleges and departments

As Lake Erie's living laboratory, Stone Laboratory with its 15 Ohio State University partners offer 25 STEM college-credit courses each summer to teachers, college students, and superior high school students. More than 1,500 students from 22 universities and colleges around the country have participated since 2000, while its aquatic science workshop and field trip program have brought science to life to more than 1,300 groups (49,000 participants) from grades 4 through adults. With the assistance of the Friends of Stone Laboratory, our advisory committees, and private donors, the program has since 2000 awarded scholarships to 211 college students and 121 high school students.

Lawmakers See, Touch, and Experience Lake Erie

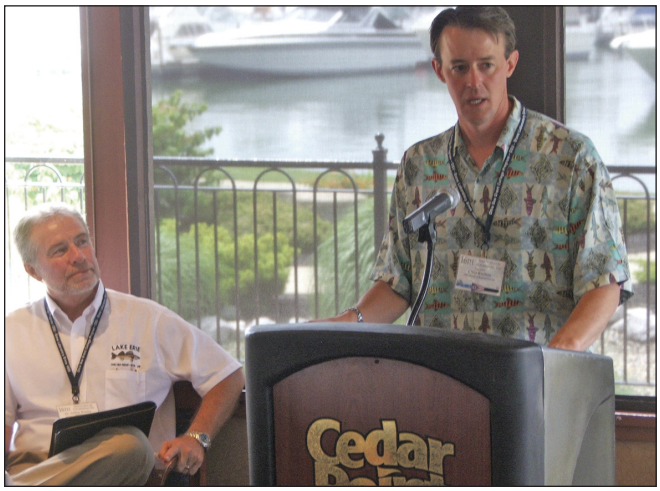
Primary Partners: Ohio Sea Grant, Cedar Point, Jet Express, charter captains, Ohio Wine Producers, county visitor bureaus, Friends of Stone Lab

State and federal lawmakers make important decisions every day that ultimately impact our Great Lake. To help these elected officials better understand the issues, Ohio Sea Grant has hosted Legislature Days since 1982. Hosted by private sector advisory committees, the Friends of Stone Lab, and local businesses, more 150 people attend this biennial event. Policymakers not only hear about the challenges and opportunities facing the region's environmental health and economy, but get the chance to appreciate the lake by participating in interactive activities. Recognized as a "Best Management Practice" by the NOAA Sea Grant Program, this hands-on educational program has significantly helped elected officials to cast more informed votes on a number of key programs and issues affecting Lake Erie and Ohio's aquatic resources.

Leadership Academy Encourages Good Government

Primary Partners: Ohio Sea Grant, OSU Community Development, County Commissioners Association of Ohio, Ohio Township Trustee Association, Toledo Area Chamber of Commerce

Good government is the goal of the Local Government Leadership Academy in Toledo. Developed by Ohio Sea Grant Extension through partnerships with OSU Community Development, the County Commissioners Association of Ohio, Ohio Township Trustee Association, and the Toledo Area Chamber of Commerce, this 10- week course helps elected officials improve their skills to become better community leaders. More than 150 people have participated since 2002, when the academy



graduated its first class, including mayors, State Senators, and State Representatives. Sea Grant has assisted many other Ohio counties in developing similar programs.

Faculty Research Shape Lake Courses and Future Scientists

Primary Partners: Ohio Sea Grant, Stone Lab, scientists from 19 universities from region

Ohio Sea Grant and Stone Lab faculty take what they learn from their Lake Erie ecosystem research and bring it directly into course curricula taught at Stone Lab, as well as the research techniques they teach to their undergraduate and graduate research students. Courses such as Stone Lab's Field Zoology, Aquatic and Wetland Flora, and Fish Ecology have all been shaped based on the research scientists have discovered through Sea Grant and Stone Lab research projects on Lake Erie issues.

Appendix B

National Program Assessment Team Evaluations: 2000 & 2005

Unlike many academic and outreach/engagement programs of the university, the Ohio Sea Grant College Program, in receiving funding from NOAA within the Department of Commerce, is evaluated by the federal government according to "priorities, guidelines, and qualifications established by the Secretary of Commerce." The level of merit funding to each state Sea Grant program is set by the results of these evaluations. In the past, NOAA Sea Grant used site visits conducted by a Program Assessment Team (PAT) comprised of experts within NOAA, the Sea Grant network, and its national advisory committees to conduct these evaluations. The PAT rates program performance within four categories—1) Organizing & Managing the Program, 2) Connecting with Users, 3) Effective & Aggressive Long-Range Planning, and 4) Producing Significant Results—which are further divided into 14 sub-elements.

Ohio Sea Grant's outreach and engagement activities and its engagement of diverse partnerships are consistently rated very highly in national reviews. Based upon our 2000 PAT visit, Ohio Sea Grant was accorded a "'Category One' rating, reserved for the highest performing programs." "The PAT believes that the Ohio Sea Grant College Program is so outstanding that it deserves the highest possible overall rating of Excellent." We again fell into the highest category possible following the 2005 PAT review, being rated as "Highest Performance" in 12 of 14 sub-elements (including all those under "Connecting with Users", "Producing Significant Results", and "Organizing & Managing the Program") and "Exceeds Benchmark" in the remaining two. "The impact of Sea Grant in the state of Ohio in relation to its resources is enormous" (2005). The PAT holds Ohio Sea Grant as "a compelling example of how a small...program can, through focus and an active network of partnerships, leverage its resources to have a disproportionately large impact."

The PAT has rated Ohio Sea Grant's connectivity to our program's users as "**Excellent**" (2000) and "Highest Performance" (2005) and sees "Connecting with Users" as our "strongest component." "A major strength of the Ohio Sea Grant College Program is its broad partnerships with diverse groups and its ability to engage with the user community", especially in the fact that we have been "extremely effective in working with advisory committees to identify critical issues, explore approaches to addressing issues, and in generating support for Sea Grant programs" (2005). The 2005 PAT singled out several programmatic highlights "demonstrating successful efforts that have benefited user communities": sport fishing (through our Ohio Charter Captains Conference and educational programming for new target audiences of women, youth, and underserved clientele), marinas and boaters (through our Clean Marinas and Clean Boater programs), local communities (through economic development and business retention/expansion, mayfly composting, and the Mentor Marsh Special Area Management Plan), government agencies and local government (through our influence on Ohio fishing regulations, our Local Government Leadership Academies, and collaborative Coastal Training Program) and public education (through our electronic Lake Erie Discussion Board, workshops and educational events, our newsletter *Twineline*, and youth and teacher education programs at Stone Lab).

"Producing Significant Results" by Ohio Sea Grant is consistently rated as "Highest Performance" by the PAT (2005). Our State Legislature/Congressional Day has been recognized nationally as a "best management practice" for being a "highly effective way of communicating the benefits and problems" of Lake Erie (2000). The PAT also cited our research as influencing management practices of the Ohio Division of Wildlife to enhance fisheries to the benefit of the public of Ohio. We have also led the way in curriculum development and teacher education. "Students receiving this integrated approach have shown significant improvements in content area proficiency test scores" (2000). The tremendous success of our artificial reef program led the City of Chicago to "justify and carry out a similar...project" (2000).

PAT members, 2000

- Dr. John S. Toll, PAT Chair, National Sea Grant Review Panel; Washington College & University of Maryland
- Dr. Stephen B. Brandt, Director, Great Lakes Environmental Research Lab, NOAA
- Dr. Nancy H. Bull, Assoc. Dean for Outreach & Public Service, University of Connecticut
- Dr. Ronald K. Dearborn, Director, Alaska Sea Grant College Program
- Dr. Judith S. Weis, Professor, Rutgers University; National Sea Grant Review Panel
- Dr. Leon M. Cammen, *Ex Officio*, National Sea Grant Office, NOAA (current Director, National Sea Grant College Program)

PAT members, 2005

- Dr. Jerry R. Schubel, PAT Co-Chair, National Sea Grant Review Panel; National Academy of Science; President & CEO, Aquarium of the Public
- Dr. Frank L. Kudrna, Jr., PAT Co-Chair; CEO, Kudrna Assoc. Ltd.
- Dr. William E. Frost, Program Leader, University of California Division of Agriculture & Natural Resources
- Dr. Robert R. Stickney, Director, Texas Sea Grant College Program, Texas A&M University
- Dr. William L. Stubblefield, Rear Admiral, NOAA (Ret.)
- Jonathan Eigen, *Ex Officio*, Program Monitor, National Sea Grant College Program
- Jamie Krauk, *Ex Officio*, Program Director-Communications, National Sea Grant College Program
- Dr. Keith Criddle, Professor/Former Head, Dept. of Economics, Utah State University
- Jennifer Greenamoyer, Director of External Affairs, Sea Grant Association

Appendix C

Ohio Sea Grant and Stone Laboratory Supporters

Full list of supporters for the 2009 Peter C McGrath Engagement Award nomination

Ann Moore, Chair, Lucas County Sea Grant Advisory Committee

Beverley Ritchie, Great Lakes Sr. Policy Advisor, Ontario Ministry of Natural Resources

Bob Kneisley, Chairman, Point Place Business Association

Bob Martin, Director of Parks, Recreation & Public Facilities, City of Mentor

Capt. Bob Hesse, Rod Bender Charters

Capt. Gary Jennrich

Capt. Paul Pacholski

Capt. Ron Lamont

Capt. Walt Morris, Central Basin Charter Boat Association and the West Cleveland Walleye Association

Carl J Anderson, Ashtabula River Remedial Action Plan

Carol Stepien, Ph.D., Director, Lake Erie Center, University of Toledo

Carole Clement, Member, Mentor Marsh Board

Carrie Handy, Chief Planner, City of Sandusky, Department of Development

Cathy Miller, Tourism Specialist, Toledo/Lucas County Convention and Visitors Bureau

Chris Stanton, Baldwin-Wallace College, Department of Biology and Geology

Connie Durdel, Executive Director, Sandusky County Convention and Visitors Bureau

Darci Sanders, Lake Erie Nature and Science Center

Ed Hammett, Executive Director, Ohio Lake Erie Commission.

Edith Conzett, Mentor Marsh Board

Elizabeth Hinchey Malloy, Ph.D., Great Lakes Ecosystem Extension Specialist, IL-IN Sea Grant, Purdue University

George Elmaraghy, Chief, P.E. Ohio EPA, Division of Surface Water

Glenn T. Grisdale, AICP, GISP; Principal, Reveille, Reveille and the Zande Companies

Grant Brockway, President, Brockway North Coast Marine

Greg White, Sport Fisherman

Hans Rosebrock, Senior Economic Development Representative, First Energy in Toledo

Harry Allen, Lake County Port Authority

Herb Hoehing, Executive Vice-President, Sylvania Area Improvement Corporation

Jamie Kochensparger, Lucas County Conservation District

Jason Boyd, Lake County Coastal Plan Committee

Joan Bradley, Friends of Stone Lab

John Konrad, City Manager, City of Mentor

Joseph David Conroy, Ph.D., Post-Doctoral Researcher, The Ohio State University

Kathryn Kwiatkowski, Case Western Reserve University, Center for Science and Mathematics Education

Ken Martin, Chair and Associate Director, Programs - Department of Extension, Ohio State University Extension

Kenneth J. Alvey, President, Lake Erie Marine Trades Association (LEMTA)

Larry Fletcher, Executive Director, Ottawa County Visitors Bureau

Linda Koss, Grants Specialist, Toledo-Lucas County Public Library

Lindsay Webb, Toledo Councilwoman, City of Toledo

Lisa Brohl, Chair, Lake Erie Islands Chapter, Black Swamp Conservancy

Lydia Bailey, Treasurer, Friends of Stone laboratory

Lyndsey Manzo, Science Teacher, Westerville City Schools

Marc Hudson, President, Western Basin Sportfishing Association, LLC

Mark V'Soske, President, Toledo Regional Chamber of Commerce

Mike Beasley, County Administrator, Lucas County, Ohio

Mike Solberg, President, Huron Lagoons Marina, Inc.

Norm Schultz, Executive Director, Boating Association of Ohio (BAO)

Orrin Leimbach, Owner/Operator, Endoway Farms

Ottawa County Improvement Corporation - Jamie Beier-Grant, Director

Rick Brown, North Coast Marine Services

Rick Nemecek, President, Nemecek Insurance & Financial Services

Robert Kneisley, Pension Consultant

Rochelle Sturtevant, Regional Sea Grant Specialist - Outreach, Ann Arbor, MI

Roderick Dunn, President, Ohio Lake Management Society

Ron Kister, Chair, Ashtabula City Port Authority

Rosanne W. Fortner, Director, COSEE Great Lakes

S.D. "Bapu" Gokale, Assistant Naturalist, Mentor Marsh Board

Sandra Drabik, University of Toledo

Sandy Bihn, Waterkeeper, Western Lake Erie Waterkeeper Association

Susan Zies, Extension Educator, FCS - County Director, Lucas County

Sylvia Jayne, Chair, Mentor Marsh Board

Tom Humphries, President, Youngstown Regional Chamber of Commerce

Virginia M. Park, Ottawa County Recorder and Bay Township Trustee

Warren McCrimmon, Sea Port Director, Toledo-Lucas County Port Authority